5-13-2022

A Mixed-Methods Study Examining the Difference Between Closed Captioning and Lexile Levels

Jim Pruitt

A Mixed-Methods Study Examining the Difference Between Closed Captioning and Lexile Levels

by

Jim Pruitt

A Dissertation submitted to the Education Faculty of Lindenwood University

In partial fulfillment of the requirements for the

Degree of

Doctor of Education

School of Education

A Mixed-Methods Study Examining the Difference Between

Closed Captioning and Lexile Levels

by

Jim Pruitt

This dissertation has been approved in partial fulfillment of the requirements for the degree of

Doctor of Education

at Lindenwood University by the School of Education

05/13/2022

Dr. Kilinyaa Cothran, Dissertation Chair — Date

Sherrie Wisdom

05/13/2022

Dr. Sherrie Wisdom, Committee Member — Date

Lynda Leavitt, EdD

05/13/2022

Dr. Lynda Leavitt, Committee Member — Date

Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work here at Lindenwood University and that I have not submitted it for any other college or university course or degree here or elsewhere.

Full Legal Name: Jimmy Lee Pruitt

Signature:  Date: 05/13/2022

Acknowledgements

Conducting research and writing a dissertation is a daunting task and not for the faint of heart. From the countless hours of research, brainstorming of ideas, committee meetings, and constant editing; this is a time intensive and stressful process. However, this is not a challenge conducted alone. It truly takes a village of supporters to cross the finish line and I have been blessed to have a wonderful group of people helping along this path. I would personally like to thank the following people for helping me along this journey:

Margaret Pruitt - For your boundless love and countless phone calls of encouragement**.**

Karissa Curtis - For being a great partner through the highs and lows of this process**.**

Ezra Tillotson - For radically changing my life and steering me into a career in academia.

Drill Sergeant Blank - For instilling in me an unyielding military discipline.

Dr. Kilinyaa Cothran - For your constant encouragement and editing all the drafts**.**

Dr. Robyne Elder - For helping me keep the momentum going and for your encouragement.

Dr. Kelly Manning - For your kind words and presence during the difficult times**.**

Dr. Sherr**ie** Wisdom - For the countless hours you spent editing my work**.**

Dr. Lynda Leavitt - For challenging me to become a better researcher and writer**.**

Dr. Shane Schlueter - For granting me the ability to do research within the building**.**

Dr. Curtis Cain - For granting me the ability to do research within the district**.**

Sean Walter - For being a great problem solver and developing a great schedule**.**

Jennifer Hess - For helping me translate the raw numbers into a story**.**

Gerardo Jimenez - For helping me keep my sanity throughout this whole process**.**

Abstract

This experimental mixed-methods study explores what happens to student Lexile scores when they use closed captioning. Since the emergence of closed captioning tools in the 1980s, closed captioning has become more mainstream and easier to access today than at any other time in history (Rickelman et al., 1991). Thus, it is through harnessing this technology and bringing it into the classroom setting that the researcher of this study hopes to provide new approaches for educators that want to improve their student Lexile levels, while also incorporating the SAMR model within our increasingly technologically-focused classrooms (Crompton & Burke, 2018).

The quantitative data analysis procedures involved in this experimental study consisted of utilizing two-sample *t*-tests to compare the iReady Lexile scores of the participants [n=38] to that of the researched district students [n=810] that were not using closed captioning in this study. The researcher required participants to complete a baseline iReady test to determine their preexisting Lexile levels. Then after the study, participants both in the researched district and in the study, itself were required to complete an iReady post-test to determine their respective Lexile growth in the four areas of reading, which are overall growth, vocabulary, comprehension of literary text, and comprehension of informational text. The independent variable in this study was the use of the enabled closed captioning tool found on the participants' devices. The dependent variable was the Lexile scores that were computed using the iReady Lexile exam.

The researcher collected the qualitative data using a variety of observational logs, personal interviews, and pre- and post-surveys that the researcher disseminated to students using the *Qualtrics* system. Once these data were collected, theming and

phenomenology analysis were used to identify themes and student emotions/reactions that emerged throughout this study. The themes that emerged from participants involved in the study included the belief in increasing Lexile levels, no effect on vocabulary, and enjoyment of using closed captioning.

Table of Contents

List of Tables

List of Figures

Chapter One: Introduction

Introduction

In modern academia, today's English Language Arts (ELA) have established learning targets that require students to hone and develop academic skills in the specific area of reading. Teachers utilized a variety of best practices, including independent book reading, creating annotations, engaging in book talks, and taking standardized exams for districts to assess their knowledge (Gallagher, 2015). However, one of the biggest obstacles in modern classrooms that is preventing students from actualizing their reading achievement is the distraction that comes from technology (Moore & Richards, 2019). Today's students are just a notification away from losing focus in their book to respond to a text, play games, or watch shows and movies instead of engaging with their independently selected book. Researchers Garakouei et al. (2020) provided insight into the negative consequences regarding the constant time students spent on their devices. In their study, Garakouei (2020) wrote, "It is predictable that people who spend a lot of time on cell phones cannot afford enough time for their work assignments due to lack of concentration and fatigue, thereby facing academic failure and feeling lonely" (p. 128). The findings from this study reveal the consequences that come with cell phone addiction and the challenges that today's educators face when attempting to help students reach their learning goals, which in the case of English Language Arts (ELA) teachers, is improving student reading abilities.

Education today is similar to that of educational systems in the past. The goal of education historically has been to equip students with the skills they will need to navigate an increasingly complex society. Researchers Momanu et al. (2018) wrote that education

serves to prepare students for "changing social conditions derived from urban development and industrialization, and changes in women's social roles" (pp. 266-267). Thus, the focus on education has remained constant in that societies use education as a means to prepare their citizens for successful integration into their respective societies.

Author Reynar (1658) described the importance of ELA in the year 1658, in which Reynar wrote in the famous book, *Rules for the Government of the Tongue,* that "right words carry authority and efficacy in them; such a force, as none can stand against; for they have the strength of Reason, wisdom, truth, and righteousness in them; which are the sinews of invincible forces" (as cited in Mann, 2021, p. 61). If society is going to send out young adults into the world, then educators in the past and today must prepare students with these skills that students need to enter the world with a proficient degree of reason, wisdom, truth, and righteousness as Reynar wrote about in 1658.

What has changed though throughout the years of education is the technology used by both students and teachers. Gone are the days of having students write on primitive tools, such as papyrus paper (Sabar, 2021). Instead, today's classrooms are becoming increasingly tech-reliant and incorporating the use of the SAMR model to smoothly integrate technology and learning (Crompton & Burke, 2018). One such piece of technology that has emerged is the use of closed captioning. Since the 1980s, closed captioning use has been perceived primarily as a tool to assist the deaf or hard-of-hearing (Yuknis et al., 2017). However, researchers have also been using this form of technology in an attempt to increase reading scores, since its emergence in the 1980s (Goldman & Goldman, 1988).

What is different in this study is instead of having the researcher wheel in a TV and have all students watch the same pre-selected media for viewing, students utilized their modern devices to watch films and shows, while enabling the closed captioning tool. The idea of this study was to tap into existing student interest to harness their technology into making meaningful gains in the areas of reading. This study required students to select independent TV shows and films, view this media using closed captioning and then measure how closed captioning influenced their areas of reading, through the use of the iReady reading exam that disseminated their growth scores into four areas; overall reading, vocabulary, comprehension of literary text, and comprehension of informational texts.

Rationale of the Study

The theoretical framework used to guide this study is that of cognitive learning theory. Researchers Winn et al. (2019) wrote, “Cognitive learning strategies are strategies that improve a learner's ability to process information more deeply, transfer and apply information to new situations, and result in enhanced and better-retained learning” (para. 1). By having students read and watch material, in which they have a pre-existing interest, the concept was that students would process the information on a deeper level, in which their comprehension, vocabulary levels, and overall reading levels would demonstrate a significant level of growth. To ensure that students utilized the closed captioning feature, operant conditioning was used, in conjunction with cognitive learning theory to further reinforce the learning of the material that they self-selected.

With regards to why this research and why now, 20-year veteran teaching and reading specialist Gieselmann stated (2021), “One of the goals in the teaching of ELA at

the secondary level in this district is to increase reading levels" (2021). Lexile level exams are an assessment, in which levels of reading ability are measured to determine the progress of students meeting this goal for secondary educators. ELA veteran teacher and author Gallagher (2015) also asserts the need to increase student Lexile reading levels. In the book, *In the Best Interests of Students*, Gallagher (2015) wrote that concerning instruction in the area of ELA, there are four areas of focus. These areas are writing, critical thinking, public speaking, and reading (Gallagher, 2015). To help students improve in these four areas, innumerable research has been conducted over the years in an attempt within the education community to develop best practices to provide educators with the tools needed to help their students achieve growth in these areas. One of these best practices is the use of independent reading within the classroom. Influential ELA author, Gallagher (2009), discussed this practice in the book *Readicide,* in which Gallagher (2009) wrote that students need "what all readers need when they read: access to great books and large doses of uninterrupted time to read them" (p. 73). It is through the use of independently selected books and dedicated reading time that educators hope to see growth in the area of reading for their students. Thus, teachers set aside a specific amount of time to provide ample opportunity for their students to dive into their books and start growing their reading skills. These ideas by Gieselman (2021) and Gallagher (2009) provide a rationale for not only why reading is important, but also why dedicated time is essential to having students read independently for an extended period.

The focus for teachers in ELA to help their students improve their reading abilities is a desire containing a lot of history. Authors Block and Mangieri (2002) published an article titled "Recreational Reading: 20 Years Later" in

which they wrote about the need to help students develop their reading skills and the strategies that teachers have implemented over the span of 40 years. In Block and Mangieri's (2002) work, they wrote,

> students who spent more time in recreational reading activities (a) scored higher in comprehension tests, in grades 2, 4, 8, 12 (b) had significantly higher-grade point averages; and (c) developed more sophisticated writing styles than peers who did not engage in recreational reading. (pp. 572-573)

The quote from this source from 2002 illustrates that over 40 years, teachers have realized the importance of helping students develop their reading skills in an attempt to help them achieve higher academic gains ranging from improved GPA, writing style development, and comprehension of both literary and informational texts. This study is a continuation of the work that has been occurring for quite some time in the area of reading.

Closed captioning first came into use during the 1980s and which educators theorized at the time as having the potential to be used as an assistive tool to help elementary students improve their reading skills (Rickelman et al., 1991). Eight years later, researchers Goldman and Goldman (1988) also conducted a study focused at the high school level, in which students viewed closed-captioned material on a television screen brought into the classroom "once or twice a week." In their study, Goldman and Goldman (1988) found that "(a) comprehension usually remained at 70% or higher (b) students attended class more regularly (c) greater time on task was evident during the viewing and discussions and (d) students displayed more interest and motivation for learning in general" (p. 458). This source demonstrated that harnessing the use of closed-

captioned tools has been a concept that has been around since closed captioning first came into being. This study hoped to replicate the on-task behavior, high attendance, and increased comprehension found in the Goldman study, while incorporating student choice within the viewing of the material. Today's students have greater access to technology than what was available during the 1980s. Where this study differed and contributed to the body of research, is that rather than having all students view the same closed-captioned material "once or twice a week," as seen in the Goldman and Goldman (1988) study, participants in this study viewed self-selected TV shows or movies that they watched 20 minutes per day over the course of the six-week study.

More recent research in the area of closed captioning and reading scores found in the study by Pujadas and Muñoz (2019), in which they found that when foreign language learners utilized this tool; these users came away from the study with a higher proficiency when studying a foreign language with the use of closed captioning (p. 479). Author, Lavery (2019) wrote that "Closed captioning can also be beneficial to those with autism and intellectual developmental disorders" (p. 99). Authors, Yuknis et al. (2017) in their study wrote that "closed captioning provides deaf students with access to the words that are being spoken as well as important sounds that are part of a video" (p. 70).

Additionally, recent research has attempted to move the learning experience from viewing a screen from afar, which is the focus of this study through the use of closed captioning, to that of a more immersive experience through the use of AR (Augmented Reality) technology. This idea of improving comprehension through the use of technology implementation is in alignment with the SAMR module, which guided the research for this study (Crompton & Burke, 2018). Researchers, Thees et al. (2020)

wrote, “The interplay between the scientific theoretical background and the interpretation of the observations during the analyses might have been the crucial point for conceptual knowledge acquisition in this context” (p. 6). The results from this study revealed no significance in comprehension scores through the use of learning through the immersive AR experience. Factors including prohibitive costs of the AR headsets and the limited number of participants suggests that learning through the use of video experiences, whether through future use of AR technology or more cost-effective use of current closed captioning media devices, is not only relevant but necessary, as schools continue to incorporate technology into modern classrooms.

It is when reviewing the literature available on the topic of improving reading levels (comprehension, vocabulary acquisition, Lexile levels) that it is apparent that a noticeable gap in knowledge exists when conducting a review of the literature on this subject of increasing Lexile levels at the high school level through the use of the closed captioning tool (See Appendix P). There is a real need for ELA teachers to continue to help students reach their learning goals through the use of current closed captioning, as well as an emerging technology. Thus, the findings of this study contributed to this gap in research, as well as answered the guiding research question for this study, which is, “What happens to student Lexile levels when they use closed captioning?”

Purpose of Study

The purpose of this study was to determine if there is a difference between students' Lexile scores that use closed captioning and those that do not use closed captioning. One of the goals that ELA educators have as a department is to increase the Lexile levels of our students. To identify whether a relationship exists between the use of

closed captioning and Lexile level increase, students completed a pre- and post-test using the iReady Lexile test within the researched school district. The researcher also required students to complete a survey, in which the participants wrote about their closed captioning experience. The results from the participants' iReady pre- and post-test data were then compared to the growth levels of students across the district to see what happens to student Lexile levels when they used closed captioning. The researcher intended to add to the existing body of knowledge on the use of closed captioning and Lexile levels in a secondary education setting.

Research Questions and Hypotheses

In the creation of this study, several research questions emerged that the researcher sought to answer using a variety of tools and instrumentation. The results and implications for each of these questions are found in Chapters Four and Five, respectively. The research questions that guided this study are as follows:

Research Question 1: What happens to Lexile scores when students use closed captioning?

Research Question 2: What happens to students' vocabulary acquisition when they use closed captioning?

Research Question 3: What happens to the reading comprehension of literature scores for students that use closed captioning and those that do not?

Research Question 4: What happens to students reading comprehension of informational text when they are exposed to closed captioning?

Null Hypotheses

For each of the research questions that the researcher sought to answer, a null hypothesis was created and tested using the quantitative data collected from the use of the iReady reading exam. The iReady exam analyzed student responses and measured their reading abilities in the four areas of reading, which are overall reading ability, vocabulary, comprehension of literary texts, and comprehension of informational texts. The results of these null hypotheses and recommendations for future research are found in Chapters Four and Five, respectively. The null hypotheses used in this study are as follows:

Null Hypothesis 1: There is no difference in Lexile scores between those that use closed captioning and those that do not as measured by the iReady exam (Lexile score).

Null Hypothesis 1B: There is no difference in Lexile scores between those that use closed captioning and those that do not as measured by the iReady exam (Lexile score), when only considering differences in viewing TV shows versus films.

Null Hypothesis 2: There is no difference in vocabulary levels between students that use closed captioning and those that do not as measured by the iReady exam (vocabulary results section), survey questions, and interview questions.

Null Hypothesis 3: There is no difference in reading comprehension of literature scores between students that use closed captioning and those that do not as measured by the iReady exam (reading comprehension of literature score results section), media viewing questions, survey questions, and interview questions.

Null Hypothesis 4: There is no difference in reading comprehension of

informational text between students that use closed captioning and those that do not as measured by the iReady exam (comprehension of informational text score results section).

Independent variable: The independent variable is the closed-captioning tool available on the participants' selected media.

Dependent variable: The dependent variable is the participants' Lexile scores.

Study Limitations

This study occurred during the fall semester of 2021, which occurred during the Covid-19 Pandemic. It was during this time that school districts across the country were engaged in attempts to coordinate with the CDC (Center for Disease Control and Prevention) regarding how best to ensure that students could remain at school while protecting the health of our society, as a whole. Researchers Zviedrite et al. (2021) wrote about the effects of the pandemic on students in their research. In their article Zviedrite et al. (2020) wrote, "The World Health Organization declared COVID-19 a pandemic on March 11, 2020. The emergence of COVID-19 has led to unprecedented use of NPIs worldwide, including prolonged school closures, to slow the disease's spread" (p. 2). As a result of this, students experienced quarantine procedures and isolation, due to the contact tracing process. A mask-optional district policy within the research site led to glasses fogging up, thus restricting the visibility of students attempting to view their selected media for this research. Absences, due to both quarantine and fear of a positive Covid-19 at home test, created absences within the classroom that may have not normally occurred. Also, students' desks were set up six feet apart and they had to remain in their seats, which is not normal in a typical educational environment.

Additionally, rising anger and distrust between schools and the public created a lower-than-expected turnout of study participants. Out of the 88 students contacted about being involved in the study, only 38 agreed to participate. This reluctance of parental consent also occurred on the administrative side, in which the research site principal asked the researcher if now would be the best time to ask for parental consent, due to the divisive friction that exists between the community and school districts across the nation. Author, Rovaris (2020) attributed this hostility and mistrust between schools and the communities they served to a variety of factors. In Rovaris' (2020) work, "If the Storm Keeps Raging," Rovaris (2020) wrote, "I refer to them as a series of pandemics: a health pandemic, a race pandemic, an economic pandemic, a political pandemic and even weather pandemics" (p. 13). This article serves to demonstrate that the hesitation of community members to allow their students to participate in this study is not an anomaly. Instead, this appears to be part of an unfortunate trend, in which the increasing political polarization of our nation is fostering a deepening reluctance and mistrust between academic institutions and the communities in which they serve. Fortunately, the researcher was able to secure the numbers needed to conduct the study, along with the required approval from the school district and the Lindenwood IRB committee members.

Outside the effects of the Covid-19 pandemic, there were other limitations that arose in this study. The location of the study presented an initial problem, due to the lack of connectivity that was available in the classroom. The room in which the study took place consists of cement blocks which cover all four walls, which greatly affects the participants' phone/tablet signal strength. In order to overcome this challenge, the researcher's expectations for participants were that they needed to arrive in class with

their selected media already downloaded onto their respective devices. In the event students did not arrive with their shows/films already downloaded, they had to step outside the classroom before we began our designated viewing time and download the show.

Parental punishment was also a limitation taken into consideration when designing this research. A common punishment that teachers see in education is the removal of cell phones for students, due to poor behaviors or academics. Researchers Moore and Richards (2019) confirmed this observation when they wrote, “The rise of classroom technology has turned scholars’ attention toward students’ use and misuse of electronic devices as a prominent incivility behavior” (p. 395). Teachers can view off-task behavior linked to a cell phone as undesirable behavior, which results in them reaching out to parents in an attempt to not only inform them of the undesirable behavior, but to also see this technology removed from the student or at least not see this behavior continue. Thus, for this research, communication with parents beforehand was vital in order to make them aware that students needed access to their devices to participate in this study and alternative forms of punishment needed to be considered. This issue did not present itself to the researcher’s knowledge during this study (see Table 18).

Access to content services was another limitation in this study. Not every participant had access to popular content providers such as HBO Max, Netflix, or Disney+. In order to accommodate for this, students had to research shows and movies that are available on free content services, such as YouTube and Pluto TV. This ensured that all students had access to media content for this study, even if it was not their ideal content choice for viewing. While this required more research time on the participants'

part, having access to content at no charge for students provided a more level approach for participants in this study.

Finally, an additional limitation that was out of the researcher's control was that of the captions themselves. Closed captions can be generated by machine, human, or a combination of both, and this information is not readily available to the individual that begins their media viewing experience (Graham et al., 2018). As a result, the individual that is viewing the captions has the assumption that the transcription is accurate, but this is not necessarily the case. This concept was found in the work of Graham et al. (2018), in which they wrote, "The problem with using captions is that by its nature, videos can be so rich in terms of their content and there can be so much happening in a short video clip" (pp. 7-8).

As Graham et al. (2018) described, the transcription of this scene produced vastly different results. The example Graham et al. (2018) used in his research was a video clip of a baby crawling on the carpet. However, the closed captioning for this particular scene ranged from "little girl playing with dog" to "a man is talking to a car" (p. 8). The result of the researcher's study revealed that the accuracy and results of the closed captioning can be subject to immense error and could potentially impact the findings of this study. The researcher did not evaluate the accuracy of the transcription of the closed captioning, due to the duration of the study and the amount of time it would take to view each participant's self-selected media and evaluate the transcription accuracy. This is intentional, as participants that use closed captioning in a non-research setting would typically not preview the accuracy of the transcriptions before viewing the material.

The Research Site

This study took place in a high school English classroom in a mid-sized, Midwest school district. The participants of the study were a mixed-ability level freshmen class containing a range of gifted students along with students possessing IEP/504 accommodations. The age range of the participants was 14 to 15 years old. The number of participants in this study was 38 (n=38). Further information regarding both the participants in this study and district demographics can be found in Chapter Three.

The school district is located in the suburbs within 30 minutes of a major metropolitan area and consists mostly of a white, middle-class population. The site in which this study occurred was in a 9th grade, ELA classroom on the first floor of the building. What was unique to this site was that the room had no windows and was surrounded by cement blocks which damped the signal strength of the participants' personal devices and is discussed in the limitations section of this research. Also, the district in which this research occurred is a one-to-one technology-based school in which all students receive a designated Chromebook and are required to bring this technology with them to class. Having this required technology in the possession of students provided ease of access, when participants needed to access closed-captioned media in this study.

During this study, students were in a global pandemic and were subject to quarantine procedures, masking requirements, and social distancing elements to contain the spread of Covid-19. At this site, contact tracing, parental contact, and sending students home were practices used by the district in the event that a student tested positive for COVID-19 or was exposed to someone that tested positive. In this study,

with this group of participants, a majority of students expressed that they did not want to be sent home and placed on quarantine for a variety of reasons, such as fear of not staying caught up on school work and wanting to maintain social connections.

Statement of the Problem

In the area of ELA, educators are constantly looking for ways to improve student reading to help maximize both their career and academic success. However, when the best-practice approach of independent book selection and dedicated time for reading occurs, a common problem that comes up is that of stagnant Lexile reading scores and a preference for students to use their devices, rather than read a traditional book. Thus, to address this problem, the researcher required participants to use their technology to watch shows, while reading with closed captioning enabled to tap into existing student interest while still requiring them to read during the suggested time of 20 minutes per class period.

Definition of Terms

Closed captioning - According to the Federal Communications Commission (FCC; 2021), closed captioning "displays the audio portion of a television program as text on the TV screen, providing a critical link to news, entertainment and information for individuals who are deaf or hard-of-hearing" (Closed Captioning on Television, 2021, para. 1).

Comprehension of literary text - Researchers that developed the iReady exam (2022), which is the Lexile exam that was used in this study, defines comprehension of literary text as "a student's ability to understand types of writing that are usually made

up, or fictional. Stories are the literary texts that students read most often, but plays and poems are also examples of literary texts" (para. 11).

Comprehension of informational text - Researchers that developed the iReady exam (2022) defined comprehension of informational text as "A student's ability to understand types of writing that are usually true" (para. 12)

iReady - According to the authors of the iReady (2021) website, "i-Ready is an online program for reading and/or mathematics that will help your student's teacher(s) determine your student's needs, personalize their learning, and monitor progress throughout the school year" (para. 1).

Lexile level - Doman (2021) of Scholastic defines Lexile level as "a popular method used by schools to measure a student reader's ability is Lexile level or a Lexile Measure" (para. 1).

Lexile measure - According to engineers of the iReady assessment application, Lexile measure

> represents the complexity level of a text where a learner is forecast to have 75 percent comprehension with independent reading. Reading at this level is challenging so as to promote growth but not so difficult that the student is overly frustrated. (What Does a Learner's Lexile Measure Mean?, 2021, para. 1)

Lexile range - According to engineers of the iReady assessment, Lexile range refers to the span as the following:

> 50L above to 100L below a learner's Lexile measure. For example, a 500L learner can stretch their ability by selecting books from 400L to 550L based on their 75 percent comprehension rate measure. That same reader may select easier

> independent reading material set on a forecasted 90 percent comprehension rate between 150L to 300L" (Where can I Find the Right Lexile Range? 2021, para. 1)

Operant conditioning - The American Psychological Association (APA) defines operant conditioning as "the process in which behavioral change (i.e., learning) occurs as a function of the consequences of behavior" (APA Dictionary of Psychology, 2020, para. 1).

Open captioning - Lavery (2019) defines open captioning as captions that "are hard-coded into the media and cannot be turned off; they're a part of the video file" (p. 98).

Reading comprehension - Authors of the group, Reading Partners (2019) define reading comprehension as referencing the "children's ability to understand what they read" (What is Reading Comprehension? 2019, para. 1).

SAMR Model - Researchers Crompton and Burke (2018) defines the SAMR model as the following:

> The SAMR model categorizes technology use in four different ways which focus on how technology is used to benefit the learner. The four levels – substitution, augmentation, modification, and redefinition – begin with a very basic use of technology and at each level the use of technology becomes more sophisticated." (p. 3)

Secondary education - The Bachelor of Arts or Science degree with a major in secondary education prepares students to teach in grades 9–12 in a specific certification area, and K-12 for foreign languages. The certification areas offered

> are biology, business, chemistry, English, French (K-12), mathematics, physics, Spanish (K-12), and social sciences. (Secondary Education B.S., 2021, para. 1)

Subtitles - Lavery (2019) defines subtitles as "a translation of spoken audio (and, sometimes, written text) into the viewer's native language" (p. 99).

*Vocabul*ary *Acquisition* - "[T]he process of learning the words of a language" (Nordquist, 2019, para. 1).

Summary

The focus of this mixed-methods study was to see what happens to student Lexile scores when they use closed captioning. The duration of the study was six weeks. Thirty-eight students used closed captioning, answered pre-and post-surveys, participated in interviews and completed pre-and post-Lexile reading tests. The results of this research are in Chapter Four of this study. Chapter Two of this study serves as a roadmap of this study and a collection of the ideas and history behind closed captioning and its emerging role in the ELA classroom.

Chapter Two: Review of Literature

Overview

In Chapter One, the researcher gave background information to provide context regarding the rationale behind having students use closed captioning in an attempt to improve Lexile levels. The purpose of Chapter Two is to review the history of Lexile scores and the various means of assessing students' reading abilities. Chapter Two covers the history of Lexile levels and the background of improving student reading. The resources found in this chapter serve to provide the rationale for this study and the approach that the researcher used in seeing what happens to student reading levels when they use closed captioning.

Organization of the Literature Review

The literature review begins with a history of the Lexile scores and how this system for determining student reading abilities came into being. The next section of this review highlights the importance of the field of ELA and why reading matters and the long-term effects of students entering the world with low reading abilities. Section three of the literature will review the current practices that are occurring in schools to assess student reading. The fourth section of the literature review covers in-depth the four areas of Lexile analysis once educators receive their students' Lexile reading scores. The researcher measured the four areas of reading in this study and the results are in Chapter Four with a discussion of the implications and recommendations for future research in Chapter Five. The final section of the literature review covers the major turbulence that occurred in this study which was the effects brought about by the COVID-19 pandemic and the laws and regulations that impacted the community in which this study took place.

History of Lexile Scores

The history of Lexile score assessment has a rich history in the instructional concentration of English Language Arts. The focus of this study is to see what happens to students' Lexile reading levels when they use closed captioning. Thus, it is important to know what exactly Lexile levels are. Author, Doman (2021) of the article, “Lexile Levels: What Parents Need to Know,” defines Lexile level as “a valuable tool for teachers, parents, and students. It serves two unique functions: it is the measure of how difficult a text is OR a student’s reading ability level” (para. 1).

In the article, Doman (2021) explained what the Lexile scores mean and how parents can interpret what the Lexile number means concerning their child’s reading ability. What is important to recognize when looking at Lexile scores is that it not only provides schools with an approach to understanding how well a student can read, but also that Lexile scores help to categorize books by their Lexile levels, which provides greater clarity for both students and teachers when it comes to selecting a book to read (Doman, 2021, para. 1). This has allowed teachers since this form of assessment has come into being to meet students where they are reading-wise and provide them with texts that are appropriate for their current Lexile reading levels.

Regarding the origin of the Lexile reading assessment, researchers Stenner and Smith (2022) created the original Lexile assessment exam called “MetaMetrics,” during the 1990s to provide insight into student reading abilities and eliminate teacher bias and subjectivity that had been an issue with previous reading assessments. The Lexile exam originally developed by Stenner, Smith, and Duke University (2022) required students to read through a set of passages and answer questions related to the passages they read.

Once finished, the Lexile system automatically calculates the student results and analyzes a raw Lexile score. The teacher can then use this information to provide students and parents with insight into their reading abilities. According to Stenner and Smith (2022), "If we know how well a student can read and how hard a specific book is to comprehend, we can predict how well that student will likely understand that book" (para. 1). The idea of this system is that by being able to assess where a student's current reading ability is at, the teacher can provide a text that possesses an appropriate reading level for the student. The researcher used this Lexile exam created by these two researchers in order to determine the beginning Lexile levels of reading for participants and the ending Lexile levels of the participants once they used closed captioning.

The iReady Lexile exam was not the first reading exam to determine student reading abilities. Before the creation of the iReady Lexile exam, educators used the Gilmore Oral Reading Test to determine student reading abilities. According to researchers Eldridge and Quinn (1988), this was a test given since the 1960s and in which students read a predetermined passage aloud to a teacher for 10 to 15 minutes. The teacher's role was to mark down mispronunciations, hesitations, and substitutions and then use an accompanying scoring guide to determine the students reading level (p. 40). The natural flaw that occurred with the Gilmore Oral Reading Test is that there is a great deal of subjectivity involved when assessing student reading abilities with this method. In the event that a student had to sneeze, paused, or possessed public speaking anxiety, the assessing teacher could potentially label the student as a "low reader" even though they may have a high degree of comprehension of the material. Also, the amount of time given for this performance-based reading exam does not provide a great sample when gauging a

student's reading ability. This test does not account for students settling in to prepare for the test nor reading stamina, and has a high degree of error due to the small amount of time required to complete this exam. The Gilmore Oral Reading exam's length is considerably different than the iReady, which requires teachers to devote two class periods to complete the exam per district policy. Thus, the acquired student testing data from the iReady exam will be more reliable and will eliminate the subjectivity on the part of the individual collecting the data, due to the iReady system itself that collects and categorizes the results that can then analyze.

Once the students complete the Lexile exam, the researcher receives a set of data that reveals the reading strengths and weaknesses of the individual student. Researcher, Doman (2021) provided insight into how to interpret the raw data that the Lexile exam provides the researcher upon completion of the exam. In the article, "Lexile Levels: What Parents Need to Know," the researcher Doman (2021) explains, "The higher the Lexile measure, the higher the student's reading level. The reader's Lexile Framework works in intervals of five with 5L being the lowest. The highest Lexile score is 2000" (para. 5).

Parents, teachers, and researchers can derive meaning from the number values assigned to students that acquire a Lexile score earned after taking a Lexile assessment. A Lexile score in the 600s to 700s is ideal for students at the freshman level, while anything below these numbers is concerning for parents and teachers that receive the data (iReady, 2021). The further students are from these numbers, the further below grade level they are, which in turn suggests a more serious underlying problem exists with regards to their approach to reading. The original researchers and creators of the Lexile exam, Stenner and Smith (2022), described in their writing that the first *Harry Potter* book has a Lexile

score of 880L (para. 4). Thus, if a high school student is reading at a *Harry Potter* level and receives a text to read that has a Lexile level of 1200+, then it will present an immense and potentially insurmountable challenge for the student. The goal of this study was to use closed captioning as an alternative approach to improving student Lexile scores, so that by the end of the study they are capable of handling more difficult texts from a Lexile perspective.

When it comes to this discussion about Lexile scores and improving reading abilities, it is natural to wonder how high or low a reader should deviate from what their current Lexile score is. If the teacher provides a student with a book that has a Lexile level that is too high, such as *Moby Dick* by Herman Melville (1100L) then the student would struggle mightily (Melville, 2022). However, if the student receives a text that falls within their Lexile range, such as *Night* by Elie Wiesel (570L), they would be able to read the text easier because it falls within their current reading abilities (Wiesel, 2022). Researcher, Harvey (2011) explained the idea of when it is reasonable to give a student a more challenging, or less challenging text, in which Harvey (2011) wrote, “The Lexile range (100L below and 50L above a student's Lexile measure) should be considered as a guide to help students select books that offer an appropriate level of challenge for their reading abilities” (p. 58).

In this study, participants did not receive Lexile scores for media content they chose since mainstream media outlets do not provide the user with a manner in which to view this information. The media that participants chose is strictly based on interest and appropriateness. However, the hope of the study was for Lexile gains achieved by

participants would translate into them being able to read material containing a higher Lexile reading level.

Importance of ELA

The teaching of ELA is an area of education that is vital to both the longitudinal academic and social success of the student entering the education system. There are areas of focus that ELA teachers instruct with passion, ranging from writing to literary analysis, grammar instruction, and public speaking. One of the biggest areas of focus in ELA is in the area of reading. The focus for teachers in ELA is to help their students improve their reading abilities is a desire containing a lot of history. Authors, Block and Mangieri (2002) published an article titled, "Recreational Reading: 20 Years Later," in which they wrote, "During the past 25 years, several studies have demonstrated the benefits of providing more opportunities at school for students to read for pleasure and to develop their recreational, self-selected literacy habits" (pp. 572-573).

The quote from this source from 2002 illustrates that over 40 years teachers have realized the importance of helping students develop their reading skills in an attempt to help them achieve higher academic gains ranging from improved GPA, writing style development, and a great comprehension of texts. When students develop their literacy skills, they become equipped to successfully navigate our complex society. This study is a continuation of the work that has been occurring for quite some time in the area of reading.

As research in the area of reading has persisted throughout the era of modern education, educational research continues to reveal the importance of developing strong reading skills that will reap a lifetime of benefits on the part of the student. One of these

benefits is the avoidance of the illiteracy-to-prison pipeline. Researcher, Kirkland (2019) wrote about this in-depth in the article “The Truth Behind the Pipeline.” Kirkland (2019) wrote, “Research shows that inmates have a 16% chance of returning to prison if they receive literacy help, as opposed to 70% for those who receive no help” (p. 10). This finding is in alignment with the QoL (Quality of Life) findings that researchers Bodur et al. (2021) wrote about in the *Archives of Rheumatology* (2021), in which Bodur et al. discovered significance when it comes to one's literacy rate and their quality-of-life score. The lower the literacy level, the lower the subject's quality of life. Bodur et al. (2021) further discovered that literacy rates are a determining factor when it comes to not only one’s finances, but health habits such as smoking, as well (p. 160).

The Georgia Department of Education (GDE; 2016) further validated the urgency of the need to improve students' reading levels. According to the GDE, “One in four secondary students are unable to read and understand textbook content” (p. 3). This research proves that the development of students' overall reading levels is incredibly important not only for the pure reading skills needed to successfully navigate written texts, but also to enhance the subject’s overall quality of life. Thus, if educational research continues to prove that both ELA instruction and reading development is essential to improving a student’s quality of life, then it is important to utilize ELA best practices to help students attain these beneficial educational outcomes.

Gallagher (2015) is an influential author in the ELA world and their book, *In the Best Interest of Students: Staying True to What Works in the ELA Classroom*, contains valuable approaches to helping students learn and grow in the ELA classroom. Such strategies include having students track their thinking, helping students understand their

confusion, and developing inference skills. These strategies form the basis of the construction of this study. The elements that Gallagher (2015) uses to help students develop their literacy skills for books are the same elements utilized in this study, such as having students track their thinking and develop their inferencing skills (through the use of annotations), but through the use of closed captioning enabled TV shows and movies.

Gallagher's (2015) research and 20-year teaching practice regarding the instruction of reading improvement for students has a natural overlap in literacy approaches that exist between reading lines on a page and reading lines on a screen (which is the focus of this study). Gallagher's (2015) career has also helped students develop symbolic understanding and inferencing skills through the use of pictures found on magazine covers, which is what the researcher will be doing as well but through moving images and the use of closed captioning.

An important best practice in ELA used in this study is having designated class time for students to read/watch their selected media. The article, "Why Children Should Read 20 Minutes a Day and How This Impacts Your Kids' Development – At Any Age," (2020) reveals from a large body of research that time of reading influences Lexile levels and reading comprehension for students. The focus of this research centers on elementary and middle school students' reading levels and the effects that time spent reading has on students' overall comprehension and Lexile development. The conclusions from this article reveal that 20 minutes of reading had an 11% increase in a student's comprehension level, qualitative data revealed an increase in creativity and happiness, and higher standardized testing scores (para. 1). This article helps to provide insight into why students will be reading closed-captioned shows for 20 minutes a day in this study.

This is one of the main articles that the research site uses to support the ELA department's decision of having students read independently for 20 minutes a day during independent reading units within the school district at the chosen research site.

Tools of Assessment

The primary tool used to collect quantitative data in this study is the iReady Lexile exam. The iReady Lexile exam is an electronic test that students take during their freshman and sophomore years of the researched suburban high school. The authors of the Curriculum Associates iReady website (2021) provide detailed information regarding what the iReady assessment tool is and why schools use this tool. The authors of the assessment state that the iReady test "can determine a student's oral reading fluency proficiency, progress, and individual instruction needs, and when used alongside trusted data from i-Ready Diagnostic, it can provide a complete picture of a student's overall reading performance" (para. 1). The authors also provide information regarding how the system evaluates students' reading levels. The authors explain that teachers can collect and analyze students' initial reading levels through the use of a baseline iReady exam. Then over a unit or school year, students receive a variety of tools, resources, and formative assessments used to improve their reading levels. Students concluded with a post-test in which schools will evaluate and track student reading growth (para. 5). The researcher used a baseline assessment and post-test exactly as the article describes and then analyzed the data from the information provided by the iReady system. The results of the collected quantitative data and analysis are in Chapters Four and Five of this study.

Another tool the researcher used to collect qualitative data in this study is observational logs. Author, Zemlianski (2011) in their book *Writing Spaces 2*, writes that

"Observations: observing and measuring the world around you, including observations of people and other measurable events" (pp. 160-161). This approach to observations is in alignment with Zemlianksi's (2011) research in that the researcher in this study recorded participant behaviors using an observational log while students are participating in the closed captioning research portion of the class. The researcher observed student behavior while they were viewing their selected material and marked these observations down in the observation log as "on task" or "off-task," during the 20 minutes of media viewing time. Students that are on task are those that appear to be actively engaged with the study, such as watching their show with closed captioning enabled, taking notes, or contributing to interview discussions. The researcher recorded students as being "off-task" if they were observed sleeping, playing games, working on work from another class, or other off-task behaviors.

The researcher's use of *Google Docs* to record personal interviews is another qualitative collection tool used in this study. Authors, Allmark et al. (2009) of the article, "Ethical Issues in the use of in-depth interviews: literature review and discussion," discussed student aversion to researchers recording them using an audio or video device. In the article Allmark et al. (2009) stated, "Some had concerns about the tape recording of the interview; they felt worried that this remained available for others to hear. Participants showed no aversion to discussing painful issues provided they felt the study was worthwhile" (pp. 48-54). The researcher recorded student responses using *Google Docs* during the interview portion of this research. As a result of the research from Allmark et al (2009), the researcher elected not to record students with a listening device. Instead, the researcher transcribed their responses during the interview in order to

alleviate any potential uncomfortableness on the part of the participants described by Allmark et al. (2009). To see the interview questions that the researcher asked participants in this study, refer to Appendix E in the appendix section.

Beers and Probst (2013) of the book, *Notice & Note: Strategies for Close Reading,* supports this idea of making students comfortable during the interview process as well. One of the methods that Beers and Probst (2013) used in their study to make students feel more comfortable was to encourage the use of OTRs (Opportunities to Respond) throughout the course of their study, in which students Beers and Probst (2013) encouraged to talk to one another and collaborate on projects. Thus, when it came time for students to engage in a one-on-one interview, they felt comfortable and were willing to share their thoughts with the researchers. In their text, Beers and Probst (2013) explain that when we can make students engaged during a conversation, or in this case interviews, they are more likely to thrive. “We built this project on the importance of talk because we think it’s easier (not easy, just easier) to inspire and to feel inspired when there is conversation, not lecture; when there is dialogue, not monologue” (p. 27)

To ensure that students are comfortable and want to contribute to the interview, the researcher elected to transcribe the interview, rather than using a recording device which would have potentially made students uncomfortable. As Beers and Probst (2013) stated, it is easier to have students feel inspired and take ownership of their learning through conversations between themselves and the teacher. The interview process for this study is part of the process in which students will be taking ownership of their reading abilities. The researcher used *Google Docs* to record participants' responses

during the question-and-answer exchange that occurred during the interview process with participants in this study.

Another tool used to collect qualitative data in this study is the use of *Qualtrics* pre- and post-surveys. The researcher used the pre-survey given out at the beginning of the study to gauge the understanding and experience of participants and their use of closed captioning. The *Qualtrics* post-survey was distributed to participants at the end of the six-week study and the results were analyzed to identify themes that had emerged. The use of *Qualtrics* pre- and post-surveys proved to be important regarding acquiring students' beliefs and perceptions over their use of closed captioning. However, the use of pre- and post-surveys is not a perfect science. Researchers, Flentje et al. (2020) wrote about issues that arose through the use of pre- and post-surveys in their study over interprofessional anesthesia medical teams. In their study, Flentie et al. (2020) used pre- and post-surveys and wrote, “Although all 66 participants filled out the questionnaires, not all information was completed – 3 participants provided no information regarding their profession, 10 gave no information regarding their work environment, 4 provided no information about their work experience” (p. 4).

The study conducted by Flentje et al. (2020) highlights the difficulties that arise when it comes to the use of pre- and post-surveys when collecting qualitative data. This research study was not immune to these difficulties. However, just like the Flentje et al. (2020) study, the pre- and post-surveys of this experimental study also yielded interesting results. Once the researcher collected the pre- and post-*Qualtrics* surveys, the researcher analyzed the data and identified the themes that had emerged. The qualitative results of the pre- and post-*Qualtrics* surveys are in Chapter Four of this study.

To check for engagement in participants' selected media, the researcher required students to use the *Google Docs* application to write a series of annotations over the self-selected media that participants viewed. Researcher, Chambre (2017) of the article, "Harnessing Technology to Manage Writers' Workshop for Struggling Students," provides insight into why students will be recording their thoughts and analysis on Google Docs for this research. In her article, Chambre (2017) stated, "I chose to use *Google Docs* during writing because the comment and chat features allowed for synchronous and asynchronous conversations, a feature not found in *Microsoft Word* or a writer's notebook" (p. 497). Students will also use *Google Docs* for the reasons that Chambre (2017) listed. The synchronous feature of *Google Docs* ensures that if students were to forget their writing assignments that go along with the use of closed captioning, that participants can retrieve their writing via an alternate computer. Also, if a student forgot to answer one of the questions, the researcher was able to directly make a note on their assignment highlighting what students need to complete to ensure the participants answered all of the questions.

Approaches for Measurement of Data

Researchers, Creswell and Plano-Clark (2018) bring a holistic approach when writing about mixed-methods research in their book, *Designing and Conducting Mixed Methods Research*. In the book, Creswell and Plano-Clark (2018) wrote in great detail everything from the history of mixed-methods research to mixed-methods designs to providing general guidelines for writing. Their writing also contains a treasure trove of dissertations that used a mixed-methods approach in their respective studies. The

dissertations provided not only include the mixed-methods used in previous research, but also the theoretical framework and future implications that the researchers wrote about.

The information on mixed-methods designs and the dissertations at the end of the book proved to be incredibly helpful for this research. On page 65 of the text, the authors go into great detail about core designs of mixed-methods and write about convergent design in depth, which the researcher planned on incorporating in this research. The researcher in this study used the example dissertations at the end of the Creswell and Plano Clark (2018) text as a model for completing the write up of this study and proved to be a great source of reference when approaching the design and methodology of the work found in this study.

In the text, *Qualitative Inquiry & Research Design: Choosing Among Five Approaches*, researchers Creswell and Poth (2018) wrote in depth about qualitative research approaches, including narrative, phenomenological, grounded theory, ethnographic, and case studies (pp. 111-115). Also, of note, the two researchers wrote about analyzing qualitative data collected through the process of theming, coding data, and making comparisons using data graphs, tables, and charts (pp. 183-184). Included in this text are numerous charts and written examples of qualitative data, as well as practical ways that researchers can use the data collected.

Theming, as described in the text, sorts the qualitative data into groups that the researcher then compares and analyzes to give both the researcher and the reader a better understanding of the collected data. The examples used in the Creswell and Poth (2018) text also served as a helpful model for when constructing tables and figures. Lastly, the terminology and explanations that the authors provide will help to give the researcher the

needed language when explaining the significance of the data in helping support both the rationale, results and future considerations of this study.

To ensure that participants of the study viewed their selected media with closed captions enabled, the researcher incorporated an operant conditioning approach to ensure adherence to the use of closed captioning. The contributors to the American Psychological Association (2020) define operant conditioning. The definition of operant conditioning according to the APA (2020) is, “the process in which behavioral change (i.e., learning) occurs as a function of the consequences of behavior” (para. 1).

The APA (2020) authors also provide examples of operant conditioning, such as teaching a dog to learn new tricks as well as how to correct a misbehaving child (para. 1). The authors also suggest in the reading that operant conditioning is the equivalent of instrumental conditioning and also state that B. F. Skinner first used this term when describing a form of conditioning and modifying behaviors. By using this method of conditioning, students experienced random checks through the use of operant conditioning to ensure that students were doing what they are supposed to be doing, since they did not know when the next check would occur. When the researcher discovered that participants were not utilizing closed captioning, their behavior was recorded and they were verbally reminded to enable closed captioning. In this study, students that needed a verbal reminder immediately enabled closed captioning and did not refuse to use the closed captioning feature of their selected media.

Upon conceptualization of this study, the researcher theorized that students that agreed to participate in this study would not need much reinforcement and reminders to use closed captioning due to their deep interest in the subject material. Researcher,

Snyders (2014) correlated this idea when they wrote about the need to create learning opportunities in the classroom in which students engage with material that they can be excited about and share their interests with others. Snyders (2014) wrote, "A social constructivist view, where the learning environment and interactions between students are vital components to student achievement, served as the study's theoretical framework" (p. 405). The research of Snyders (2014) correlates with the work of the study, in which the researcher is attempting to create a sense of buy-in within the students by not only giving them choice regarding the subject material that they engage in, but also having participants engage with material that they would normally want to view in their spare time, which in this case is films and movies with closed captioning enabled.

Four Areas of Lexile Analysis

Once students complete the iReady exam, both pre- and post-assessments, the system will generate a number value that corresponds to their mastery in the following areas:

- Overall Reading Ability
- Vocabulary
- Comprehension of Literary Texts
- Comprehension of Informational Texts

The first area of reading that the system provides is the overall reading ability of the student. As research in the area of reading has persisted throughout the era of modern education, the research continues to reveal the importance of developing strong reading skills that will reap a lifetime of benefits on the part of the student.

Vocabulary

The second score presented to the researcher via the results of the iReady exam is the vocabulary level of the participant. One of the measures that the researcher will be paying close attention to in this study is the growth score of the student's vocabulary level. This score helped the researcher's understanding regarding what happens to students' vocabulary acquisition when they are viewing closed captioned media of their choosing. Researchers, Suarez and Gesa (2019) support this idea of harnessing technology to improve student vocabulary. In their article, Suarez and Gesa (2019) wrote "Video viewing can be a valuable resource to expose students to large quantities of input so they can improve their vocabulary and content comprehension" (p. 497). This research was in accordance with the assertion of Suarez and Gesa (2019) in that by having students use closed captioning 20 minutes per class period, they will be exposed to this "large quantity of input" to help increase students' vocabulary and comprehension of the material that they are viewing. Assuming that a participant was not absent or quarantined during the study, they will have received this "input" or closed-captioned media for a total of 600 minutes (20 minutes per class period, 5 days per week) over the course of the six-week study.

In the article, "Vocabulary Acquisition," author Nordquist (2019), explores the meaning behind the term "vocabulary acquisition" to which he defines vocabulary acquisition as "the process of learning the words of a language is referred to as vocabulary acquisition" (para. 1). The author also explained that the process of acquiring vocabulary words and definitions begins at an early age in which children under a vocabulary acquisition "spurt" in which they rapidly begin acquiring new terms and

definitions (para. 3). Nordquist (2019) also suggested that acquiring new vocabulary is most conducive to when one engages in a period of play or enjoys a particular activity that is related to language.

The iReady exam measures students' vocabulary levels so the idea of using closed captioning from student select TV shows and movies to tap into students' interests, is a natural overlap when it comes to this idea of enjoyment and vocabulary acquisition. Thus, it is logical to suggest that students will acquire new vocabulary terms as a result of them viewing and reading material that they not only independently selected, but are also genuinely interested in and would be watching regardless. The hope for the study was that participants would acquire new words and show growth in their Lexile levels, while the null hypothesis stated that there would be no change when students use closed captioning. The null hypothesis results can be found in Chapter Four

Researcher, Boroditsky (2018) recently discussed the importance of acquiring new vocabulary on the popular TEDtalk media platform. The TEDtalk video titled, "How Language Shapes the Way We Think," is a passionate speech by Boroditsky (2018), who is a language researcher that has studied the use of language acquisition and comprehension from groups of people all over the world. During her research in 2010, she discovered that the language used by remote Aborigines in Australia centers around the use of cardinal directions for navigation. Standard greetings by this tribe focused on orientation and the direction in which an Aborigine was traveling. When Boroditsky (2018) compared their comprehension of cardinal directions to western citizens in the United States, Boroditsky discovered that the Australian tribe's sense of direction was far superior to their U.S. counterparts (2018). Also, this finding is in the identification of

color schemes between English language users and Russian speakers. The Russian language promotes a deeper understanding of color identification compared to the more generalized knowledge of English speakers. Boroditsky's (2018) work reveals the seriousness and real-world ramifications of vocabulary acquisition and adds to the importance of this study.

In addition, acclaimed researcher and author, Brown (2022) wrote in their book, *Atlas of the Heart,* about the monumental need to acquire new vocabulary. In the text, Brown (2022) wrote, "If we want to find the way back to ourselves and one another, we need language and the grounded confidence to both tell our stories and to be stewards of the stories that we hear" (p. xxi). Brown's (2022) argument for the need for language is that if individuals are to understand both themselves and those around them, then it is essential to have the vocabulary needed to navigate the complexity that comes with human interaction. By having participants utilize closed captioning, they receive not only new words and also new stories, concepts, and culture that comes from viewing these forms for media that are in this study.

Comprehension of Literary Texts

The third area of Lexile analysis in this study is the growth of students' reading comprehension of literary texts. Researchers of the iReady Lexile exam define the comprehension of literary texts as "a student's ability to understand types of writing that are usually made up, or fictional. Stories are the literary texts that students read most often, but plays and poems are also literary texts" (para. 11). The iReady exam delivers a raw score in the area of comprehension of literary texts upon completion of the test. Comprehension of literary texts is an important area of reading, since this is a major area

of written works that students experience throughout their lifetimes ranging from fictional novellas, plays, and poems, etc.

The importance of developing students' comprehension of literary texts is a central topic in the work of researchers, Knight and Sartini (2015). In their article, "A Comprehensive Literature Review of Comprehension Strategies in Core Content Areas for Students with Autism Spectrum Disorder," Knight and Sartini (2015) wrote about the importance of being able to read, listen, and decode information from these types of texts, in which they state, "For typically developing children, listening comprehension and early decoding ability are reliable predictors of later reading achievement" (p. 1213). Knight and Sartini's (2015) assertion one in which parents, teachers, and community stakeholders generally stake their belief in the concept of academia, that by developing academic prowess, in this case reading comprehension, early in one's academic career, that the individual reaps a lifetime of benefits that shapes these academic skills. This study aimed to improve this area of reading comprehension so that participants could receive these important reading benefits.

However, acquiring and developing the area of comprehension of literary texts is not without its challenges. The research conducted by Capin et al. (2021), published in *Learning Disability Quarterly*, revealed in their recent study on reading comprehension difficulties and cognitive profiles of students. In their study, Capin et al. (2021) conducted reading profiles on fourth-grade elementary students from 17 schools located in the southwest United States containing a mean enrollment of 697 students (p. 4). The profile assessed students' vocal vocabulary, word recognition, phonological awareness, working memory, rapid automatized naming, and executive functioning. Once the

researcher assessed the students, the students that tested into the moderate and severe reading learning deficits, the researcher grouped them into reading profiles according to the test results. The findings from the study suggest that students with severe reading difficulties were not receptive to reading intervention strategies currently taught at their elementary school. This resource provides a basis of explanation for those students whose baseline Lexile exam is low and was also unreceptive to the closed captioning research conducted in this study. An overwhelming majority of participants in this study tested at the ninth-grade level, and both the iReady baseline and post-test results can be found in Chapter Four and Appendices M through O. As far as strategies to improve this area of reading comprehension are concerned, participants completed more than just watching their selected media with closed captioning enabled.

As far as strategies for developing critical thinking and comprehension in this study goes, an additional, educational approach for enhancing the area of comprehension of literary texts is through the use of annotations. Participants in this study completed annotations, along with the viewing of their closed-captioned media. Researchers, David and Vehabovic (2018) support the use of annotations as a valuable learning tool in which they wrote, “Teachers could help students learn to use productive forms of text annotation that support their curiosity, knowledge building, and critical evaluation of texts. Strategic readers make many decisions about their reading that could be facilitated by annotations” (p. 583). The findings of Davis and Vehabovic (2018) suggest that the use of annotations in conjunction with closed-captioned material is a wise choice to help foster the development of student literacy skills.

Comprehension of Informational Text

The fourth and final area of reading growth measured and analyzed in this study is the reading area of comprehension of informational text. Comprehension of this form of text is similar in that students sift through information and possess the ability, or not, to internalize and comprehend the presented information. However, it is the type of text that they are reading that is different from that of literary texts. The researchers and designers of the iReady (2022) system defined comprehension of informational text as, "A student who understands informational text might identify the main idea and supporting details, describe the way the writing is organized, or draw information out of a photograph or diagram" (para. 12). Individuals typically experience this form of text in newspapers, science books/magazines, political columns, etc. Participants found this form of information in documentaries, cooking shows, and learning/science-based shows, etc. Two participants in this study viewed this form of media and the results of the participants are in Chapter Four.

Developing this form of comprehension is important, because as students progress through the elementary levels of education up to middle, high, and ultimately collegiate level of education, the emphasis in reading shifts towards informational text, hence why educators place so much emphasis in education on developing students' informational text literacy skills. Authors, Zimmerman and Reed (2020) of the University of Iowa wrote about the importance of the comprehension of informational text in which they wrote, "By the time that students reach middle school, college and career-readiness standards indicate that the majority of assigned texts used across the curriculum be informational texts" (p. 233). As a result of the importance placed on developing these

literacy skills in the area of informational texts, this is an area of importance in this study in which the researcher thoroughly collected and analyzed the data.

As the previous research revealed, educators are increasingly requiring students to read informational texts as they progress through school. Recent research has revealed that students entering into this important phase of academics may not be prepared for this type of reading. Researchers, Ritchey et al. (2017) wrote about this reading issue in their research article, "Effects of an Informational Text Reading Comprehension Intervention for Fifth-Grade Students." In this article, the researchers wrote, "65% of fourth graders scored below proficient in reading. In addition, the stakes are increasing as the Common Core State Standards and related assessments are adopted across the United States" (p. 68). With the expectation that students read more literature that is informational, this finding that 65% of students scored below proficient in reading highlights the importance of developing this area of literacy. There is a wide range of factors that could be contributing to these low informational text comprehension scores across the nation, such as lack of interest/entertainment in these forms of reading, cell phone use, and lack of student grit, along with other potential factors. The research conducted in this study is vital to helping prepare students for this transition by equipping them with the informational text reading skills they will need to achieve success.

To help address this gap, the researcher of this study used best practices reading strategies to require students to write about the material they are reading, or in the case of this study, viewing. Researcher, Strong (2018) wrote about these best practices that educators use to help improve student comprehension of informational texts. In the article, "Teaching Informational Text Structures," Strong (2018) wrote:

> The procedure I suggest for teaching students how to use informational text structures has six steps. First, teach students how to highlight the main ideas and underline key details while reading a short passage or chunk of text. Next, teach them to summarize the text by combining the main idea and details in a single sentence. After reading, teach students to identify the text structure by thinking about how the ideas are organized and using signal words as confirmation. Then, teach students how to organize the main ideas and key details using a graphic organizer that represents the text structure. For the last two steps, teach students how to plan and write an informative/ explanatory paragraph about the topic using the same text structure. (p. 43)

The approach the researcher took with this study was to have participants create annotations over the material that they chose to view for this study. The researcher gave participants a series of questions that are similar to the best practices writing questions that Strong (2018) discussed in his article. In this research, the researcher designed the first week to have students simply view their self-selected media with closed captions enabled, which is in alignment with Gallagher's (2015) assertion that the students need to have time to simply experience their self-selected media to avoid burnout (Gallagher, 2015). Once week two of the study commenced, the researcher gave participants a series of annotations that are in alignment with Strong's (2018) annotation recommendation, in which students demonstrated their knowledge and learning by writing about elements of literature that they observed and read about while viewing their media. The annotations participants created ranged from summarizing the material they watched, identifying main ideas and themes that emerged in their show, to evaluating the media they were

viewing along with their recommendations for others to watch. The list of annotations that are in alignment with Strong's (2018) research can be found in Appendices F through J.

Incorporating Technology into the Classroom Setting

With the nature of this study focusing on students utilizing their technology by enabling closed captioning to watch their films and shows, it is worth knowing what exactly closed captioning is. The authors of this article found directly on the Federal Communications Commission's website provided information on what closed captioning is, how to access closed captioning, and what programming exemptions exist for closed captioning. The authors of the article define closed captioning as, "Closed captioning displays the audio portion of a television program as text on the TV screen, providing a critical link to news, entertainment and information for individuals who are deaf or hard-of-hearing" (para. 1). The authors also provide detailed information regarding the rules of closed captioning, in which they state that the CC must accurately represent the information, run alongside the spoken dialogue/sounds, be complete, and be placed in such a position as to not obstruct important visual content on the screen (para. 2). It is through the laws and regulations of the FCC that both regular users, as well as participants in this study, can utilize closed captions that fit within these guidelines. These laws and regulations will ensure the best possible viewing experience for participants because, as the FCC states, it allows individuals to view the transcription of the necessary information without obstructing important visual content on the screen, which helps to preserve the viewing experience for individual viewers.

In Cohen's (2018) book, *Educated by Design*, Cohen explores the current state of education and its relationship with technology in the classroom setting. In this text, he provides the rationale for exposing students to a "multimedia learning experience" and argues that for schools to keep up with the rapid developmental pace of technology, schools will need to synthesize themselves with technology, rather than working alongside technology (p. 132). Cohen discusses the SAMR technology model in-depth and provides rationalization for teachers to use technology within the classroom. The SAMR model suggests that, rather than replacing current objects used for learning, teachers should use technology to enhance and provide innovative learning experiences for students (p. 139).

School districts across the country are incorporating technology and embracing the SAMR model approach by providing technology directly to their students. In this study on closed captioning, the research site relies heavily on the use of the SAMR module by providing students with reliable technology from *Google* directly to provide students with cutting-edge learning opportunities. Caputo (2013) is an educational researcher for *Google* and discusses this collaboration between *Google* and public schools when they wrote, "Leading-edge technologies will play a vital role in helping to equip current and future generations with the skills they'll need in the workforce of tomorrow" (p. 40). This study not only allowed, but required to bring their independent forms of technology into the classroom and use them as learning tools, which is what the SAMR module advocates for. In this study, students used a variety of devices to view their selected shows and films, such as Chromebooks, phones, and tablets. The researcher did not track which students used which devices, because in the event a student forgot

their device of choice, they could still access their show from an alternative device in most cases. The use of closed captioning as a reading tool is another approach that ELA teachers can use as the modern classroom continues its shift towards the SAMR model of instruction.

Covid-19

A major event that occurred in the midst of this study was the Covid-19 pandemic. This was a global, social, and public health crisis that impacted the globe in every area of life; travel, education, and work, etc. Most areas of life during the pandemic shifted towards a virtual format in an attempt to limit the spread of the virus. Researchers Black and Powelson (2021) wrote about this event, in which they stated, "Shortly after the COVID-19 pandemic became widespread in the province of Alberta, the government implemented restrictions which required post-secondary institutions to close physical locations and to restrict or move most courses and services online" (p. 3). This source reveals that it was not just a pandemic that impacted American life, but this was a worldwide pandemic that forced society to rapidly change as the virus continued its spread.

Researchers, Zviedrite et al. (2021) further provided an overview of the impact of the pandemic along with the origins of the virus. In their published research article "COVID-19-associated school closures and related efforts to sustain education and subsidized meal programs, United States, February 18–June 30, 2020." Zviedrite et al. (2021) wrote, "The emergence of COVID-19 has led to unprecedented use of NPIs worldwide, including prolonged school closures, in order to slow the disease spread" (p. 2). Zviedrite et al. (2021) revealed the severity of the pandemic and how its origin in

Wuhan, China, eventually spread throughout the world, greatly impacting everyday life. To further illustrate the impact of the virus, most of society during this time went through varying degrees of lockdowns. Researcher, Bozkurt (2021) wrote about the prevalence of these lockdowns, in which he wrote, “almost 99.5% of all children in the world lived with movement restrictions and 60% lived under full or partial lockdowns” (p. 303).

By the time this study began in October 2021, participants in this study had experienced the harsh reality and disruptive effects that came with the pandemic. When this study began, vaccines were available to the public, although not all participants had received the vaccine. Community organizations still utilized contact tracing and a great fear on the part of the researcher of this study was that the participant engagement level would fall below the 30-participant threshold, due to the effects of the pandemic and the contact-tracing policies utilized during this time. Researcher, Caserotti et al. (2021) wrote about the rollout of vaccines and contact tracing in their published work, “Joint Analysis of the Intention to Vaccinate and to Use Contact Tracing App During the COVID-19 Pandemic.” In their research report, Caserotti et al. (2021) wrote, “Until adequate coverage is achieved, the adoption of protective behaviors, including digital tracing of positive cases, would help to control the spread of SARS-CoV-25” (p. 1).

Contact tracing practices were in effect throughout this study. The researcher recorded anecdotal evidence in the observational logs of the mental health effects on students. However, no participants in this study were subject to contact-tracing procedures, which would have resulted in a 14-day quarantine period for students with the requirement being for them to remain in their homes. Towards the end of this study, the district updated its quarantine policies, which reduced the quarantine period to five

days pending a negative COVID PCR test (Riley et al., 2022, p. 72). Not every state followed the same COVID-19 policies and procedures (Tang et al., 2021, p. 1001). Thus, due to the varying nature of state policy and shifting guidelines by the Center for Disease Control (CDC), results from future studies trying to replicate this research will likely result in a different research experience than what both the researcher and participants experienced in this study.

Summary

The sources and explanations listed above provide the rationale methodology that guides this study. From the instruments, such as *Qualtrics* and iReady to the approaches advocated by ELA experts, such as Hattie (2012) and Gallagher (2015), this research is rooted in best practices and tools that have proven to be effective in helping to collect data from research participants, while maintaining the participants anonymity within the research. Thus, the researcher stands behind the collected articles and resources listed above. Chapter Three covers the research method and design of this experimental study.

Chapter Three: Research Method and Design

Overview

The goal of this study was to determine what would happen to students' reading scores when they used closed-captioned media in place of a traditional, self-selected book. The length of the study was six weeks in which students spent 20 minutes per class period to view their material and complete annotations that went along with their viewing experiences. This mixed-methods study measured the quantitative data (iReady exams) through the use of pre- and post-tests, using a two-sample *t*-test to evaluate the significance. The qualitative data were collected through the use of pre- and post-*Qualtrics* surveys, observation logs, and personal interviews. These qualitative responses were then analyzed using theming and phenomenological approaches.

Research Questions

Research Question 1: What happens to Lexile scores when students use closed captioning?

Research Question 2: What happens to students' vocabulary levels when they use closed captioning?

Research Question 3: What happens to the reading comprehension of literature scores for students that use closed captioning and those that do not?

Research Question 4: What happens to students reading comprehension of informational text when they use closed captioning?

Null Hypotheses & Variables

Null Hypothesis 1: There is no difference in Lexile scores between those that use closed captioning and those that do not as measured by the iReady exam (Lexile score).

Null Hypothesis 1B: There is no difference in Lexile scores between those that use closed captioning and those that do not as measured by the iReady exam (Lexile score), when only considering differences in viewing TV shows versus films.

Null Hypothesis 2: There is no difference in vocabulary levels between students that use closed captioning and those that do not as measured by the iReady exam (vocabulary results section), survey questions, and interview questions.

Null Hypothesis 3: There is no difference in reading comprehension of literature scores between students that use closed captioning and those that do not as measured by the iReady exam (reading comprehension of literature score results section), media viewing questions, survey questions, and interview questions.

Null Hypothesis 4: There is no difference in reading comprehension of informational text between students that use closed captioning and those that do not as measured by the iReady exam (comprehension of informational text score results section).

Independent variable: The independent variable is the closed-captioning tool available on the participants' selected media.

Dependent variable: The dependent variable is the participants' Lexile scores

Study Limitations

This study measured what happened to student Lexile reading scores when they used closed captioning, occurred during the fall semester of 2021. A major limiting factor that must be considered is that this study occurred during the COVID-19 pandemic. In an attempt to limit the spread of COVID-19 by the Centers for Disease Control and Prevention and local state governing bodies, quarantine, contact tracing, and masking policies were enacted. It was not uncommon for participants in this study to discuss the latest person that was sent home to quarantine and fear that they may be next. As a result, students' mental health and testing capacity should be taken into consideration when evaluating the results of the research conducted in this study.

In addition, fierce public backlash from local communities in response to the COVID-19 policies enacted by the research site may have contributed to the low number of student participation in this study. Parental consent forms were sent home to 88 students and the researcher received 38 back. Parents within the researched district expressed outrage over the enacted COVID-19 procedures and distrust of administrative and school personnel. As a result, this community divide may have contributed to a lowered number of participants in this study.

A limiting factor not associated with the COVID-19 pandemic is the room itself, where the study occurred. With the nature of this study being rooted in technology and access to media content, the structure of the room itself proved to be a limiting factor, due to the thickness of the room’s walls. The ELA room in which the study took place was windowless and surrounded by thick, cement walls. This construction material dampened cellular access for students that wanted to access their media via a cellular device, which

resulted in a few students that were unable to access their material for that day (see observational logs). To alleviate this issue, participants downloaded their TV shows and films at home directly onto their devices so that when they arrived in the class, they could access their material without needing cellular service.

Participant access to TV show and film entertainment services such as Netflix, HBO Max, and Disney+ was another limiting factor. These entertainment services are not free and students that fall into the lower socioeconomic levels of society may not have access to these services. To overcome this factor, the researcher encouraged participants without access to these services to consider using free entertainment platforms, such as *YouTube* and Pluto TV. Two participants in this study used TV shows that are available on these free platforms and this option should be considered for future work in the area of closed captioning.

Parental punishment was another limiting factor that had to be considered in this study. A common parental punishment seen in high school is the parental removal of personal devices. This device removal, typically cell phones, can be taken away by parents for a variety of reasons, such as poor grades and unacceptable behavior. To address this limiting factor, parents were informed that participation in this study required students to have access to TV shows and films, which are typically accessed by using a personal device. However, if a student lost privileges, participants always had the option of accessing *YouTube,* which was not blocked for students within the researched district. Two participants in this study initially began the study by watching shows on their cell phones and then after the first week switched to a physical book. The participants claimed that they were just more interested in reading, but the possibility of shame

regarding the loss of cell phone privileges cannot be ignored and must be taken into consideration when it comes to student experiences within this study.

Another limiting factor that must be taken into consideration is the accuracy of the transcriptions themselves. As Graham et al. (2018) discussed in their research, closed captioning can be transcribed in a variety of ways, such as machine-automated transcription, which is the most cost-effective but least accurate, to human transcription which is the most accurate but least cost-effective, or a combination of each. TV shows and films found on popular entertainment platforms do not provide information on how the transcriptions were completed. Thus, it is impossible to ascertain the accuracy of the closed captions used with the self-selected media in this study.

Lastly, the iReady exam itself was a limiting factor in this study. Per guidelines given out by the researched school district, two instructional class days were needed for students to complete the lengthy exam. Testing stamina is a real factor when it comes to accurately assessing students' knowledge and the sheer length of this reading exam could cause students to lose interest and simply complete the exam, but not to the best of their ability. If a student rushes through the exam too quickly, the iReady system flags the student, and their results are called into question (2021). In this study, three out of 38 students were flagged for rushing through the iReady pre-test and one out of 38 was flagged for rushing through the post-test, respectively (see Appendices M & N).

Study Participants

The participants of this research were freshmen students whose ages ranged from 14 to 15 years old and were divided into sixth- and eighth-hour English class sections. The participants attended a large, Midwest, suburban public high school. The community

in which they live is made up of mostly white, middle-class families. Upon dissemination of the research consent forms, 38 students with parental consent agreed to participate in the study. Figures 1, 2, 3, and 4 reveal the gender, IEP/504, ELL, and racial, makeup of the participants:

Figure 1

Males Vs. Females in Closed Captioning Group

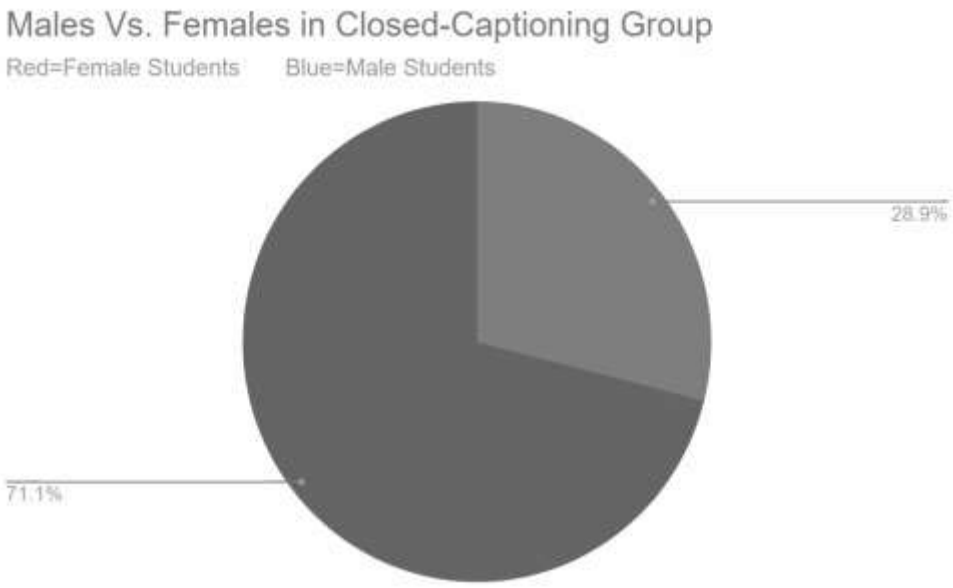


Figure 2

IEP/504 Students in Closed Captioning Group

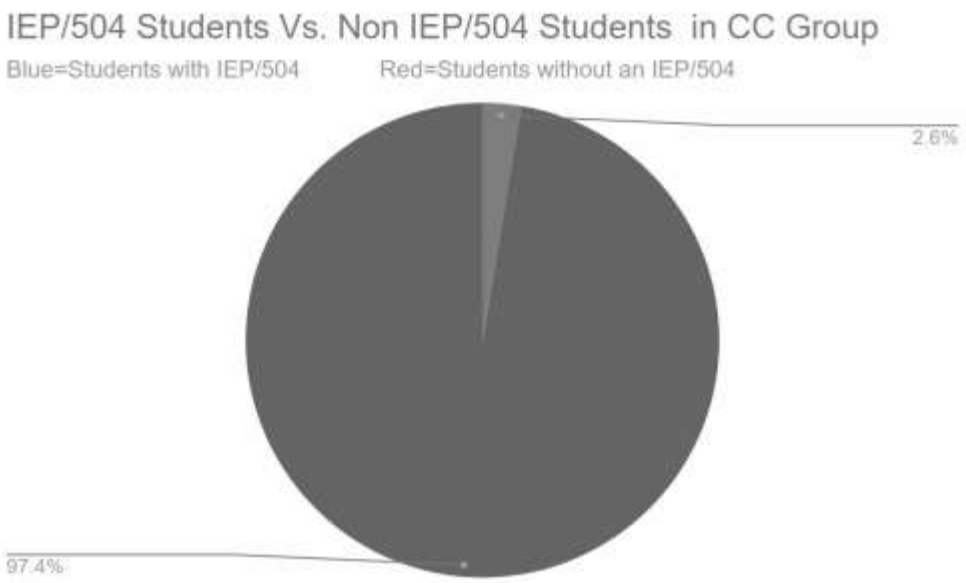


Figure 3

ELL (English Language Learner) Students in Closed Captioning Group

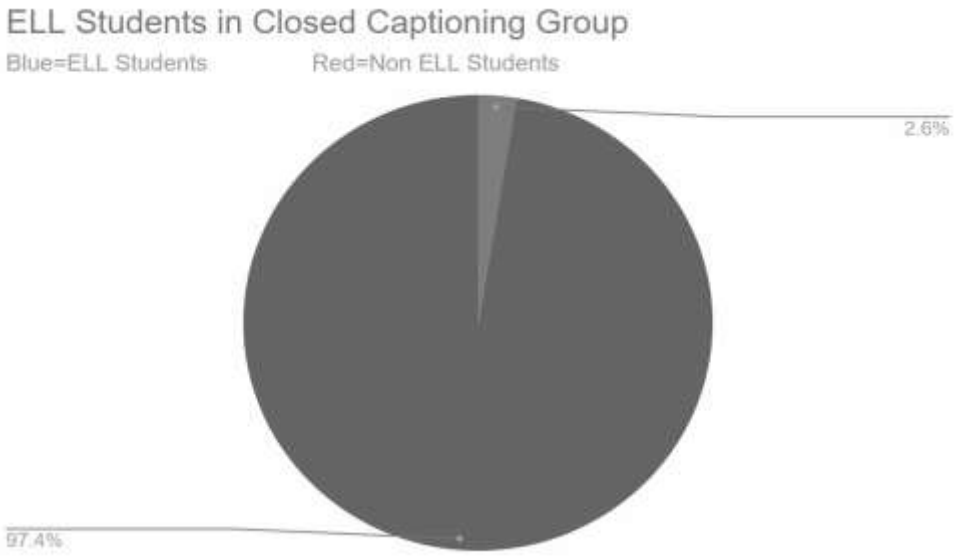
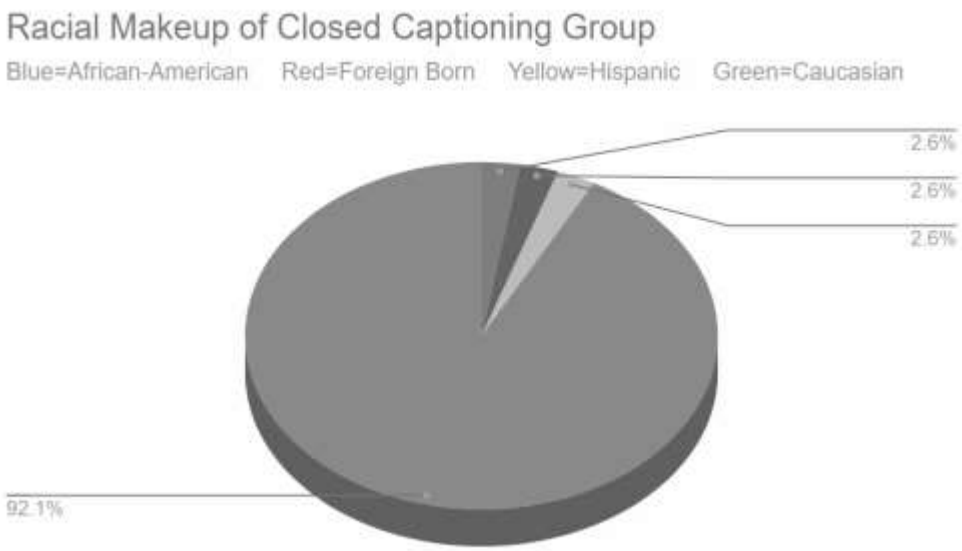


Figure 4

Racial Makeup of Closed Captioning Group



As seen in Figures 1, 2, 3, and 4, the makeup of the participants is 71% females to 28.9% males, 2.6% of participants have an IEP/504 plan, and 2.6% of participants are ELL learners. The racial diversity of the participants is 92.1% Caucasian, 2.6% Hispanic, 2.6% African-American, and 2.6% Foreign Born. The participants in this research are in alignment with the demographics in the district as seen in Figures 5, 6, and 7.

Figure 5

Males Vs. Females Districtwide

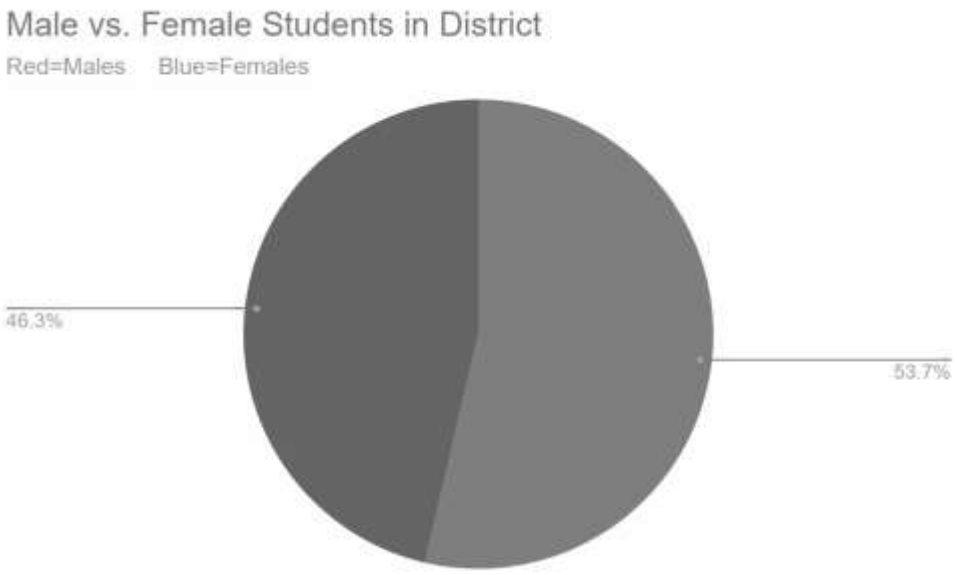


Figure 6

ELL (English Language Learner) Students in District

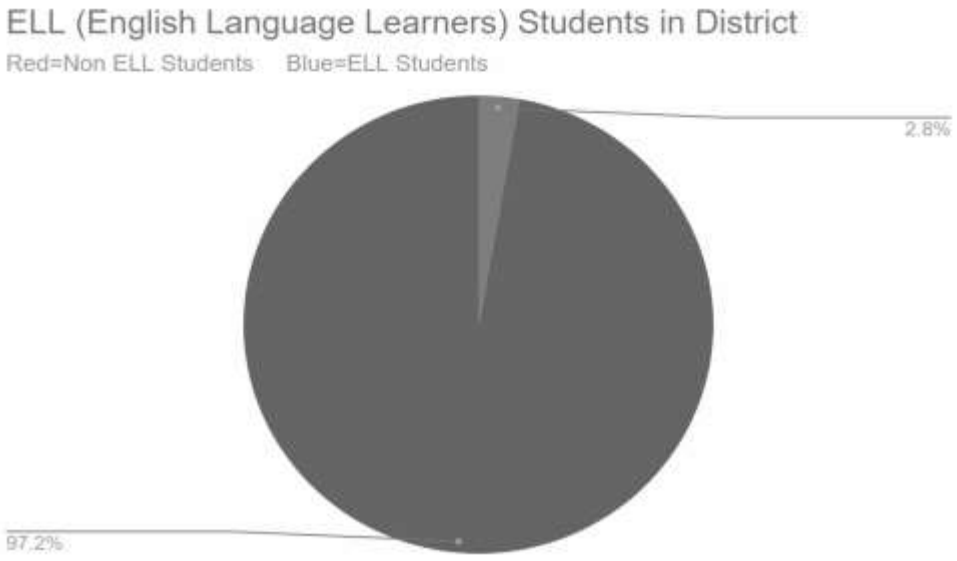
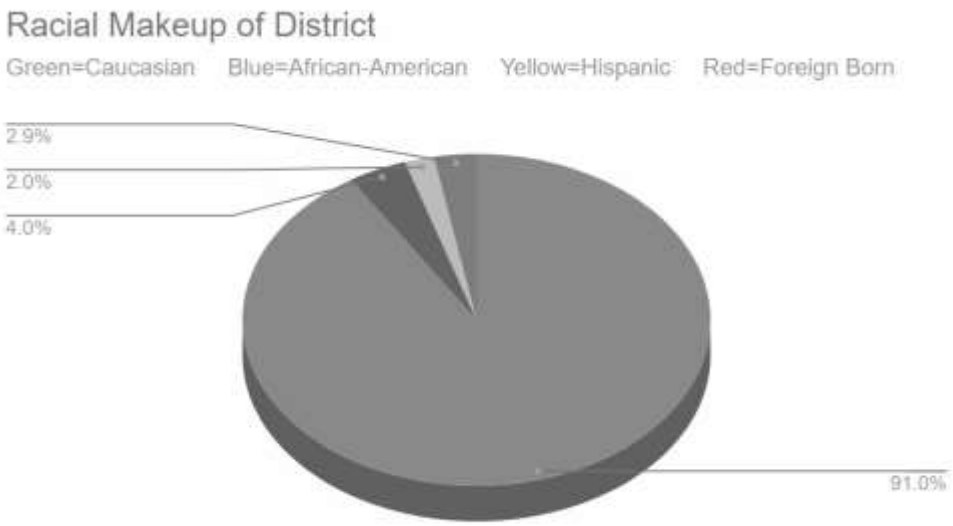


Figure 7

Racial Makeup of District



These figures show that the main difference between the participant group and the district students is the male-to-female ratio. While the district numbers seen in Figure 5 show females at 53.7% of the 9th-grade class, the participants in this study are 71.1% female to 28.9% male, as seen in Figure 1. These numbers reveal that a majority of the participants in this study were female and that a minority of the participants were male. In this study, no participants claimed to be nonbinary or gender fluid.

Research Design

In this particular study, the timing and design were intentionally crafted, due to the specifications and requirements on the part of the research site. At this particular public school, there is an emphasis placed on the ELA department to improve student Lexile scores. To measure this progress, this school district has elected to require all freshman and sophomore students to complete the iReady reading exam by logging into

the program using their designated Chromebooks to measure where students' reading abilities stand initially and then ultimately end up. The first testing window to measure student baseline Lexile levels occurred during the September/October testing period. After students completed this initial testing, students were required to complete the assessment again during the winter testing period. It was this testing cycle that inspired the timing and duration of this closed captioning research study.

For this study, the researcher compared two populations through the use of a two-sample *t*-test using iReady pre- and post-test data. These iReady data were divided up into four areas of reading that are overall reading ability, vocabulary, comprehension of literary text, and comprehension of informational text. Before the start of the study, 88 prospective study participants were given a consent form that both they and their parents had to sign to be part of this study. Thirty-eight students returned their consent forms and agreed to be part of the study. Before the six-week study began, *Qualtrics* pre-surveys were disseminated to participants to gain insight into the research participants' experiences regarding the use of closed captioning. After the pre-surveys, iReady pre-tests were given to participants, as a district requirement for all freshmen and sophomore students enrolled in an English course, to get a baseline reading score for students in the areas of reading mentioned previously. Once the pre-surveys and pre-tests were completed, the six-week study commenced. Throughout the six-week study, observation logs were kept that were recorded daily, in which the researcher recorded quotes that stood out, on/off-task behavior, absences, technology issues, and quotes from participants that stood out. Interviews were also conducted twice per day until all participants had been interviewed. The researcher asked participants a series of questions and recorded

their responses via a *Google Docs* form (see Appendix E). At the end of the six-week study, the iReady post-test and *Qualtrics* post-surveys were completed by participants, as is required by the district, to measure their reading growth. Finally, once the data were collected, a two-sample *t*-test was conducted on the quantitative data and checked for significance and the qualitative data were analyzed and separated into themes and phenomenology that emerged.

Developing the Intervention

The research that was conducted in this study was experimental research. This method of research was selected in concordance with research conducted by Fraenkel et al. (2011) and published in the text, *How to Design and Evaluate Research in Education.* This study will attempt to improve students' Lexile scores through the use of closed captioning, which means that the researcher will directly attempt to manipulate the variable, Lexile scores. This concept is reflected in the experimental research approach, for which the authors of the text state, “It is the only type of research (experimental research) that directly attempts to influence a particular variable, and when properly applied, it is the best type for testing hypotheses about cause-and-effect relationships” (p. 265).

The sample size that the researcher set out to collect was a range of 30 to 88 participants, which is in alignment with the findings in *How to Design and Evaluate Research in Education* (2011). In the text, the researchers stated that “data obtained from a sample smaller than 30 may give an inaccurate estimate of the degree of relationship. Samples larger than 30 are much more likely to provide meaningful results" (p. 338). The total number of participants that agreed to be involved in the research was 38 (n=38).

Threat to Validity

With regards to risks and validity threats, the first validity threat is knowing whether or not the students used closed captioning during their independent viewing time. To minimize this risk, the researcher used operant conditioning (variable interval) reinforcement, in which random checks were conducted to ensure students were using closed captioning when viewing self-selected media. The behaviors of the participants were tracked via observation logs, in which the researcher recorded the behaviors of the participants and monitored whether or not they used the closed captioning feature. The behaviors of the participants can be found in the qualitative data results section in Chapter Four.

Other possible threats to validity include assessing student reading abilities over texts they are already familiar with and assessing students' vocabulary ability over a small number of vocabulary words they may already know. To minimize this risk, the research site has mandated all freshmen and sophomore students be tested using the iReady reading system, which is given out to students by their ELA teachers (iReady, 2021). To alleviate these threats to validity, the iReady system selects a series of random passages that students have to answer questions about. This helps to ensure that students will see a variety of passages that they have not read previously, which will help with the fake reading issues that often occur in ELA (Gordon, 2017). Also, the iReady system is adaptive, so if a particular passage is too easy or too difficult for the student, the system continuously provides passages that it deems to be at an appropriate reading level for the students, based on their previously given answers (iReady, 2021). This helps to find true insight into a student’s reading level, as well as find a true determination regarding a

student's vocabulary level. Since the system is adaptive, a student cannot simply just be lucky on a few questions. They will be consistently tested in a variety of vocabulary, reading, and comprehension levels that give a true indication as to where their Lexile level is recorded. Also, the system will flag any student that it deems to be rushing through the questions and an additional test will have to be given at a later date.

Data Collection and Analysis Procedures

The baseline iReady Lexile assessment, which is required for all freshman and sophomore students to take, occurred during the October 25th testing window. Once this was completed, students began participating in the research study, in which over six weeks, they viewed their selected media with closed captions enabled while completing annotations to assess their comprehension of the content they were viewing. The decision to measure students' baseline iReady scores and their ending iReady Lexile scores is due to the researched school district allotted testing window, which opened in October and closed December 10th. The researcher chose to begin the study at the end of the initial window (October 25th), due to wanting to give participants the maximum amount of time to submit their permission forms to be part of the study. Pre- and post-survey questions were disseminated to participants at the start of the study (pre-survey) and the end of the study respectively (post-test). The researcher met once (due to time constraints) during the study to ask interview questions to student participants. After the data were collected and compared to the data of all students taking the iReady reading test, the data were analyzed using a two-sample *t*-test method. The qualitative data were collected and the researcher analyzed and identified themes that emerged. The qualitative and quantitative

results can be found in Chapters Four and Five. The step-by-step procedure for this research is as follows:

1. Students completed the iReady pre-test to measure their baseline Lexile levels during October, as is required by the researched school district.
2. Students completed their pre-closed captioning survey during week 1.
3. Students chose a film or TV show to view with closed captions enabled during the first week of the research project and were required to watch it during the allotted time. In the event participants completed their show/movie, they were required to find a new show/movie to watch with closed captions enabled.
4. Students viewed their selected content and completed reading questions for six weeks.
5. Students completed a post-survey during week six which will ask how effective they believed closed captioning was in helping improve their Lexile levels.
6. Students then completed a post-test using the iReady system as required by the researched school district.
7. On task/off task behavior was tracked by the researcher (determined based on whether or not they are actively viewing media with closed captions enabled/answer questions, or otherwise distracted, playing games, sleeping, etc.) in an observation log every day for six weeks.
8. The data were then analyzed and the findings recorded in Chapters Four and Five of this study.

a. A two-sample *t*-test was used to compare the participants in the study reading scores (iReady system) to that of the district-wide 9th grade population.
b. Theming and phenomenology were used when analyzing data gleaned from observational logs, interviews, and pre and post-test surveys that were disseminated using *Qualtrics*.

Instrumentation

The instruments that were used in this study are the following:

1. Observation logs
    a. These logs were completed by the researcher using *Google Docs*, a free G-suite product that is offered by the Alphabet corporation (*Google*)
2. *Qualtrics* pre- and post-surveys
    a. *Qualtrics* was used to disseminate both the pre and the post-survey questions. This instrument was made available to the researcher by Lindenwood University.
3. iReady
    a. The iReady system was used to collect both the baseline and post-test Lexile levels of the participants in this study. The iReady exam is an online assessment that collects student reading data in the reading areas of overall reading ability, vocabulary, comprehension of literary texts, and comprehension of informational texts. This instrument was made available by the school district at this research site and is required to be completed by all freshman and sophomore students in the district. The pre-test exam

is given out by all freshmen and sophomore ELA teachers in the middle of October and the data for this study was collected by the researcher that disseminated the exam to both participants and non-participants in this study. The post-test iReady exam is given out to students six weeks later to gauge their growth in the four areas of reading.

4. Personal interviews
    a. This instrument was created by the researcher and completed by interviewing participants one-on-one and asking them predetermined questions (refer to Appendix E). Their responses were recorded by the researcher using *Google Docs* which is a free application made available by the Alphabet corporation aka *Google*.

Summary

In summary, the design of this study is to measure the difference in Lexile scores between students that use the closed captioning tool and those that do not (these students will be reading and annotating independently selected books as opposed to viewing media using closed captioning as the students are in this study). The tools of measurement for this study will be a pre-and post-test iReady exam, personal interviews, observations, and pre- and post-surveys. In Chapter Four, the results of this study are found.

Chapter Four: Results

Purpose of the Study

The researcher sought a possible difference between students' Lexile scores that use closed captioning and those that do not use closed captioning. The researcher studied this topic because, as an English teacher that has worked in ELA education for 10 years, the researcher has seen more and more students becoming more interested in watching shows during class on their phones instead of reading their required texts. One of the goals that ELA educators have in their respective fields is to increase the Lexile levels of students (Gieselmann, 2021). To identify whether a relationship exists between the use of closed captioning and Lexile level increase, students completed a pre- and post-test using the iReady Lexile test within the researched school district. The researcher required students to complete a survey, in which the participants wrote about their closed captioning experience. The researcher intends to add to the existing body of knowledge on the use of closed captioning and Lexile levels in a secondary education setting.

Research Questions & Null Hypotheses

Listed below are the research questions and null hypotheses that guided this research. The research tools that were used in this mixed-methods study were pre and post-tests, pre- and post-*Qualtrics* surveys, personal interviews, and observational logs that were recorded using *Google Docs*. The research questions and hypotheses are as follows:

Research Question 1: What happens to Lexile scores when students use closed captioning?

Null Hypothesis 1: There is no difference in Lexile scores between those that

use closed captioning and those that do not as measured by the iReady exam (Lexile score).

Null Hypothesis 1B: There is no difference in Lexile scores between those that use closed captioning and those that do not as measured by the iReady exam (Lexile score), when only considering differences in viewing TV shows versus films.

Research Question 2: What happens to students' vocabulary levels when they use closed captioning?

Null Hypothesis 2: There is no difference in vocabulary levels between students that use closed captioning and those that do not as measured by the iReady exam (vocabulary results section), survey questions, and interview questions.

Research Question 3: What happens to the reading comprehension of literature scores for students that use closed captioning and those that do not?

Null Hypothesis 3: There is no difference in reading comprehension of literature scores between students that use closed captioning and those that do not as measured by the iReady exam (reading comprehension of literature score results section), media viewing questions, survey questions, and interview questions.

Research Question 4: What happens to students reading comprehension of informational text when they use closed captioning?

Null Hypothesis 4: There is no difference in reading comprehension of informational text between students that use closed captioning and those that do not as measured by the iReady exam (comprehension of informational text score results section).

Results and Analysis of Quantitative Data

The quantitative data collected for this study was through the use of both a pre- and post-test exam called iReady. iReady guides students through a series of multiple-choice questions that uses an adaptive system of choice architecture to adjust the questions presented to the student, based on the answers that they provide. The designers of the iReady (2022) exam stated on their website that the iReady is "for Grades K–12 covering Reading and Mathematics in a digital, adaptive form" (para. 1). The duration of the exam typically takes a full class period to complete. Once students have finished taking the exam, the system compiles the data on the student Lexile levels and Lexile ranges into a raw score in four areas of reading level. The four areas are overall reading ability, vocabulary, comprehension of literary text, and comprehension of informational text. The scores of the pre- and post-iReady exams were analyzed using a two-sample *t*-test in which the closed-captioned group comprised of 38 students and was compared to that of students across the district that took the same exam but did not use closed-captioned material throughout this study [n=810].

Analysis of the Overall Reading Scores Category Quantitative Data

Research Question 1: What happens to Lexile scores when students use closed captioning?

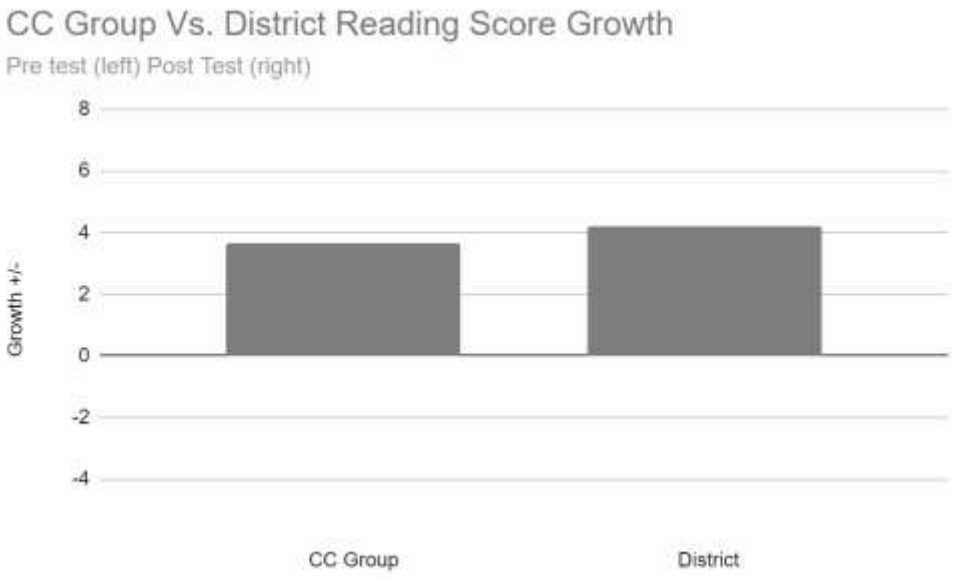
Null Hypothesis 1: There is no difference in Lexile scores between those that use closed captioning and those that do not as measured by the iReady exam (Lexile score).

The researcher used a two-sample *t*-test to determine whether there was significance in the areas of students' overall reading scores, vocabulary, comprehension

of literature, and comprehension of informational texts after using closed captioned media in this study. For the first area of quantitative assessment, overall Lexile reading growth, participants in the study had an overall reading score growth of 3.66 at the end of the six weeks. The recorded district reading growth over this same period that was not part of this study was 4.21. With an *Alpha* (*a)*-value of 0.05 and a *p*-value of 0.31 this finding was not significant. In answering Research Question 1, participants in the closed captioning study increased their overall Lexile reading scores by 3.66 points, but the increase was not enough to be statistically significant. Thus, Null Hypothesis 1 failed to be rejected.

Figure 8

CC Group Vs. District Reading Score Growth



Analysis of the Vocabulary Category Quantitative Data

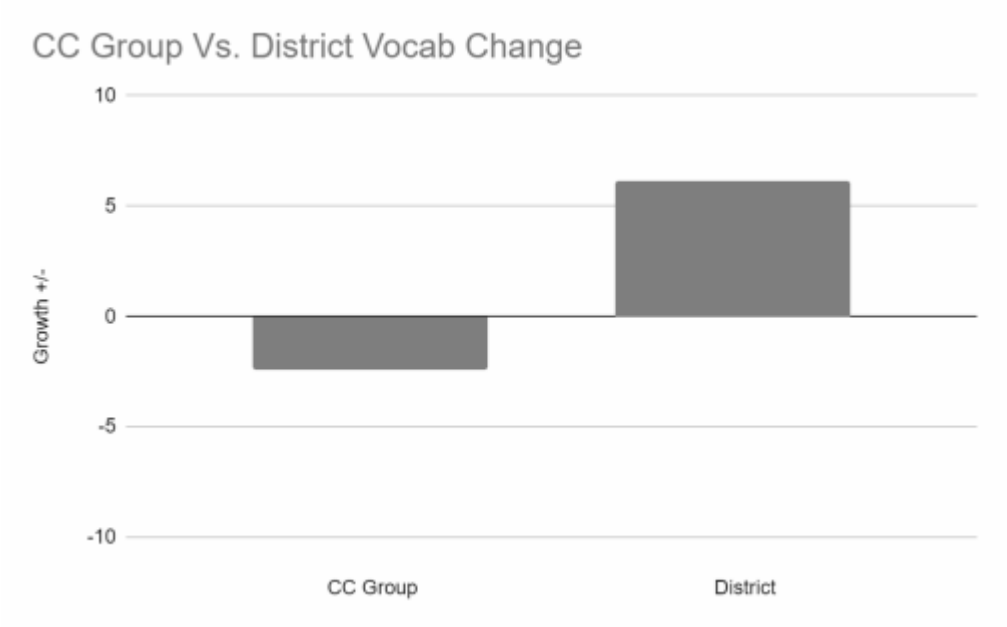
Research Question 2: What happens to students' vocabulary levels when they use closed captioning?

Null Hypothesis 2: There is no difference in vocabulary levels between students that use closed captioning and those that do not as measured by the iReady exam (vocabulary results section), survey questions, and interview questions.

The next set of quantitative Lexile data that the researcher analyzed was the area of growth of vocabulary. Using a two-sample *t*-test comparing the participants in the closed captioning group and the students taking the iReady test without closed captioning, the growth of the closed captioning group comprised of 38 students had an average vocabulary growth score of -2.42, while the 810 students across the district had a vocabulary growth score of 6.16, as seen in Figure 9. Using an *a*-value of 0.05 and a *p*-value of 0.047 in the two-sample *t*-test revealed that there was moderately adverse significance in the area of vocabulary growth. In answering Research Question 2, the result of participants' vocabulary scores when they used closed captioning was that their vocabulary scores declined -2.42 points, while the overall district scores increased 6.16 points. The two-sample *t*-test data results in the rejection of Null Hypothesis 2.

Figure 9

CC Group Vs. District Vocab Change



Analysis of the Comprehension of Literature Category Quantitative Data

Research Question 3: What happens to the reading comprehension of literature scores for students that use closed captioning and those that do not?

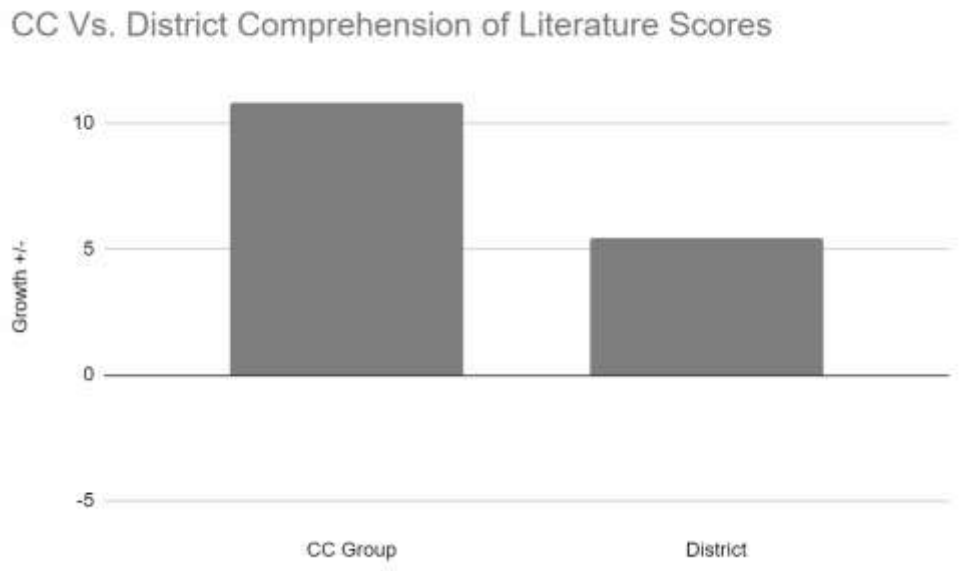
Null Hypothesis 3: There is no difference in reading comprehension of literature scores between students that use closed captioning and those that do not as measured by the iReady exam (reading comprehension of literature score results section), media viewing questions, survey questions, and interview questions.

The third set of quantitative data collected and analyzed was the iReady Lexile data in the area of comprehension of literature. In this area of Lexile growth, the closed-captioned participants had a growth score of 10.79, with the district average growth in this area being 5.42. Using a two-sample *t*-test with an *a*-value of 0.05 and a *p*-value of 0.29, the researcher discovered that there was no significance in this area, which means

that Null Hypothesis 3 failed to be rejected. In answering Research Question 3, when participants in this study used closed captioning, their comprehension of literature scores increased, but not enough to be statistically significant.

Figure 10

CC Vs. District Comprehension of Literature Scores



Analysis of Informational Text Category Quantitative Data

Research Question 4: What happens to students reading comprehension of informational text when they are exposed to closed captioning?

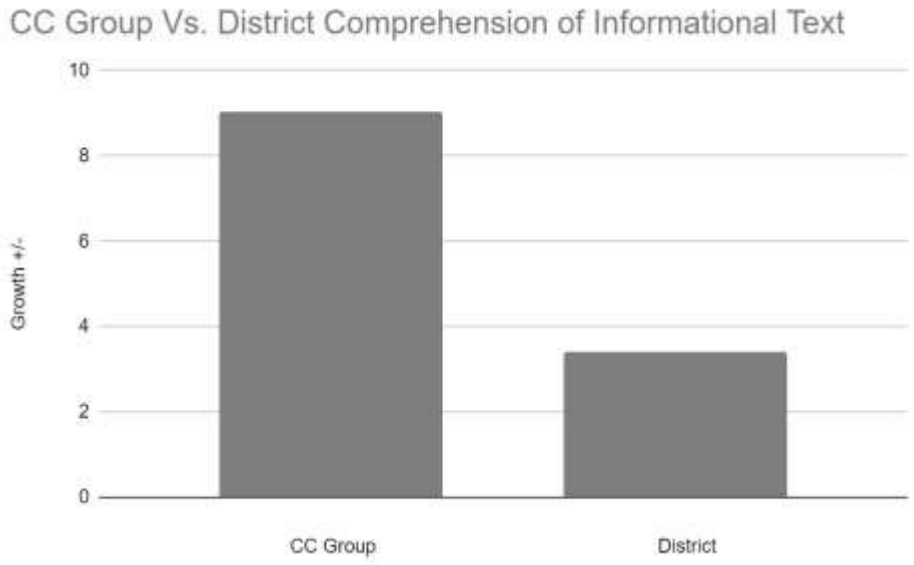
Null Hypothesis 4: There is no difference in reading comprehension of informational text between students that use closed captioning and those that do not as measured by the iReady exam (comprehension of informational text score results section).

The last quantitative data that the researcher analyzed in the area of Lexile growth was comprehension of informational texts. At the conclusion of this study, the closed-captioned group had a growth score of 3.42, with the districtwide students had a growth

score of 9.03. Using an *a*-value of 0.05 and a *p*-value of 0.26, the researcher determined that there was no significance in this area, which means that Null Hypothesis 4 failed to be rejected. This quantitative data addresses Research Question 4, in that participants' reading comprehension of informational text scores increased, but not enough to show statistical significance.

Figure 11

CC Group Vs. District Comprehension of Informational Text



Differences Between TV Shows & Films

Research Question 1: What happens to Lexile scores when students use closed captioning?

Null Hypothesis 1B: There is no difference in Lexile scores between those that use closed captioning and those that do not as measured by the iReady exam (Lexile score), when only considering differences in viewing TV shows versus films.

The researcher analyzed the quantitative data collected from the participants' iReady scores and compared the data to see if there was any statistical significance

between those that watched films during this research and those who watched TV shows. The researcher discovered that there was no statistical significance in the areas of overall reading growth (*p*-value=0.667), vocabulary (*p*-value=0.906), and comprehension of informational text (*p*-value=0.906). However, the researcher determined that there was moderate statistical significance in the area of comprehension of literary text. Students that chose to view TV shows with closed captioning enabled had an average growth score of 21.31, while those that viewed films had an average growth score of 0.26 for an overall *p*-value of 0.038, which is statistically significant when using an *a*-value of 0.05. Hence, the Null Hypothesis 1B was rejected.

Results and Analysis of Qualitative Data

The qualitative data collected throughout this study were through the use of *Qualtrics* pre-and post-surveys, personal interviews, and observational logs. Upon collecting the data after utilizing these methods, the researcher analyzed the collected information to determine themes that emerged, according to the received responses on the part of the participants. The total number of participants in the closed-captioned group was 38, while the total number of students in the district to which their data was compared was 810.

Results of Pre-Survey

At the start of the study, the researcher provided participants with a pre-survey created through the *Qualtrics* software program. The pre-survey contained three questions that are the following:

1. Do you use closed captioning when you normally watch your shows/movies?
2. What are your general thoughts regarding closed captioning?

3. Are you looking forward to watching shows/movies using closed captioning?

Of the 38 participants in this study, 33 participants completed the pre-survey. Frequent reminders and prompting on the part of the researcher yielded no results on the remaining five participants to complete the pre-survey. The results of the pre-survey are in Table 1.

Table 1

Pre-Survey Questions & Responses

Pre-Survey Question 1 - *Do you use closed captioning when you normally watch your shows/movies?*

Responses	Number	Sample Responses from Participants
Yes	14	"I use closed captioning a lot but I just like to see the words incase [sic] I see anything there that is not said in the movie." "I do. I tend to watch anime a lot, and my hearing is bad, so I have gotten used to watching with captions. I can't register what I'm watching without it due to my ADHD, it's why reading is such a chore for me unless I'm in love with it."
No	13	"no they distract me" "I don't [sic] really have a need to. i can hear the movie/tv show" "I do not use close [sic] captioning normally because I've always understood what the actors are saying and It's always in the way of the show."
Unsure	6	"Yes and no, I do if i'm watching a quite [sic] show but if it's loud and clear I don't."

Pre-Survey Question 2 - *What are your general thoughts regarding closed captioning?*

Responses	Number	Sample Responses from Participants
Favorable Opinion	18	"I love it because sometimes I can't hear what

		the character says and I can read it from the screen."
		"I enjoy it. My grandparents are deaf so growing up it was always on."
		"I love using them"
Unfavorable Opinion	7	"it annoys me I spend the entire time reading instead of watching the movie/tv show"
		"I think that it's dumb"
		"I've always disliked closed captioning, unless the actor has a thick accent or you can't understand what they are saying."
No Opinion	8	"i think it isn't bad either way"

Pre-Survey Question 3 - ***Are you looking forward to watching movies/shows using closed captioning?***

Responses	Number	Sample Responses from Participants
Favorable Opinion	21	"I am looking forward to watching movies using closed captioning because whenever I miss a word or a phrase, I can always look back and see what they said."
		"yes because its like a little break and i cant [sic]wait to watch my show"
		"Yes, because we get to watch shows in class."
Unfavorable Opinion	6	"No"
		"not really but it's not a huge inconvenience"
		"No. I highly dislike closed captioning."
No Opinion	6	"Not necessarily looking forward to it but it doesn't bother me either."

The results of Question 1 revealed that, when students watched TV shows and movies in their independent time at home, 14 respondents replied that they normally watch their independent media using closed captioning. Of the 33 respondents, 13 replied

that they did not normally use closed captioning while viewing their media content, while six participants responded that they did not have an opinion or that their use of closed-captioned material was circumstantial.

Table 2

Themes for Pre-survey Question 1

Theme Summaries for - *Do you use closed captioning when you normally watch your shows/movies?*

Theme	Number	Sample Responses from Participants
Comprehension	11	"yes because its easier too know what thyre [sic] saying"
		"Yes, I usually have them on because its [sic] a lot easier to process when I can visualize it instead of just listening."
Disruption	12	"No, I normally find it annoying that it is blocking the picture, therefore, normally I do not"
		"No, I usually don't. I really don't need them and they get in the way."
Situational	5	"Sometimes, it depends on what I'm watching. If I'm watching movies I do not because it's kind of distracting."
		"Most of the time, I do not use closed captioning. But sometimes when I need a more clear understanding, I use closed captioning."

While analyzing the responses from Question 1, several themes emerged. The first theme that emerged was that of comprehension. Eleven of the 33 participants responded to Question 1, stating that when they do use closed captioning, they use it to improve their comprehension of the media that they are viewing. The second theme that emerged in the pre-survey results was that of disruption. Twelve of the 33 respondents

wrote in the pre-survey that they did not use closed captioning when watching TV shows and movies, normally due to the disruptive impact that closed captioning had on their viewing experience. The third theme that emerged in the first pre-survey question was that of situational usage. Five of the 33 respondents wrote that their closed-captioned usage was dependent on the situation. Three of these respondents wrote that the use of closed-captioned usage was dependent on what type of show or movie was being shown, while the other two wrote that, if they needed to comprehend the information being presented in the show they would use it, but not for a casual viewing experience.

Table 3

Themes for Pre-survey Question 2

Theme Summaries for - *What are your general thoughts regarding closed captioning?*

Theme	Number	Sample Responses from Participants
Hearing Disability	7	"They're pretty useful and they're a great support for the media enjoying deaf people."
		"I enjoy it. My grandparents are deaf so growing up it was always on."
Indifference	8	"Doesn't bother me"
		"its okay. becausebecauset [sic] really mind it."
Favorable/Useful	18	"I love it because sometimes ' can't hear what the character said and I can read it from the screen."
Unfavorable/Non-useful	7	"it annoys me I spend the entire time reading instead of watching the movie/tv show'
		"I've always disliked closed captioning"

Upon examining the results of the second pre-survey question, a theme of hearing disability emerged. Eleven of the 33 respondents to the survey mentioned that their general thoughts regarding closed captioning were that it is an assistive tool that can be of aid to those with a hearing impairment. The results of this finding are in alignment with the research covered in the discussions section in Chapter Five.

The other three themes that emerged from Question 2 were over favorability, indifference, and non-favorability when it comes to the respondent's general thoughts regarding closed captioning.

Table 4

Themes for Pre-survey Question 3

Theme Summaries–for - ***Are you looking forward to watching movies/shows using closed captioning?***

Theme	Number	Sample Responses from Participants
Excited	21	"I am looking forward to watching movies using closed captioning because whenever I miss a word or a phrase, I can always look back and see what they said."
		"Yes, because we get to watch shows in class."
Indifferent	6	"'oesn't bother me"
		"its obecausebecausei dont [sic] really mind it."
Non Eagerness	6	"No. I highly dislike closed captionibecauseno becasue generally it takes away from78isteninging and lsitening [sic]"

Eighteen students responded that they had favorable views of closed captioning, eight participants were indifferent, and seven students responded with an unfavorable response when asked about their general thoughts over closed captioning.

Pre-survey Question 3 asked, "Are you looking forward to watching movies/shows using closed captioning?" and three themes emerged from this question. The three themes that emerged were that of excitement, indifference, and non-eagerness, to which the students responded 21, six, and six respectively. These emerging themes are in alignment with the results from Question 2, in which 18 students held favorable views towards closed captioning, eight students were indifferent, and seven students held non-favorable views. The results from these pre-survey questions helped the researcher understand the pre-existing bias the participants held before engaging in the closed captioning process.

Results of Post-Survey

After the six-week study, the 38 participants were sent a *Qualtrics* post-survey to write about their closed-captioned experience. Of the 38 participants, 26 completed the survey. The researcher sent frequent reminders to participants via email (once per week) to complete the survey, but 12 students still did not complete the post-survey given to them. The post-survey sent to them contained the following five questions:

1. How was your closed captioning experience when viewing your selected TV shows/movies?
2. Do you plan to continue using closed captioning in the future? Why/Why not?
3. Have your thoughts changed regarding the use of closed captioning when viewing TV shows/movies?

4. Do you believe using closed captioning enhanced or hindered your comprehension of your TV show/movie? Explain.

5. Do you believe closed captioning enhanced or hindered your reading level? Explain.

Once the 26 participants completed the post-survey, the researcher compiled their responses and identified notable themes and responses that became apparent. The themes that emerged from these questions, along with an analysis of the themes that emerged, are in Chapters Four and Five of this study. The original surveys are in the Appendix section of this study.

Table 5

Themes for Post-Survey Question 1

Theme Summaries for -*How was your closed captioning experience when viewing your selected show/movie? Explain.*

Theme	Number	Sample Responses from Participants
Enjoyment	22	. . .“I enjoyed my closed captioning experience when viewing my selected tv shows/ films. It really helped my understanding of my movie while watching”
		“It was very good, intresting and a great experince [sic]”
Indifferent	2	“It didn't really effect the viewing”
		“i [sic] read”
Non-enjoyable	2	“Closed Captions really obstruct the view of the movie in my opinion, and they prohibit the ability to experience the movie”
		“bad”

Upon analyzing Question 1 of the post-survey, the three themes that emerged centered around that idea of enjoyment. Twenty-two of the 26 respondents wrote that they enjoyed their closed captioning experience. Two participants did not enjoy the experience and two students were indifferent to the experience. It should be noted that while the survey results were anonymous, two students in the sixth-hour class did not actively participate in the closed-captioned experience and instead decided that they wanted to read an actual book. These two students were constantly forgetting to bring their phones, laptops, and other technological devices to view their media, which resulted in them reading most of the time. Thus, the researcher suspects that these two students were indifferent to the closed captioning experience, due to their experience being inconsistent, which was recorded in the observational logs and discussed later in this chapter. The results from post-survey Question 1 suggested that participants overwhelmingly enjoyed their closed-captioned experience compared to the minority of their peers.

Table 6

Themes for Post-Survey Question 2

Theme Summaries for -*Do you plan to continue using closed captioning in the future? Why or why not.*

Theme	Number	Sample Responses from Participants
Continued use	15	"Yes, I do plan to use closed captioning in the future because I already used it all the time before and I think it's better to be able to read and watch at the same time. "Yes, because using closed captioning gives you more details in the show than you hear sometimes"

Undecided	2	"Maybe, it depends on the film/tv show" "maybe? it'll depend on how well i understand the media without the closed captioning."
Non-Continued use	9	"Definitely not. I really hate CC's and they take away from the enjoyability [sic] from the movie." "No because I won't remember to turn it on unless there is low volume"

The themes that emerged in Question 2 of the post-survey focus on the idea of the continued use of the closed captioning tool after the conclusion of the study. Fifteen of the 26 respondents wrote that they would continue to use closed captioning after the conclusion of the study. This represents an increase of four students that plan to use closed captioning regularly, when compared to the results of Question 1 in the pre-survey in which 11 students responded that they used closed captioning regularly. Nine students replied that they did not plan to continue using closed captioning, while two students were noncommittal.

Table 7

Themes for Post-Survey Question 3

Theme Summaries for -*Have your thoughts changed regarding the use of closed captioning when viewing TV shows/movies?*

Theme	Number	Sample Responses from Participants
Change in thinking	10	"I used to be totally against closed captioning, but now that I've used it, I realize it helps a ton "Yes, my thoughts have changed regarding the use of closed captioning. In the beginning, I thought that closed captioning would not help at all and I

		thought it to be quite irritating. But now that I have used it, it is much more convenient to use and really enhanced my understanding of the movie.
Indifferent	0	No indifferent responses given
No change in thinking	16	"Not really, I find closed captioning useful to those who are hearing impaired, but if you have normal hearing I don't see why you should have closed captioning on unless you lost your earbuds or something. "not really I don't think it has had much of an impact

The pre-survey given to participants at the beginning of this study asked them what their general thoughts were concerning the use of closed captioning (see Appendix C). Eighteen students responded in the post-survey that they held favorable views concerning the use of closed captioning, while nine students responded that they did not care for closed captioning and nine students were indifferent. The findings from Question 3 on the post-survey revealed that no students remained indifferent regarding the use of closed captioning. This response was inconsistent, since 16 students said that they did not have a change in thinking, while 10 students replied that they did have a change of thinking. This leaves nine students unaccounted for, since they responded that they were indifferent towards closed captioning at the start of the study. It is possible, but unlikely, that these nine students did not complete a post-survey.

Table 8

Themes for Post-Survey Question 4

Theme Summaries for -*Do you believe using closed captioning enhanced or hindered your comprehension of your TV show/movie? Explain.*		
Theme	Number	Sample Responses from Participants
Enhanced	20	"I believe it enhanced my understanding of the film I watched because I was not only hearing, but also seeing what the characters were saying "Closed captioning totally helped me understand the material a lot more. It makes it a lot easier to understand what people are saying and what's happening"
No Effect	5	"neither to be honest" "It didn't enhance or hinder my understanding"
Hindered	1	"Hindered."

When asked about how closed captioning affected their comprehension of the media that they were viewing, an overwhelming majority of participants (20) responded that they believed that the use of closed captioning enhanced their levels of comprehension. This finding is in alignment with the final iReady exam results, in which both comprehension of literary text and comprehension of information text scores were two to three times greater than that of the district average. Five students reported believing that the use of closed captioning did not affect their comprehension, while one student believed that their comprehension regressed.

Table 9

Themes for Post-Survey Question 5

Theme Summaries for -*Do you believe using closed captioning enhanced or hindered your reading ability? Explain.*

Theme	Number	Sample Responses from Participants
Enhanced	15	"I think that it may have helped since you have to actually read the words if you are watching a show with closed captioning." "I'm sure using closed captioning helps improve my Lexile level, because it makes you read while watching something you enjoy"
No Effect	11	"I don't think the closed captioning" affected my Lexile level at all "I don't think it hindered or enhanced my lexile level."
Regressed	0	No regression responses given

The final question on the post-survey asked students if they believed that their closed captioning experience enhanced their reading abilities or hindered it. Fifteen of the 26 respondents believed that closed captioning enhanced their reading abilities, while 11 students responded that they believed closed captioning had no effect. After completing the post-test iReady exam, participants in the study had an overall reading ability improvement of 3.66, which is in correlation to the majority of students that believed that the use of closed captioning enhanced their reading (see Chapter Four). Students that responded with "no effect" did not elaborate as to why they believed there was no effect on their reading. The 3.66 reading score growth was not statistically significant.

Results of Personal Interviews

After the first week of the study, the researcher interviewed participants in a one-on-one format and asked a series of interview questions. The researcher recorded responses using *Google Docs* and then categorized the responses into themes that emerged. The researcher used a phenomenological approach when evaluating the participants' responses, when applicable. To read the original research questions used in the interviews, see Appendix E.

Table 10

Results for Interview Question 1

Results for -*What movie/show are you currently watching?*

Media Selection	Number
Film	17
TV Show	21

Over the course of the six-week study, the researcher met with students and asked them a series of questions pertaining to their closed captioning experience. The first question asked students what type of media they were viewing, a film or show? The results were an almost 50/50 split, with 17 students responding that they were watching a film compared to 21 students that decided to watch an episodic show.

Table 11

Results for Interview Question 2

Results for -*Are you using closed captioning while you watch the show/movie?*	
% of time spent watching media with closed captioning	Number
Less than 50%	0
50% of the time	0
More than 50%	38

Question 2 asked participants whether or not they used the closed captioning feature during the allotted time to view their media. No students answered that they viewed their media with closed captioning less than 50% of the time or 50% of the time. Instead, an overwhelming majority of students responded that they viewed their media using closed captioning more than 50% of the time. Within this category, one student replied that they used closed captioning 70% of the time, another said 75% of the time, two students responded by stating they used closed captioning 90% of the time, while the other 34 students stated that they watched their media with closed captioning enabled 100% of the time. This finding suggests that the students participated in the study as intended, which enhances the validity of the data in this research.

Table 12

Themes for Interview Question 3

Theme Summaries for -*Has using closed captioning while viewing the show/movie helped your comprehension of the movie/show? Explain.*		
Theme	Number	Sample Responses from Participants
Active Reading	28	"Yes, I feel like I can read it while listening to it so I can comprehend it" "Yes, I am very bad at understanding what people say sometimes. Being able to see what they are saying is very helpful."
Distraction	5	"Umm, not really. It's not really doing anything because I can hear them. It doesn't make it easy because you miss what's going on in the scene."
Indifference	5	"Umm, I haven't really noticed a difference.

The third question of the interview required participants to answer the question, "Has using closed captioning while viewing the show/movie helped your comprehension of the movie/show?" Three themes emerged from this question and they were active reading, distractions, and indifference. Twenty-eight of the respondents stated that they felt that their comprehension of their media increased due to some form of active reading while viewing their content. Five students responded that they did not believe that their comprehension was improving, due to the closed captions being distracting, while five students believed that their comprehension was neither improving nor declining, due to the use of closed captioning.

Table 13

Themes for Interview Question 4

Theme Summaries for -*Have you learned any new vocabulary words while using closed captioning or have the vocabulary words been words you are already familiar with? Explain.*

Theme	Number	Sample Responses from Participants
No New Words	26	"No, it's mostly just words I'm already familiar with."
New Vocab	8	"I know most of the words except exorcism words and latin words that are in the show."
Unsure	4	Maybe. It's a possibility. I'm not sure.

Question 4 of the interview asked the participants to answer the question, "Have you learned any new vocabulary words while using closed captioning, or have the vocabulary words been words you are already familiar with? Explain." The first theme that emerged from this question was word familiarity. Twenty-six of the 38 responded by saying that they did not believe that their vocabulary was growing as a result of the use of closed captioning. This finding is in alignment with the significance found with the iReady vocabulary scores, in which participants in this study had a negative vocabulary score growth of -2.42, while students across the district had a growth score of 6.16 (see Quantitative Results section in Chapter Four). Implications and future research discussions can be found in Chapter Five regarding this finding.

The second theme that emerged from Question 4 was new vocabulary that students learned using closed captioning. These words were mostly foreign words that students were unfamiliar with, as seen in Table 13. Four students responded by saying

that they were unsure of their vocabulary growth or declined from participating in this study.

Table 14

Themes for Interview Question 5

Theme Summaries for -*Do you believe using closed captioning while viewing your show/movie is increasing or decreasing your Lexile level? Explain.*		
Theme	Number	Sample Responses from Participants
Reading While Watching	19	"Probably increasing my Lexile level because I'm reading while watching. "Increasing because I like having the bubble words below so that I can see how the words are used in a sentence"
No Effect	11	"I don't think it makes a difference but that's just me I guess.
Regressed	1	"Umm, probably decreasing. I don't think it's going to change that much."

Question 5 for the interview was, "Do you believe using closed captioning while viewing your show/movie is increasing or decreasing your Lexile level? Explain." The biggest theme that emerged from this question was that of reading while watching. Nineteen of 26 responded to this theme, while 26 of 28 participants replied that they believed using closed captioning was increasing their reading levels. Eleven students replied that they believed the use of closed captioning did not have an impact on their reading ability, which correlated with using the quantitative data collected from the iReady exam. The results of the exam were not statistically significant when it came to closed captioning and the participants' reading level results. One student believed that

their reading level was decreasing. Upon reviewing this student's iReady data, the data showed that this individual participant increased their reading level in all four areas of reading. Their overall reading score went from a 635 to a 669, their vocabulary score increased from 622 to 650, their comprehension of literary text score increased from 665 to 690, and their comprehension of informational text score increased from 619 to 667 (see Appendix O).

Table 15

Themes for Interview Question 6

Theme Summaries for -*How do you feel about watching TV shows/movies using closed captioning? Explain.*

Theme	Number	Sample Responses from Participants
Strongly Enjoy	4	"Umm, I absolutely love it because you said in the past that it used to be just reading. I'm a very visual person so being able to watch it helps to motivate me more if that makes sense."
Enjoy	26	"It's a lot of fun because it makes the project more interesting. It makes me want to do the project because it's not boring or tedious" "I don't think it hindered or enhanced my lexile level."
Neutral	8	"I don't know." "I don't have an opinion."
Dislike	0	No Response Given
Strongly Dislike	0	No Response Given

The design of Question 6 was to intentionally elicit a phenomenological response to gauge students' feelings towards the concept of using closed captioning in place of an

independently chosen book. The results of Question 6 revealed that overwhelmingly students enjoyed (26 participants) or strongly enjoyed (four participants) using closed captioning in place of an independently chosen book. Eight students responded with a neutral reply. While the students may have overwhelmingly enjoyed the project, the results found in the quantitative section of this study revealed that there was no statistical significance when it came to closed captioning impacting reading abilities, with the only exception being vocabulary scores to which participants in this study demonstrated a negative growth score of -2.42.

Table 16

Themes for Interview Question 7

Theme Summaries for -*What does closed captioning look like for you in the future? Do you plan to use closed captioning in the future? Will you not use this feature? Explain.*

Theme	Number	Sample Responses from Participants
Will use CC in the future	20	"I use it everyday already so yeah."
Will not use CC in future	14	"Definitely not."
		"Umm, no. I hate it."
Circumstantial	4	"I don't know. Maybe"
		"It depends on what I'm watching."

Interview Question 8 asked participants "What does closed captioning look like for you in the future? Do you plan to use closed captioning in the future? Will you not use this feature? Explain." Out of the 38 participants in the study, 20 stated that they planned to use closed captioning in the future when viewing media independent of this study. Fourteen responded that they did not plan to use closed captioning in the future

while four participants were unsure if they would use closed captioning in the future or that it was circumstantial for them to use it.

Table 17

Themes for Interview Question 8

Responses for Interview Question 8 -*Is there anything else you would like to share regarding your use of closed captioning while viewing your movie/show?*	
Number	Responses from Participants
11	"I just wanted to say that I feel very accomplished because when I see a new word I get to learn how it's used and I feel very good." "No, it's just really annoying. "Adventuring heroes, the old man gets introduced to a man seeking a lost friend, he knows that if he loses his own person then this will hurt him because he values family so much. Traveling across land to regather group members. Some are dying, some are kings, it's complicated. Writing is a strong, clever, good book in general. We don't get to choose what we learn about so I think it's a really good opportunity to be exposed to something that you normally wouldn't want to read/watch/etc. Good for getting out of your comfort zone. Not really." "Right now in the book, after a 500 page exposition over Roland's past, they have arrived at a weird version of Oz. All the inhabitants have to wear red shoes, it's really weird. I chose this because it is the book that I was reading. There was nothing good to watch so I chose to read. No, I have nothing else to add." "Without CC I can't normally hear as well as I can when I can actually see the words there." "I just personally like to use CC while watching tv. So it doesn't really make a difference for me." "Uhh, I think this project should be used more widely because I think it helps a lot."

> "Umm, I don't understand why some people have a strong hatred for CC. I think movie theatres [sic] should use CC. I saw a movie at the movie theatre without CC and I couldn't understand any of it"
>
> "Umm, no. My grandparents are def so I always use CC so I don't even notice that it's there anymore."
>
> "Umm, I think for future reference we should not focus on CC because when watching the media I focus too much on CC."
>
> "Uh, I would recommend doing this. It's pretty cool."

The final question of the interview asked participants if they had any final thoughts that they wanted to share with the researcher. As shown in Table 17, 11 of the 38 participants interviewed had more information that they wanted to share at the end of the interview. There were no noticeable themes that emerged nor did their responses contribute anything more to the results of the study.

Observation Logs Analysis

Throughout the six-week study, the researcher created entries into an observational log each day that the study took place. The researcher dated the observational logs, noted the behaviors, and observations deemed relevant to the study, recorded and analyzed by the researcher for themes that emerged along with a phenomenological approach to ascertain the impact that closed captioning had on the participants' reading levels.

Table 18

Themes from the Observation Logs

Theme Summaries for Observation Logs 10/25-12/7

Theme	Days Observed	Notes from Observation Logs
CC Reminders	9	"[redacted] needed to be reminded to enable CC"
Forgetting Device	6	"[redacted] forgot his media device"
Internet Issues	4	"[redacted] attempted to watch, but couldn't get media to load" "The internet is having issues. Internet connectivity restored after 10 minutes"
Off-task Behavior	6	"[redacted] and [redacted] played games on their phone. The researcher reminded them that phones were not to be used during the media viewing time. The students promptly put their phones away and began watching their shows on their computer.

After the study, the researcher reviewed the recorded behavioral observations that occurred in the log and a series of themes emerged. The first theme that emerged was that of reminders. During the first two weeks of the study, the frequency of reminding students to turn on their closed captioning was high. Once enabling became more ingrained into the participants though, the reminders to enable closed captioning became more of a rarity.

The second theme that emerged was the noticeable responsibility of students remembering to bring their media devices to class. The researcher observed only six instances throughout the six-week study that students forget to bring their devices to class. This theme was not surprising since it is common in our society today for both

students and adults to have a phone, tablet, or some other form of technology on their person at all times.

The third theme that became apparent when analyzing the observational logs was that of internet issues. Over six weeks, only four times did students have difficulties getting their media to load. The cause of this theme is due to the reliable internet connection that exists within the school district of this study. Also, several students remarked that they were afraid that they would not be able to get their show to load at school so they downloaded it directly onto their device so that they could have direct access to their media for when it was time to access it.

The final theme that emerged from the researcher's observations was that of off-task behaviors. The researcher only created six entries in the observational logs regarding students engaging in off-task behaviors. The researcher noted these off-task behaviors and are in the qualitative results section of this study found in Chapter Four (See Table 18).

Summary

The quantitative and qualitative data collected by the researcher over the participants in this study using the instruments, such as the iReady exam, *Qualtrics* surveys, observational logs, and personal interviews are presented in this chapter. The themes that emerged along with phenomenology results connected to the research questions also appeared in this chapter. It was determined by the researcher that Null Hypotheses 1, 3, and 4 failed to be rejected after running a two-sample *t*-test in which the data from the participants was compared with their peers in the researched district. Null Hypotheses 1B and 2 were rejected in this study. In Chapter Five of this study, the

researcher writes about the implications and recommendations for future research in this area of study, as it relates to the literature that guided this research.

Chapter Five: Discussion, Implications, and Recommendations

Overview

The purpose of this study was to determine what happens to students' Lexile levels when they use closed captioning. Data sources used in this study were interviews, observational logs, *Qualtrics* pre- and post-surveys, and pre- and post-test iReady exams. The researcher analyzed the collected qualitative data through the use of theming and phenomenology and a two-sample *t*-test used to analyze the quantitative data gathered through the dissemination of the pre- and post-iReady exams. The researcher then measured the students' Lexile levels with a final iReady exam and the results from all data sources used in this research using a mixed-methods approach.

The research question that was the focus for this study was, "What happens to student Lexile levels when they use closed captioning?" To answer this question, students viewed closed captioned media in place of traditional independently chosen books. Once the participants selected their media for this study, 20 minutes per class period was allotted to the participants for six weeks to view their selected media with closed captions enabled. This ELA concept of requiring students to read for 20 minutes per day is historical. Schwarts (1995) wrote about reading campaigns springing up throughout America called, "The Most Important 20 Minutes of Your Day," in which members of their communities encouraged students to read for 20 minutes every day to reap the benefits of prolonged reading, such as increased reading stamina, higher test scores, and avoidance of the penal system (para. 34). These ideas of requiring students to read are still relevant today and were published in the article, "Why Children Should Read 20 Minutes a Day and How This Impacts Your Kids' Development – At Any Age,"

in which the authors wrote, “Reading 20 minutes a day exposes kids to a vast quantity of words (1.8 million in each school year, actually!). And this exposure makes children more likely to score in the 90th percentile on standardized tests” (2020, para. 6). This along with sources seen in Chapter Two helped form the research questions and hypotheses statements in this study.

Research Questions and Hypotheses

Research Question 1: What happens to Lexile scores when students use closed captioning?

Null Hypothesis 1: There is no difference in Lexile scores between those that use closed captioning and those that do not as measured by the iReady exam (Lexile score).

Null Hypothesis 1B: There is no difference in Lexile scores between those that use closed captioning and those that do not as measured by the iReady exam (Lexile score), when only considering differences in viewing TV shows versus films.

Research Question 2: What happens to students' vocabulary levels when they use closed captioning?

Null Hypothesis 2: There is no difference in vocabulary levels between students that use closed captioning and those that do not as measured by the iReady exam (vocabulary results section), survey questions, and interview questions.

Research Question 3: What happens to the reading comprehension of literature scores for students that use closed captioning and those that do not?

Null Hypothesis 3: There is no difference in reading comprehension of literature scores between students that use closed captioning and those that do not as measured by

the iReady exam (reading comprehension of literature score results section), media viewing questions, survey questions, and interview questions.

Research Question 4: What happens to students reading comprehension of informational text when they use closed captioning?

Null Hypothesis 4: There is no difference in reading comprehension of informational text between students that use closed captioning and those that do not as measured by the iReady exam (comprehension of informational text score results section).

Independent variable: The independent variable is the closed captioning tool available on the participants selected media.

Dependent variable: The dependent variable are the participants Lexile scores

Review of Methodology

The baseline Lexile assessment occurred during the October testing window in the middle of the fall semester. Once completed, students began viewing their self-selected closed-captioned media material. This one-week trial of the shows/movies is a research-based practice as found in Gallagher's (2015) book, *In the Best Interest of Students*. After the one-week trial period expired, students viewed their selected film/show for four weeks where they completed annotations along with their self-selected film/show (Gallagher, 2015). Students worked on selected creative projects, slideshows, book reviews, and finished their chosen movie/show for the remaining week. Participants in the study received pre- and post-surveys participants during the first week (pre-survey) and last week (post-survey) respectively. The researcher met with participants once (due to time constraints) during the study to ask interview questions to student participants.

The researcher then collected the quantitative iReady scores and then analyzed the data using a two-sample *t*-test method. The researcher also collected and analyzed qualitative data gathered through the use of personal interviews, observation logs, pre- and post-surveys and recorded themes that had emerged. The qualitative and quantitative results are reported in Chapter Four of this study. The step-by-step procedure for this research was as follows:

- Students completed the iReady pre-test to measure their Lexile levels.
- Students completed their pre-survey during week one.
- Students chose a film or TV show to view with closed captions enabled.
- Students viewed their selected content and completed reading questions for six weeks.
- Students then completed a post-survey during week six, which asked how effective closed captioning had been helping improve their Lexile levels.
- Students then completed a post-test using the iReady system.
- The researcher recorded on task/off task behavior in observational logs (determined based on whether or not they are actively viewing media with closed captions enabled/answer questions, or otherwise distracted, playing games, sleeping, etc.).
- The researcher gathered and recorded the results in Chapters Four and Five of this study.

iReady Data Results of Lexile Levels

After running the six-week experimental study to discover what happens to student Lexile reading levels when they use closed-captioning, the researcher required

students to complete an iReady post-test, and once finished, the researcher collected their results. The growth scores of freshmen student participants in this study (n=38) were then compared to the growth scores of freshmen across the district research site (n=810) using a two-sample *t*-test of unequal variance to check for significance. The results of the study, implications, and discussion over the findings are presented in the following sections.

Research Question 1 & Null Hypothesis 1/1B Findings: Overall Lexile Scores

As previously indicated in discussion of Figure 8, the researcher used a two-sample *t*-test to determine whether there was significance in the areas of students' overall reading scores, vocabulary, comprehension of literature, and comprehension of informational texts after using closed captioned media in this study. For the first area of assessment, overall Lexile reading growth, participants in the study had an overall reading score growth of 3.66 at the end of the six weeks. The recorded district reading growth over this same period when not using closed-captioned material was 4.21. With an *a*-value of 0.05 and a *p*-value of 0.31, this finding was not significant. Null Hypothesis 1B was proven to be statistically significant when examining the differences between comprehension of those that watched TV shows and movies, but the sample size when comparing these two groups was less than 30 so future research would require a greater number of participants in these two areas in order to provide strength to this finding.

Research Question and Null Hypothesis 2 Findings: Vocabulary

The next set of quantitative Lexile data that the researcher analyzed was the area of growth of vocabulary. Using a two-sample *t*-test comparing the participants in the closed-captioning group and the students taking the iReady test without closed

captioning, the growth of the closed-captioning group comprised of 38 students had an average vocabulary growth score of -2.42, while the 810 students across the district had a vocabulary growth score of 6.16, as seen in Figure 9. Using an *a*-value of 0.05 and a *p*-value of 0.047 revealed that there was adverse significance in the area of vocabulary growth in this study.

Research Question & Null Hypothesis 3 Findings: Comprehension of Literary Texts

As shown previously in discussion of Figure 10, the third set of quantitative data that the researcher collected and analyzed was the iReady Lexile data in the area of comprehension of literature. In this area of Lexile growth, the closed-captioned participants had a growth score of 10.79 with the district average growth in this area being 5.42. Using a two-sample *t*-test with an *a*-value of 0.05 and a *p*-value of 0.29 revealed that there was no significance in this area.

Research Question and Null Hypothesis 4 Findings: Comprehension of Informational Texts

The last quantitative data the researcher analyzed was the area of Lexile growth was comprehension of informational texts. As indicated previously in discussion of Figure 11, after this study the closed-captioned group had a growth score of 9.03 with the districtwide students having a growth score of 3.42. Using an *a*-value of 0.05 and a *p*-value of 0.26 revealed that there was no significance in this area.

Major Themes That Emerged

The researcher in this study recorded and collected qualitative data from the use of pre- and post-*Qualtrics* surveys, observational logs, and personal interviews. After the researcher finished collecting this data, a review of the data was conducted and several

major themes emerged. Tables and data results can be found in Chapter Four. The themes and discussion of these themes are found in the following sections.

Major Theme One: Closed Captioning & the Hearing Impaired

The first theme was associating closed captioning with that of deaf individuals. This theme that emerged in this study of assuming closed captioning is typically thought of as an assistive tool for the deaf or hearing impaired is found in the research by Ellis et al. (2017), in which they wrote, “Much of the literature focuses on the provision of captions – a vital accessibility feature for people who are Deaf or hard of hearing” (p. 885). This theme of connecting the concept of closed captioning to a hearing disability is also supported by researchers Schafer et al. (2021): “As stated previously, closed captioning, transcripts/notes, recordings, and sign language interpreters, when applicable, should be considered for all students with hearing loss in all learning situations. This helps to provide clarity for understanding for those with hearing disabilities” (p. 8). It was surprising that this particular theme emerged from the collected students' responses during the interview phase of this research.

What this theme suggests is that students may not believe that closed captioning is for them if they do not possess a hearing impairment. What this looks like in the practical sense is that individuals that do not have a hearing impairment would exhibit avoidance when it comes to enabling closed captioning and neglecting the benefits that come from its usage (Yavuz et al., 2016, p. 1792). What was surprising was the number of students who responded in the *Qualtrics* pre-survey that stated that they already used closed captioning in their spare time. Eleven students responded that they regularly used closed captioning on their own before the study began. This suggests a shifting of attitude

towards the perception of closed captioning as a tool only for the hearing impaired, but that there is still room for improvement in terms of its perception (see Table 2). This finding is supported by Taylor (2018) who wrote about the gaining popularity of platforms, such as Twitch which provides its audience access to entertainers that has both a seamless chat option and closed-captioning tools for users to use to improve their experience and comprehension of the show.

Major Theme Two: Comprehension

Another theme that emerged from the personal interviews was of comprehension. Eleven of the 33 participants responded to interview Question 1 stating that when they do use closed captioning, they use CC to improve their comprehension of the media that they are viewing. This theme supports the research of Dragojevic (2021) in which the researcher measured student attitudes towards content and instructors that appeared foreign to them. In Dragojevic's (2021) work, he wrote the following concerning comprehension in the classroom, "Foreign-accented instructors are often evaluated more negatively than native-accented instructors, students often cite comprehensibility concerns, and consequences for misunderstanding can be significant (e.g., class performance)" (p. 175).

Dragojevic's (2021) finding suggested that when students enable closed captioning that they view this tool as a means to increase their comprehension, just like the research that found Dragojevic's work in which slides, outlines, and other interventions (in this case closed captioning) will help to build comprehension on the part of the student. Redford (2020) also supported this idea in the article, "For Reading Comprehension, Knowledge is POWER." Redford (2020) argued that it is simply not

enough to teach 21st-century skills to students, but that students must also have exposure to engaging content that they can then practice these skills with (pp. 52-56). The participants' high engagement in this study revealed that the use of closed captioning in the ELA classroom is a viable tool that teachers can use opportunity to engage with high-interest content, while simultaneously developing 21st-century skills, such as critical thinking, reading/writing stamina, and synthesizing content that students will need when they enter the workforce as suggested by Redford (2020).

Major Theme Three: Device Responsibility

Observational logs in this study also yielded themes that became apparent to the researcher. A theme that emerged from the observation logs was the noticeable responsibility of students remembering to bring their media devices to class (see Table 18). This theme was not surprising, since it is common in our society today for both students and adults to have a phone, tablet, or some other form of technology on their person at all times. This emergent theme correlates to the research conducted in Østergard (2017), “Facebook, the largest social media network, currently has approximately 2 billion monthly users (1), corresponding to more than 25% of the world’s population” (p. 439). Østergard’s (2017) research revealed not only the prevalence of technology in our society today, but also supports this emergent theme of student responsibility in that it is not surprising that students mostly had direct access to their shows and films during this study because they prioritize having their technology on them at all times.

This theme that emerged from the observation logs and personal interviews is also reflected in the work of researcher Nedal (2017). Nedal (2017) wrote “Riding the next

TECH WAVE," in which the researcher discussed the current tech climate at public schools across the country and where they believe technology is headed. According to surveys conducted by Nedal (2017), when asked “Regarding technology, which of the following areas will see the most significant growth in your district in 2017?” 44% of respondents said that tablets or other portable devices would see the most growth. Thirty-four percent believed that the internet and WIFI would grow the most and 24% of respondents said that cloud computing and storage would see the most growth within the district surveyed (p. 68). This research shows that students are expected to increasingly be connected to their devices and will increasingly have access to material via cloud storage in the near future. In the observational logs in this study, when students did forget their device or had trouble accessing their media content due to internet issues, students were recorded as being able to access their media via the cloud or accessing material from another readily available device. The observational logs in this study were in alignment with Nedal’s (2017) research and revealed that researchers and teachers that decide to incorporate closed captioning in future studies will be able to rely on multiple access points for students to use in the event they do forget their respective devices.

Major Theme Four: Engagement

Another theme that emerged from the researcher’s observation logs was that of engagement. Historically, when English Language Arts (ELA) teachers have their students read an independent book of their choosing, it is not uncommon to witness students engaging in some form of off-task behavior, such as drawing, sleeping, or playing on their phones. Researchers Shinoda et al. (2021) support this notion of classrooms naturally having off-task behavior in their study of visual processing.

"Teachers need to be sensitive to student behaviors and respond accordingly because there are students who follow the teacher's instructions and those who do not in every classroom" (p. 1). These recorded off-task behaviors by the researcher are found in the qualitative results section of this study found in Chapter Four (See Table 17). The implication from this theme, along with the observational logs suggests that the use of closed captioning can help alleviate, but not eliminate, off-task behaviors during reading time in the ELA classroom. In today's modern classrooms, ELA teachers are waging a constant battle for student attention. The noticeable absence of off-task behaviors during the participants' media viewing time suggests that teachers can harness this technology by having students use these devices that they love as a tool used to help them reach their academic goals.

Researcher, Hansil (2021) supports the incorporation of technology into the classroom and advocates for the use of gamification in the classroom setting. While this study did not utilize gamification in the design of the research, there were similar overlaps between the gamification and the use of closed captioning in this study. According to Hansil (2021), gamification "can create emotional responses from our learners, inspire competitive spirits, and help students engage with the subject matter in unexpected ways" (p. 64). Participants in this study also expressed high engagement behaviors, such as loudly proclaiming, "Oh my god, this is my favorite class!" and "This is the class I look forward to the most!" Participants were also overheard saying, "I have never done something like this before in school" which is in alignment with Hansil's (2021) work with gamification. Allowing students to utilize their personal devices to develop their Lexile reading levels produced high engagement and low numbers of off-

task participants in this study, which are seen in the observational log recordings in Table 18.

Implications Regarding the Use of Closed Captioning

After analyzing the data that were collected during this study, it became clear that while there was no statistical significance in students' overall reading comprehension, comprehension of literature, and comprehension of informational text, the growth in these areas of reading were comparable and even exceeded the average scores across the district in these areas of reading, as can be seen in Figures 10 and 11. This finding suggests that statistically there was no difference in these areas regarding whether or not students were reading a traditional book or watching media with closed captioning enabled. This finding is in correlation with the findings of researchers Islam et al. (2020), in which they discovered in a study on Australian school children that read media on screens, such as what is found in text-based videogames, saw an increase in their reading scores, which correlates to the increase in reading comprehension scores in this study (p. 1)

The exception to these findings is the difference in the scores of comprehension of literary texts between participants that viewed TV shows during this study and those that viewed movies. No participant claimed to have watched both during this study. Participants that watched TV shows with closed captioning enabled had an average growth score of 21.31, while those that selected films had an average growth score of 0.26 for an overall *p*-value of 0.038 which is statistically significant in a comparison between the two subgroups. It is worth mentioning that the number of participants for both the students that viewed films during the study and those who viewed TV shows is

below the 30-limit threshold for data reliability. Thus, while the numbers appear to be statistically significant, there is room for error in this particular set of data. Future research is necessary due to the implication of this data to measure significance in Lexile differences between the participants that viewed films and those that elected to view TV shows. Future studies in this area need to include 30 or more participants in each of these categories to gain a clearer picture regarding the implication of this finding.

This finding implies that students retain the information better than in an average show that is presented in 20 to 30-minute segments rather than a two to three-hour film. Fishbein (2021) wrote that students watch TV shows for an average of 20 hours per week (pp. 16–21.) Thus, if students are used to watching TV shows that are presented in these 20 to 30-minute segments, then their brains would be used to acquiring and processing this information better than participants that elected to watch a full movie that was broken up into 20-minute segments for this study. This finding makes sense, considering that if a participant's show was around 20 minutes in length, then they would have closure with their show and given all of the pertinent information in the show. However, those that elected to watch a film would need to recall what they watched yesterday, remember major and minor details, and then be able to seamlessly continue watching the movie with all of that information where they left off. Also, as the pace of our society continues to speed up, it makes sense that the attention span for sitting and watching a piece of media would lessen. Jacobs (2020) asserted this notion in which he described society’s lessening attention span by using a “double-speed” method, where individuals are watching lengthy films at twice the speed because they do not have the time or attention span to sit through these lengthy films. Jacob (2020) states though that then

comprehension suffers, due to the viewer losing out on the smaller details and subtleties that are found in lengthy films (p. 52).

In addition, in the area of vocabulary growth the researcher discovered that there was moderate, adverse significance. As previously seen in Figure 9, student vocabulary scores were significantly lower than that of their peers across the district. This finding also correlates with the qualitative data that the researcher collected through interviews and *Qualtrics* surveys, in which a majority of participants stated that they did not believe that their vocabulary was growing and that they had little exposure during this study to new vocabulary words in their selected media (see Table 13). The collected data from the iReady exam revealed that vocabulary levels for students in this study were negatively affected by solely relying on the use of closed captioning without any additional vocabulary-building resources. The implication of this finding suggests that if classroom teachers decide to adopt this close-captioning approach to increasing student Lexile levels and reading comprehension, they will need to provide additional resources for students to help improve their vocabulary levels.

Recommendations for Further Study

After examining the data from the iReady Vocabulary assessment, it is apparent that the use of closed captioning in place of independent reading books needs support. As seen in Figure 9 that there was a noticeable decrease in the vocabulary levels of students that participated in the closed captioning research. This decrease in vocabulary reveals that students involved in the closed captioning group did not grow in this area, which was correlated with the major theme that emerged in Interview Question 4, which a majority of the participants (30) believed that their vocabulary levels were either not improving or

they could not tell if their vocabulary was improving (see Table 13). Thus, it is recommended that future researchers in this area provide additional vocabulary support for future closed-captioned research participants. Researchers Pujadas and Muñoz (2019) also found that providing vocabulary support for students is necessary in the area of building vocabulary levels within students in teachers' classrooms. In the article, "Extensive viewing of captioned and subtitled TV series: A study of L2 vocabulary learning by adolescents," Pujadas and Muñoz (2019) wrote, "The analysis also showed that, overall, groups that were pre-taught the target items performed better, independently of the language of the on-screen text" (p. 479)

While Pujadas and Muñoz (2019) advocate for pre-teaching students vocabulary before video on-screen text, the natural question that arises is what this form of pre-teaching should look like. The vocabulary support needed for future students should not simply be the use of rote memorization of a selected list of words, which Huang and Huang (2015) stated was ineffective. Instead, Huang and Huang (2015) suggested that a viable vocabulary support strategy for students is to provide them with time to engage in vocabulary electronic games (pp. 692-703). The use of electronic games as a vocabulary support strategy for future research is a sensible extension of student learning since they will already be utilizing their devices to view their media. Thus, a transition from one application such as Netflix to watch their self-selected media would be a seamless transition into their vocabulary support gaming application.

In addition, the researcher recommends that future research in this area have an increased number of participants. For a variety of reasons, such as conducting research during a pandemic, tensions between the local community and the school district, and

other unknown factors, this research was only able to secure the approval of 38 participants. It is worth exploring whether significance in future research will occur in the four areas of Lexile growth that the researcher analyzed in this study.

The forms of technology utilized must also be considered for future research in this area. As mentioned in Chapter One, as the SAMR module and the technology industry continue their rapid development and worldwide integration, new approaches to closed-captioned material and the impact of its usage with student Lexile levels must be taken into consideration. The rise of AR (Augmented Reality) headsets, holo-lenses, and other forms of technology/human synthesis provide not only entertainment, but new learning opportunities that students can experience (Thees et al., 2020). These experiences will also provide on-screen text, such as the use of closed captioning, that could further enhance student comprehension in the content that they are being exposed to or it could prove too distracting and break the immersion in content, as was reported in the personal interviews conducted in this study (see Table 2). The work of Nelson et al. (2016), on gaming and educational application, promotes this synthesis of blending gaming experiences with education since these forms of AAA video games are increasingly making their experiences accessible (2016). Thus, the use of closed captioning in its various forms, whether it be in video games, augmented reality, holo-lens usage, or on traditional television sets is a field of study that is rich in content and will need further study as this technology continues to grow.

Lastly, as mentioned previously, the researcher conducted this study during the COVID-19 pandemic. As mental health research shows, mental health issues can have an

immense impact on testing and academics. Medical researchers Shantakumar et al. (2022) published their findings in the *Bangladesh Journal of Medical Science,* in which they wrote, "Individuals who exercise for one to two hours have better physical and mental health status and excellent academic performance. It can also be concluded that students who do regular exercise have higher confidence in academics than those who do not" (p. 135). Thus, it is reasonable to suggest that participants in this study, whether consciously or unconsciously, experienced mental health effects while participating in this research. Throughout the COVID-19 pandemic, schools shut down, students and teachers quarantined, and after-school programs called off. These events occurred within the location where this research took place, which means it is plausible to suggest that student academic performance impact occurred as a result of the COVID-19 pandemic. It is worth exploring whether significance in the four areas of Lexile growth would materialize in further research that occurs outside of a global pandemic.

Discussion

As our society continues to advance in the area of technology, being able to harness technology, such as closed-captioning tools, is imperative for society's young minds to maximize student learning within the classroom moving forward. An interwoven framework that should be within educators' classroom practices is the thoughtful use of the SAMR model as seen in this study. Researchers Crompton and Burke (2018) wrote about the four levels of the use of the SAMR model in which they stated, "The four levels – substitution, augmentation, modification, and redefinition – begin with a very basic use of technology and at each level the use of technology" (p. 3).

The incorporation of this technology framework helps to move educators through the levels of increasing complexity concerning technology use in the classroom. The first level is substitution, in which the educator simply changes one classroom material, such as a textbook for a technological substitute, such as an iPad. The complex integration of technology continues to progress through the four levels that Crompton and Burk (2018) discussed until ideally, the educator reaches the final level of technology incorporation which is redefinition as discussed by the authors. The use of closed captioning is a step towards redefining what we think of when it comes to the classroom experience.

The use of closed-captioned media in place of traditional independently selected books helps to foster a sense of buy-in within the students. It is by tapping into students' existing interests, that educators have the potential to help students reach their learning goals. This idea is supported by the University of North Carolina researchers Galbraith and Rodriguez (2018), in which they wrote the following:

> Narrative engagement is related to enjoyment and affective disposition toward the narrative characters, and that this association improves the comprehension of the material—strongly suggests that instructors using narrative-based pedagogical materials, such as cases, videos, vignettes, etc., give careful consideration in selecting material that enhances narrative engagement to maximize the students' comprehension of critical themes for the follow-on classroom discussions. (p. 178)

As the ubiquitous presence of technology continues to manifest within our society, created content is becoming more readily available. Class trips to the library, sifting through card catalogs and renewing books to provide one with experiencing

stories are no longer the norm. Instead, people today have overwhelming access to stories that are readily available through the use of apps such as Hulu, HBO Max, Netflix, and others. The researcher suggests that this idea of transference must be taken into consideration for the modern ELA (English Language Arts) teacher. Researchers Strassman et al. (2010) supported this idea of transference through the use of closed captioning when they wrote, "Although the amount of digital material watched by today's youth has raised concerns about their literacy development, captions could hold a key to turning this media into an educational asset" (p. 200). If teachers can help students reach their learning goals by substituting a traditional book for modern media that students are already using, why would a teacher not utilize this existing student interest?

Lastly, as discussed in Chapter Four, two students in the 6th hour closed-captioning group elected to read rather than continue to engage with closed-captioned material. When interviewed, one of these two students stated that they just "really like reading" and did not want to continue with the TV show that they selected. The other student chose to watch Stephen King's (2017) *The Dark Tower,* and when finished, immediately wanted to read the books. This behavior, as recorded in the observational logs is not surprising and correlates with the research conducted by Francis et al. (2020). On a college campus, Francis et al. (2020) gave out a survey to 100 college students and asked about their reading habits. Eighty-two percent of the students, when asked if they spent three or more hours reading from books or eBooks daily, responded that they did (p. 999). This finding reveals that even when students have access to entertaining shows and movies readily available, traditional reading from a book is not dead. Instead, students continue to invest time in both forms of media and future research in the area of

closed captioning will inevitably lead to students that may initially show interest in a TV show or film, but may later choose to read a book instead.

Conclusion

The significance of this study was to see what happens to students' Lexile levels when they use closed captioning. It was through the use of personal interviews, *Qualtrics* pre-and post-surveys, observational logs recorded on *Google Docs*, and pre and post-test Lexile assessments through the use of the iReady system that the qualitative and quantitative data were collected for this study. The results of this study revealed that there was no significance when it came to the impact of closed captioning on overall Lexile levels, comprehension of literature, and comprehension of informational text. However, this study revealed that there was significance in the vocabulary levels of students that used closed captioning in that they had an overall growth score of -2.42, compared to their peers that did not use closed captioning and had a vocabulary score of 6.16 (See Figure 9).

The main takeaway from this study is that student Lexile scores grew at a similar rate, and in the areas of reading comprehension of informational/literary text at a greater rate compared to their peers reading traditional independent books. However, teachers utilizing media in place of books need to provide vocabulary support to prevent a decline in student vocabulary, as measured in this study. Closed captioning is a powerful tool that if incorporated into ELA instruction, has the potential to not only get students actively engaged in their learning, but also help them to become better readers.

References

Allmark, P. et al. (2009). Ethical issues in the use of in-depth interviews: Literature review and discussion. *Research Ethics Review, 5*(2), 48-54. https://journals.sagepub.com/doi/pdf/10.1177/174701610900500203.

American Psychological Association. (2020). *American dictionary of psychology*. https://dictionary.apa.org/operant-conditioning.

Beers, K., & Probst R. E. (2013). *Notice & note: Strategies for close reading*. Heinemann.

Black, M., & Powelson, S. (2021). A rapid implementation of a reserve reading list: Solution in response to the COVID-19 Pandemic. *Information Technology & Libraries, 40*(3), 1–11. https://doi.org/10.6017/ital.v40i3.13209

Block, C., & Mangieri, J. N. (2002). Recreational reading: 20 years later. *Reading Teacher, 55*(6), 572.

Bodur, H., Yurdakul, F. G., Duruöz, M. T., Çay, H. F., Uçar, Ü., Keskin, Y., Sargın, B., Gürer, G., Yurdakul, O. V., Çalış, M., Deveci, H., Aydın, Y., Hizmetli, S., Çevik, R., Karahan, A. Y., Ataman, Ş., Ecesoy, H., Günendi, Z., Toprak, M., & Şen, N. (2021). Familial Mediterranean fever: Health-related quality of life and associated variables in a national cohort. *Archives of Rheumatology, 36*(2), 159–166. https://doi.org/10.46497/ArchRheumatol.2021.8215

Bozkurt, M. (2021). Locked-down!: Parental perception of children's changing access and use of urban green spaces and playgrounds after COVID 19 outbreak. *Journal of Adnan Menderes University, Agricultural Faculty, 18*(2), 303–310. https://doi.org/10.25308/aduziraat.1007588

Brown, B. (2022). *Atlas of the heart*. Penguin Random House, LLC.

Capin, P., Cho, E., Miciak, J., Roberts, G., & Vaughn, S. (2021). Examining the reading and cognitive profiles of students with significant reading comprehension difficulties. *Learning Disability Quarterly, 1*. https://doi.org/10.1177/0731948721989973

Caputo, C. (2013). The benefits of *Google* Chromebooks and apps for education. *District Administration, 49*(7), 40–41.

Caserotti, M., Girardi, P., Tasso, A., Rubaltelli, E., Lotto, L., & Gavaruzzi, T. (2022). Joint analysis of the intention to vaccinate and to use contact tracing app during the COVID-19 pandemic. *Scientific Reports*, *12*(1), 1–13. https://doi.org/10.1038/s41598-021-04765-9

Closed Captioning on Television. (2021). Federal Communications Commission. https://www.fcc.gov/consumers/guides/closed captioning-television#:~: text=Closed%20captioning%20displays%20the%20audio,or%20hard%2Dof%2D hearing.

Chambré, S. J. (2017). Harnessing technology to manage writers' workshop for struggling students. *Reading Teacher, 70*(4), p. 497. EBSCOhost, doi:10.1002/trtr.1531.

Cohen, M. (2018). *Educated by design*. Dave Burgess Consulting, Inc.

Cohen, L., Manion, L., & Morrison, K. (2011). *Research Methods in Education*. Routledge.

Crewswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, & mixed-methods approaches*. Sage Publications, Inc.

Creswell J. W., & Plano Clark V. L. *Designing and conducting mixed methods research* (2018). Sage Publications, Inc.

Creswell J. W., & Poth C. N. (2018). *Qualitative inquiry & research design: Choosing among five approaches.* Sage Publications, Inc.

Crompton, H., & Burke, D. (2018). Frameworks for integrating technology into optometric education. *Optometry in Practice, 19*(1), 1–5.

Davis, D. S., & Vehabovic, N. (2018). The dangers of test preparation: What students learn (and don't learn) about reading comprehension from test-centric literacy instruction. *Reading Teacher, 71*(5), 579–588. https://doi.org/10.1002/trtr.1641

Doman, M. (2021). Lexile levels: What parents need to know. Scholastic, Inc. https://www.scholastic.com/parents/books-and-reading/reading-resources/book-selection-tips/lexile-levels-made-easy.html#:~:text=The%20Lexile%20level%20will%20always,highest%20possible%20measure%20is%202000L.

Dragojevic, M. (2020). Extending the fluency principle: Factors that increase listeners' processing fluency positively bias their language attitudes. *Communication Monographs, 87*(2), 158–178. https://doi.org/10.1080/03637751.2019.1663543

Eldredge, J. L., & Quinn, D. W. (1988). Increasing reading performance of low-achieving second graders with dyad reading groups. *Journal of Educational Research, 82*(1), 40–46. https://doi.org/10.1080/00220671.1988.10885863

Ellis, K., Kent, M., Locke, K., & Clocherty, C. (2017). Access for everyone? Australia's 'streaming wars' and consumers with disabilities. *Continuum: Journal of Media*

& Cultural Studies, *31*(6), 881–891. https://doi.org/10.1080/10304312.2017.1370076

Fishbein, R. (2021). Teens on TV vs. IRL. *Scholastic Choices, 37*(4), 16–21.

Flentje, M., Eismann, H., Sieg, L., Hagemann, V., & Friedrich, L. (2020). Impact of simulator-based crisis resource management training on collective orientation in anaesthesia: Pre-post survey study with interprofessional anaesthesia teams. *Journal of Medical Education & Curricular Development, 7*, 1–7. https://doi.org/10.1177/2382120520931773

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2015). *How to design and evaluate research in education*. New York, NY: McGraw Hill Education.

Francis, T., Vishnu Priya, V., & Gayathri, R. (2020). Awareness of book reading habits among college students. *Drug Invention Today*, *13*(7), 998–1000.

Galbraith, C., & Rodriguez, C. (2018). Student engagement and enjoyment of narratives: An empirical study of an authentic music video and a short teaching case. *College Teaching*, *66*(4), 171–180. https://doi.org/10.1080/87567555.2018.1474334

Gallagher, K. (2015). *In the best interest of students: Staying true to what works in the ELA classroom.* Stenhouse Publishers.

Gallagher, K. (2009). *Readicide*. Stenhouse Publishers.

Garakouei, S. A., Mousavi, S. V., Rezaei, S., & Lafmejani, A. Q. (2020). The examination of mediating effects for self-control and time management in relationship among problematic cellphone use with loneliness and educational performance of high school students. *Journal of Educational Sciences & Psychology*, *10*(1), 127–140.

Gieselmann, K. *How to Improve Student Reading Scores* (2021). [conference presentation], WSD Learns, Wentzville, Missouri.

Goldman, M., & Goldman, S. (1988). Reading with closed-captioned television. *Journal of Reading, 31*, 458-461

Gordon, B. (2017). How to stop fake reading? Give students choice as well as the classics. Corwin Publishing. https://www.weareteachers.com/stop-fake-reading/.

Graham, Y., Awad, G., & Smeaton, A. (2018). Evaluation of automatic video captioning using direct assessment. *PLoS ONE*, *13*(9), 1–20. https://doi.org/10.1371/journal.pone.0202789

Hansil, R. (2021) How gamification mechanics can improve student engagement, *Childhood Education, 97*(4), 62-67, DOI 10.1080/00094056.2021.1951568

Harvey II, C. A. (2011). An inside view of Lexile measures: An interview with Malbert Smith, III. *Knowledge Quest, 39*(4), 56–59.

Huang, Y.-M., & Huang, Y.-M. (2015). A scaffolding strategy to develop handheld sensor-based vocabulary games for improving students' learning motivation and performance. *Educational Technology Research & Development, 63*(5), 691–708. https://doi.org/10.1007/s11423-015-9382-9

iReady. (2021). Curriculum Associates, LLC. https://www.curriculumassociates.com/products/i-ready/oral-reading-fluency.

iReady. (2022). Curriculum Associates, LLC. https://i-readycentral.com/download/?res=16754&view_pdf=1

Islam, M. I., Biswas, R. K., & Khanam, R. (2020). Effect of internet use and electronic game-play on academic performance of Australian children. *Scientific Reports, 10*(1), 1–10. https://doi.org/10.1038/s41598-020-78916-9

Jacob, S. A., & Furgerson, S. P. (2012). Writing interview protocols and conducting interviews: Tips for students new to the field of qualitative research. *The Qualitative Report*, 17(42), 1-10. https://doi.org/10.46743/2160-3715/2012.1718

Jacobs, A. J. The need for speed. (2020). *Entertainment Weekly (1591)*52.

Jackson, J. (2017). The secrets of Netflix's success. *New Statesman*, *146*(5390), 19.

Kirk, Z. (2016). Increasing Lexile levels to improve student learning. Georgia Department of Education. https://www.gadoe.org/School-Improvement/School-Improvement-Services/Documents/Events%20and%20Conferences/ILC%20Metro%20February%202016/Increasing%20Lexile%20Levels%20Presentation%20and%20Handout.pdf.

Kirkland, D. E. (2019). The truth behind the pipeline: Is the illiteracy-to-prison connection real? *Literacy Today (2411-7862)*, *36*(4), 10–11.

Knight, V., & Sartini, E. (2015). A comprehensive literature review of comprehension strategies in core content areas for students with autism spectrum disorder. *Journal of Autism & Developmental Disorders*, *45*(5), 1213–1229. https://doi.org/10.1007/s10803-014-2280-x

Lavery, K. (2019). Sync or swim: Captions. *Screen Education*, *94*, 98–102.

Lightsail Publications. (2022). Website. https://lightsailed.com/catalog/book/moby-dick-herman-melville/LC00000000460

Lightsail Publications. (2022). Website. https://lightsailed.com/catalog/book/night-elie-wiesel/9781466805361/

Mann, J. C. (2021). The binding figures of eloquence in early modernity. *Shakespeare Studies* (0582-9399), 49, 61–71

Momanu, M., Popa, N. L., & Samoilă, M.-E. (2018). A brief history of family life education in Romania. *Paedagogica Historica, 54(*3), 266–286. https://doi.org/10.1080/00309230.2017.1417319

Moore, K. P., & Richards, A. S. (2019). The effects of instructor credibility, grade incentives, and framing of a technology policy on students' intent to comply and motivation to learn. *Communication Studies*, *70*(4), 394–411. https://doi.org/10.1080/10510974.2019.1617761

Nadel, B. (2017). Riding the next TECH WAVE. *District Administration, 53*(1), 65–70.

Nelson, N. J., Fien, H., Doabler, C. T., & Clarke, B. (2016). Considerations for realizing the promise of educational gaming technology. *Teaching Exceptional Children, 48*(6), 293–300. https://doi.org/10.1177/0040059916650639

Nordquist, Richard. (2019). Vocabulary acquisition. Dotdash Publishing Company. https://www.thoughtco.com/vocabulary-acquisition-1692490

Østergaard, S. D. (2017). Taking Facebook at face value: Why the use of social media may cause mental disorders. *Acta Psychiatrica Scandinavica*, *136*(5), 439–440. https://doi.org/10.1111/acps.12819

Pujadas, G., & Muñoz, C. (2019). Extensive viewing of captioned and subtitled TV series: A study of L2 vocabulary learning by adolescents, *The Language Learning Journal, 47*(4), 479-496, DOI: 10.1080/09571736.2019.1616806

Redford, K. (2020). For reading comprehension, Knowledge is POWER. *Educational Leadership, 77*(5), 52–56.

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

Riley, J., Huntley, J. M., Miller, J. A., Slaichert, A. L. B., & Brown, G. D. (2022). Mask effectiveness for preventing secondary cases of COVID-19. Johnson County, Iowa, USA. *Emerging Infectious Diseases, 28*(1), 69–75. https://doi.org/10.3201/eid2801.211591

Ritchey, K. D., Palombo, K., Silverman, R. D., & Speece, D. L. (2017). Effects of an informational text reading comprehension intervention for fifth-grade students. *Learning Disability Quarterly, 40*(2), 68–80. https://doi.org/10.1177/0731948716682689

Rovaris, D. J. S. (2020). If the storm keeps raging. *Diverse: Issues in Higher Education, 37*(15), 13–14.

Sabar, A. (2021, July 23). A scholarly screw-up of Biblical proportions. *Chronicle of Higher Education*, 67(23), 11.

Saldaña, J. (2011). *Fundamentals of qualitative research*. Oxford University Press. https://lindenwood.instructure.com/courses/83390/files/16853236?module_item_id=3015355.

Schafer, E. C., Dunn, A., & Lavi, A. (2021). Educational challenges during the Pandemic for students who have hearing loss. *Language, Speech & Hearing Services in Schools, 52*(3), 889–898. https://doi.org/10.1044/2021_LSHSS-21-00027

Schwartz, D. M. (1995). Ready, set read -- 20 minutes each day is all you'll need. *Smithsonian*, *25*(11), 82.

Secondary Education B.S. (2021). Rockhurst University. https://catalog.rockhurst.edu/preview_program.php?catoid=20&poid=3696&returnto=1337

Shantakumar, S. R., Bin Sahabdeen, H., Abidin, F. A. B. Z., Perumal, G., & Kumar, N. (2022). Association of type and duration of exercise with the mental and physical health and academic performance of medical undergraduate students - Cross-sectional study. *Bangladesh Journal of Medical Science*, *21*(1), 135–139. https://doi.org/10.3329/bjms.v21i1.56339

Shinoda, H., Yamamoto, T., & Imai-Matsumura, K. (2021). Teachers' visual processing of children's off-task behaviors in class: A comparison between teachers and student teachers. *PLoS ONE*, *16*(11), 1–18. https://doi.org/10.1371/journal.pone.0259410

Snyders, Chelsea. 'I wish we could make books all day!' An observational study of kindergarten children during writing workshop. *Early Childhood Education Journal (42) 6*, Nov. 2014, pp. 405–414. EBSCOhost, doi:10.1007/s10643-013-0625-2.

Stenner, J. A., & Smith, M. (2022). *Lexile framework for reading*. MetaMetrics Inc. https://lexile.com/about-us/history/

Strassman, B. K., MacDonald, H., & Wanko, L. (2010). Using captioned media as mentor expository texts. *Reading Teacher*, *64*(3), 197–201. https://doi.org/10.1598/RT.64.3.5

Strong, J. Z. (2018). Teaching informational text structures: Using text structures to improve reading comprehension: The what, why, and how. *Literacy Today* (2411-7862), 36(2), 42–43.

Suárez , M., & Gesa, F. (2019) Learning vocabulary with the support of sustained exposure to captioned video: do proficiency and aptitude make a difference? *The Language Learning Journal, 47*(4), 497-517, DOI: 10.1080/09571736.2019.1617768

Tang, O. Y., Wong, K. E., Ganguli, R., Zahiri, K., Burns, N. M., Paracha, S., Kozel, G., Tang, K. P., & Schuur, J. D. (2021). Emergency absentee voting for hospitalized patients and voting during COVID-19: A 50-state study. *Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health, 22*(4), 1000–1009. https://doi.org/10.5811/westjem.2021.4.50884

Taylor, T. L. (2018). Twitch and the work of play. *American Journal of Play*, *11*(1), 65–84.

TEDtalksDirector. How language shapes the way we think. Lera Boroditsky. *YouTube*, 2 May 2018, www.youtube.com/watch?v=RKK7wGAYP6k.

Thees, M., Kapp, S., Strzys, M. P., Beil, F., Lukowicz, P., & Kuhn, J. (2020). Effects of augmented reality on learning and cognitive load in university physics laboratory courses. *Computers in Human Behavior*, 108, 106316.

What does a learner's Lexile measure mean? (2021). MetaMetrics Inc. https://support.lexile.com/s/article/What-does-a-learner-s-Lexile-measure-mean

What is reading comprehension? (2019). Reading Partners. https://readingpartners.org/wp-content/uploads/2020/03/ReadingComprehension.pdf.

Where can I find the right Lexile range? (2021). Meta Metrics Inc. https://support.lexile.com/s/article/How-can-I-find-the-right-Lexile-range

Why children should read 20 minutes a day and how this impacts your kids' development – At any age. (2020). Kidskonnect. https://kidskonnect.com/articles/why-children-should-read-20-minutes-a-day-and-how-this-impacts-your-kids-development-at-any-age/. 1 April 2020

Winn, A. S., DelSignore, L., Marcus, C., Chiel, L., Freiman, E., Stafford, D., & Newman, L. (2019). Applying cognitive learning strategies to enhance learning and retention in clinical teaching settings. MedEdPORTAL, 15, 10850.

Xie, T., Jiang, H., Zhao, X., & Zhang, C. (2019). A Wi-Fi-based wireless indoor position sensing system with multipath interference mitigation. *Sensors* (14248220), *19*(18), 3983. https://doi.org/10.3390/s19183983

Yavuz, K. F., Şahin, O., Ulusoy, S., İpek, O. U., & Kurt, E. (2016). Experiential avoidance, empathy, and anger-related attitudes in antisocial personality disorder. *Turkish Journal of Medical Sciences, 46*(6), 1792–1800. https://doi.org/10.3906/sag-1601-80

Yuknis, C., Santini, J., & Appanah, T. (2017). Supporting deaf students— AND ALL STUDENTS. *Educational Leadership, 74*(7), 68–72.

Zemlianski, P. (2011). *Writing Spaces 2*. Parlor Press, LLC. https://www.google.com/books/edition/_/sqoWEAAAQBAJ?hl=en&gbpv=1&pg=PA153&dq=observations+in+research.

Zimmermann, L. M., & Reed, D. K. (2020). Improving reading comprehension of informational text: Text structure instruction for students with or at risk for learning disabilities. *Teaching Exceptional Children*, *52*(4), 232–241. https://doi.org/10.1177/0040059919889358

Zviedrite, N., Hodis, J. D., Jahan, F., Gao, H., & Uzicanin, A. (2021). COVID-19-associated school closures and related efforts to sustain education and subsidized meal programs, United States, February 18–June 30, 2020. *PLoS ONE*, *16*(9), 1–18. https://doi.org/10.1371/journal.pone.0248925

Appendix A-Superintendent Approval

Approved:
Jun 3, 2024

"Teaching and Leading As An Art and Science"

Lindenwood University School of Education
Department of Educational Leadership
Ed.D. Dissertation Prospectus

Please have your chair submit by email to the Supervisor of Graduate Research (swisdom@lindenwood.edu). This is a course assignment in Capstone II, but the instructor's feedback is not official approval. Students should have prospectus approval before completing an IRB application. The prospectus mirrors the full IRB application almost exactly. See http://www.lindenwood.edu/academics/irb.cfm for Lindenwood University IRB applications.

1. Title of the Project: Examining the Connection Between Closed-Captioning and Lexile Levels: A Mixed-Methods Study

2. List your name and the names of committee members and their contact information in the table below:

Name	Email	Phone Number	Department/ Place of Employment	Student/ Faculty
Jim Pruitt	jimmypruitt@wsdr4.org	(573) 268-0149	ELA/ Wentzville School District	Student
Dr. Kilinyaa Cothran	kcothran@lindenwood.edu	(314) 704-6553	Lindenwood University	Dissertation Chair
Dr. Lynda Leavitt	LLeavitt@lindenwood.edu	(636) 949-4756	Lindenwood University	Committee Member
Dr. Sherrie Wisdom	SWisdom@lindenwood.edu	(636) 949-4478	Lindenwood University	Committee Member
Dr. Kelly Manning	kellymanning@wsdr4.org	(314) 503-2936	Wentzville School District	Committee Member

Appendix B-Building Principal Approval

Data for Dissertation...

SHANE SCHLUETER

12:48 PM (1 hour ago)

to me

Mr. Pratt,

Thank you for taking the time to meet with me today to discuss your Doctoral Dissertation project.

Based on the information provided about the project, I approve the use of student data with all identifying information removed.

Thanks,

Shane

--
Dr. Shane Schlueter
Principal
Hatt High School
636-327-3676

Appendix C-Pre-Closed Captioning Survey

1. Do you use closed captioning when watching movies/TV shows normally?
    a. If so, how often and why?
    b. If not, why not?

_____
_____
_____
_____

2. What are your general thoughts regarding using closed captioning when watching movies/TV shows?

_____
_____
_____
_____

3. Are you looking forward to watching movies/TV shows using closed captioning? Explain.

_____
_____
_____
_____

Appendix D-Closed Captioning Post-Survey

1. How was your closed captioning experience when viewing your selected TV shows/films?

_____
_____
_____
_____

2. Do you plan to continue using closed captioning in the future? Why/why not?

_____
_____
_____
_____

3. Have your thoughts changed regarding the use of closed captioning when viewing films/TV shows? Explain.

_____
_____
_____
_____

4. Do you believe using closed captioning enhanced or hindered your understanding of the material you viewed?

_____
_____
_____
_____

5. Do you believe using closed captioning enhanced or hindered your Lexile level?

_____
_____
_____
_____

Appendix E-Interview Questions for Participants

Closed Captioning Conferencing Questions

1. What movie or show are you currently watching?
2. Are you using closed captioning while you watch the show/movie?
    a. If no, why not?
    b. If so, do you watch the show/movie using closed captioning:
        i. Less than 50% of the time
        ii. 50% of the time
        iii. More than 50% of the time
3. Has using closed captioning while viewing the show/movie helped your comprehension of the movie/show?
4. Have you learned any new vocabulary words while using closed captioning or have the vocabulary words been words you are already familiar with?
5. Do you believe using closed captioning while viewing your show/movie is increasing or decreasing your Lexile level? Explain.
6. How do you feel about watching TV shows/movies using closed captioning?
7. What does closed captioning look like for you in the future? Do you plan to use closed captioning in the future? Will you not use this feature? Explain.
8. Is there anything else you would like to share regarding your use of closed captioning while viewing your movie/show?

Appendix F-Media Viewing Questions

Weekly Viewing Questions
Week 1

1. Summarize your TV show/film in one paragraph (6-8 sentences)

2. Provide a character analysis paragraph for the main character in your TV show/film.

3. Why did you decide to choose this film/TV show? Why did you stick with this option over other possible choices? (Paragraph 6-8 sentences)

4. What weaknesses does your film/TV show have if any (plot, tough vocabulary, shallow, etc.)? (6-8 sentences)

5. What predictions can you make about what will happen later on in your film/TV show? What makes you believe this will happen? (6-8 sentences plus provide examples that make you believe in your prediction).

Appendix G-Media Viewing Questions

Weekly Viewing Questions
Week 2

1. What is one aspect of your film/TV show that is confusing to you if any? If there are no confusing elements then explain what makes your film/TV easy to comprehend. (Cite the example)

2. Find a simile in your film/show (cite the example)

3. Find a metaphor (cite the example)

4. Find an example of foreshadowing in your film/show. What does this example foreshadow? (cite the example)

5. Describe the conflict within the film/show; specifically, as either internal or external conflict.

Appendix H-Media Viewing Questions

Weekly Viewing Questions
Week 3

1. If you were to improve 1 aspect of your film/show, what would it be and why? Provide an example from your film/show that you would improve.

2. Find personification in your film/show. Explain why this is an example of personification.

3. Provide an example of the setting of your film/show (cite the example)

4. From what point of view is your show/film being shown? How do you know this?

5. What is a theme in your film/show (cite the example)? How do you know this?

Appendix I-Media Viewing Questions

Weekly Viewing Questions
Week 4

1. Write a paragraph explaining whether or not your film/show has lived up to your expectations. What did you like about your film/show? Dislikes? Explain.

2. Write a paragraph examining the ending of your film/show. Has the film/show wrapped up well or do you wish the ending was stronger? Explain.

3. Write a paragraph regarding whether or not you would recommend this film/show to your peers.

4. Write a paragraph explaining your experience watching your film/show. Did you enjoy having the opportunity to watch a film/show instead of reading a book? Were you more engaged? Explain.

5. If you have anything else to add regarding your experience watching your film/show, please add your thoughts to question 5.

Appendix J-Closed Captioning Media Project Directions for Students

INDEPENDENT MEDIA PROJECT (IMP)
Film & Television

For this project, **worth 120 points,** you will be watching a film/show of your choosing and preparing a project to present to the class the final week. The duration of this project will span 6 weeks in which you will complete a film or TV show of your choosing. You must always be watching your film/show during the time provided in class. closed captioning must be enabled while viewing your selected film/show. In the event you finish your film/show early, then you will need to select a new film/show and continue the project with your new film/show that you select. To be successful, you will need to complete all 4 sections of this project which are detailed below.

You must present your film/show choice for approval by

Friday, October 30!!!

IRP Project Components

Part 1: Viewing Questions

Every week you will be given 5 viewing questions that you will need to respond to. Responses to these questions should be separate from your notes and work from other classes. In the event you are absent on a particular day, you have one full week to respond to the questions that you missed. Thus, there should be no questions that are left unanswered.

Part 2: Written Report

Every project must include a written report that will include all of the following: brief plot summary, your opinion on the film/show, and whether or not you would recommend your film/show. This must be submitted using Canvas and each component (summary, opinion, recommendation) must be its own paragraph.

Part III: Slideshow & Presentation

You will need to create a slideshow that will need to contain the following slides:

-Title Slide (Name + show/film you watched)

-Summary Slide (What was your show/film about?)

-Character Slide (Details about important characters in your film/show)

-Review Slide (Pros/Cons of your film/show along with a rating)

-Recommendation Slide (who would you recommend your film/show to and why?

Part 3: Creative Project

Choose a creative project from one of the options listed below:

1. Character Journal

For this project option you will be creating a journal showing the thoughts, ideas, conflicts, and beliefs of one of the historical characters in your film/show. This does not have to be about the main character, but can focus on the character you find most interesting. The journal needs to include a Title page (try to be witty) and AT LEAST 10 ENTRIES (appx. one page in length). Make sure you are moving beyond the surface of the character. Try to really figure out what this character would actually be thinking and feeling at different points in the text.

2. Movie Poster/Painting

For the movie poster project, you will be charged with artistically representing the film/show you read. For this project option, you will need to create an alternative movie poster for the film/show you chose. Make sure to include important characters, symbols, and scenery from your film/show.

3. Cinematography

For this option, choose a pivotal scene from the film/show that can give the class a feeling of what the film/show is about. You may videotape yourself acting out the scene in an appropriate setting. The scene must be one where you would feel comfortable acting out in front of your grandma. You may use other people for additional characters, but you must be the STAR of the "movie", not just the director. You need to include a written script for the scene plus an explanation of why you chose this scene.

4. Other

If you come up with an idea on your own, please discuss it with me to gain approval. If it is awesome, I want you to do it!

IRP Project Checklist:

- € **Film/Show approved by teacher (October 30)**

- **Watch the Film/Show (complete by December 9)**
- **Complete the Viewing Questions (December 13)**
- **IRP Project Option chosen (December 13)**
- **Written Report (plot summary, personal opinion, and recommendation for reading) ***
- **IRP Project (YOU are responsible for completing all components of the option of your choice) ***

**** These are ALL due on the day of presentations (Finals Week)!**

Appendix K-Observations Form

Closed Captioning Observations Form

Date
XX/XX/20XX

Class Hour
-Number of participants actively viewing media using closed captioning
—

-Number of participants not actively viewing media using closed captioning
—

-Describe number of participants off task and off-task behavior
_____
_____
_____
_____

-Write interesting behaviors, conversations, and/or observations that stand out
_____
_____
_____
_____

Class Hour
-Number of participants actively viewing media using closed captioning
—

-Number of participants not actively viewing media using closed captioning
—

-Describe number of participants off task and off-task behavior
_____
_____
_____
_____

-Write interesting behaviors, conversations, and/or observations that stand out

Appendix L-Minor Consent Form

Research Study Consent Form

A Mixed Method Study Examining the Difference Between Closed-Captioning and Lexile Levels

You are asked to participate in a research study being conducted by Jim Pruitt M. Ed under the guidance of Dr. Kilinyaa Cothran at Lindenwood University. Being in a research study is voluntary, and you are free to stop at any time. Before you choose to participate, you are free to discuss this research study with family, friends, or a physician. Do not feel like you must join this study until all of your questions or concerns are answered. If you decide to participate, you will be asked to sign this form.

Why is this research being conducted?
We are doing this study to improve reading scores for students in English classes in order to better equip them with the skills they will need when they graduate high school. We will be asking about 30 other people to answer these questions.

What am I being asked to do?
If you choose to be part of this study, you will select a tv show or movie of your choice and then watch the selected media over the course of 8 weeks. Also, you will complete media viewing questions, surveys, and answer conferencing questions.

How long will I be in this study?

This study is going to last 6 weeks and then it will be over.

What are the risks of this study?

- Privacy and Confidentiality

We will be collecting data that could identify you, but each survey response will receive a code so that we will not know who answered each survey. The code connecting you and your data will be destroyed as soon as possible.

What are the benefits of this study?

You will receive no direct benefits for completing this survey. We hope what we learn may benefit other people in the future.

Will I receive any compensation?

You will receive no compensation for participation in this study.

What if I do not choose to participate in this research?

It is always your choice to participate in this study. You may withdraw at any time. You may choose not to answer any questions or perform tasks that make you uncomfortable. If you decide to withdraw, you will not receive any penalty or loss of benefits. If you would like to withdraw from a study, please use the contact information found at the end of this form.

What if new information becomes available about the study?

During the course of this study, we may find information that could be important to you and your decision to participate in this research. We will notify you as soon as possible if such information becomes available.

How will you keep my information private?

We will do everything we can to protect your privacy. We do not intend to include information that could identify you in any publication or presentation. Any information we collect will be stored by the researcher in a secure location. The only people who will be able to see your data are: members of the research team, qualified staff of Lindenwood University, representatives of state or federal agencies.

How can I withdraw from this study?

Notify the research team immediately if you would like to withdraw from this research study.

Who can I contact with questions or concerns?

If you have any questions about your rights as a participant in this research or concerns about the study, or if you feel under any pressure to enroll or to continue to participate in this study, you may contact the Lindenwood University Institutional Review Board Director, Michael Leary, at (636) 949-4730 or mleary@lindenwood.edu. You can contact the researcher, Jim Pruitt M. Ed. directly at (636) 327-3876 Extension 26564 or jimmypruitt@wsdr4.org. You may also contact Dr. Kilinyaa Cothran at kcothran@lindenwood.edu.

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. I consent to my participation in the research described above.

_____ _____

Parent or Legally Authorized Representative's Signature **Date**

Printed Name

_____ _____

Signature of Principle Investigator or Designee **Date**

_____

Investigator or Designee Printed Name

Appendix M- iReady Pre-test Data

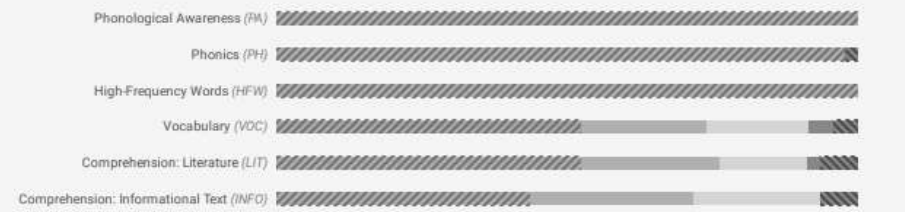
Diagnostic Results

i-Ready

Subject	Reading
Class/Report Group	All Reading Students
Diagnostic	Most Recent

Overall Placement

Placement by Domain



*Students not completed are not included.

Student	Scale Score	Overall Placement	Placement by Domain						Annual Growth Measures		Date
			PA	PH	HFW	VOC	LIT	INFO	Typical Growth	Stretch Growth®	
[redacted]	720	Grade 10	Tested Out	Tested Out	Tested Out	Mid / Late 9	Grade 10	Grade 12	–	–	09/13/21
[redacted]	707	Grade 10	Tested Out	Tested Out	Tested Out	Grade 12	Mid / Late 9	Grade 10	–	–	09/13/21
[redacted]	705	Grade 10	Tested Out	Tested Out	Tested Out	Mid / Late 9	Grade 10	Grade 10	–	–	09/13/21
[redacted]	705	Grade 10	Tested Out	Tested Out	Tested Out	Grade 12	Mid / Late 9	Grade 10	–	–	09/13/21

Student	Scale Score	Overall Placement	Placement by Domain						Annual Growth Measures		Date
			PA	PH	HFW	VOC	LIT	INFO	Typical Growth	Stretch Growth®	
[redacted]	697	Late 9	Tested Out	Tested Out	Tested Out	Grade 10	Mid / Late 9	Mid / Late 9	–	–	09/13/21
[redacted]	696	Late 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Grade 12	Mid / Late 9	–	–	09/30/21
[redacted]	696	Late 9	Tested Out	Tested Out	Tested Out	Grade 10	Mid / Late 9	Mid / Late 9	–	–	09/12/21
[redacted]	691	Late 9	Tested Out	Tested Out	Tested Out	Grade 10	Mid / Late 9	Mid / Late 9	–	–	09/13/21
[redacted]	686	Late 9	Tested Out	Tested Out	Tested Out	Early 9	Mid / Late 9	Grade 10	–	–	09/13/21
[redacted]	685	Late 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Mid / Late 9	Mid / Late 9	–	–	09/13/21
[redacted]	681	Mid 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Mid / Late 9	Mid / Late 9	–	–	09/10/21
[redacted]	680	Mid 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Mid / Late 9	Mid / Late 9	–	–	09/13/21
[redacted]	678	Mid 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Mid / Late 9	Grade 10	–	–	09/13/21
[redacted]	674	Mid 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Mid / Late 9	Early 9	–	–	09/13/21
[redacted]	674	Mid 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Mid / Late 9	Early 9	–	–	09/15/21
[redacted]	673	Mid 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Mid / Late 9	Mid / Late 9	–	–	09/13/21
[redacted]	671	Mid 9	Tested Out	Tested Out	Tested Out	Grade 10	Early 9	Early 9	–	–	09/13/21

Student	Scale Score	Overall Placement	Placement by Domain						Annual Growth Measures		Date
			PA	PH	HFW	VOC	LIT	INFO	Typical Growth	Stretch Growth®	
[redacted]	670	Mid 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Mid / Late 9	Mid / Late 9	–	–	09/14/21
[redacted]	670	Mid 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Mid / Late 9	Early 9	–	–	09/13/21
[redacted]	670	Mid 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Mid / Late 9	Mid / Late 9	–	–	09/13/21
[redacted]	668	Mid 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Early 9	Early 9	–	–	09/15/21
[redacted]	668	Mid 9	Tested Out	Tested Out	Tested Out	Early 9	Mid / Late 9	Mid / Late 9	–	–	09/15/21
[redacted]	665	Mid 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Early 9	Early 9	–	–	09/13/21
[redacted]	663	Mid 9	Tested Out	Tested Out	Tested Out	Early 9	Mid / Late 9	Mid / Late 9	–	–	09/13/21
[redacted]	662	Mid 9	Tested Out	Tested Out	Tested Out	Early 9	Mid / Late 9	Early 9	–	–	09/12/21
[redacted]	657	Early 9	Tested Out	Tested Out	Tested Out	Early 9	Early 9	Mid / Late 9	–	–	09/13/21
[redacted]	654	Early 9	Tested Out	Tested Out	Tested Out	Early 9	Early 9	Early 9	–	–	09/15/21
[redacted]	653	Early 9	Tested Out	Tested Out	Tested Out	Early 9	Mid / Late 9	Grade 8	–	–	09/13/21
[redacted]	652	Early 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Grade 8	Early 9	–	–	09/13/21
[redacted]	649	Early 9	Tested Out	Tested Out	Tested Out	Early 9	Early 9	Early 9	–	–	09/13/21

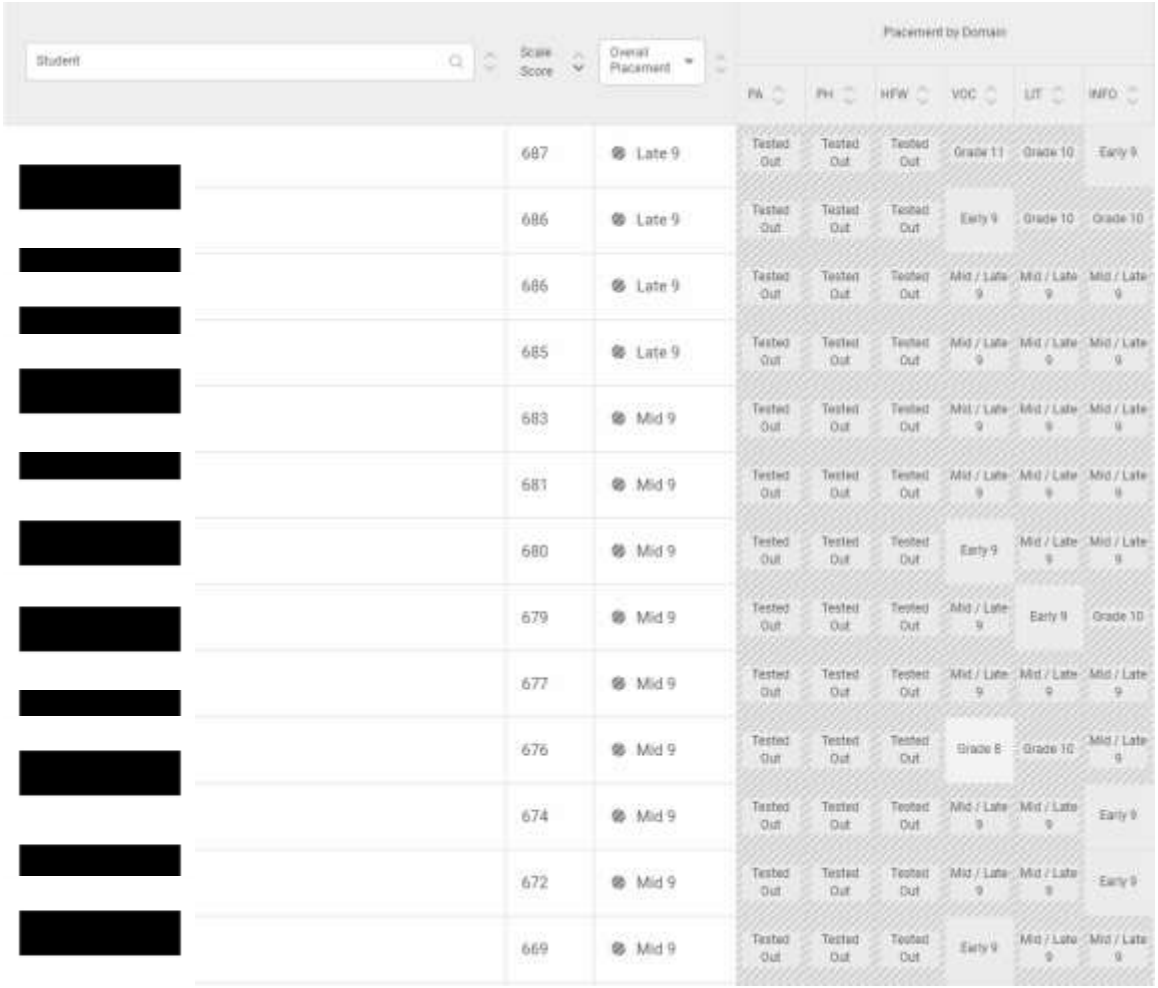
Student	Scale Score	Overall Placement	Placement by Domain						Annual Growth Measures		Date
			PA	PH	HFW	VOC	LIT	INFO	Typical Growth	Stretch Growth®	
[redacted]	647	Early 9	Tested Out	Tested Out	Tested Out	Early 9	Early 9	Grade 8	–	–	09/15/21
[redacted]	642	Early 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Grade 8	Grade 8	–	–	09/13/21
[redacted]	639	Grade 8	Tested Out	Tested Out	Tested Out	Grade 8	Early 9	Early 9	–	–	09/10/21
[redacted]	639	Grade 8	Tested Out	Tested Out	Tested Out	Grade 8	Early 9	Grade 8	–	–	09/30/21
[redacted]	638	Grade 8	Tested Out	Tested Out	Tested Out	Grade 8	Grade 8	Mid / Late 9	–	–	10/01/21
[redacted]	635	Grade 8	Tested Out	Tested Out	Tested Out	Grade 8	Early 9	Grade 8	–	–	09/30/21
[redacted]	635	Grade 8	Tested Out	Tested Out	Tested Out	Grade 8	Grade 8	Grade 8	–	–	09/13/21
[redacted]	633	Grade 8	Tested Out	Tested Out	Tested Out	Grade 8	Early 9	Grade 8	–	–	09/16/21
[redacted]	631	Grade 8	Tested Out	Tested Out	Tested Out	Early 9	Grade 7	Early 9	–	–	09/13/21
[redacted]	629	Grade 8	Tested Out	Tested Out	Tested Out	Grade 5	Mid / Late 9	Early 9	–	–	09/10/21
[redacted]	629	Grade 8	Tested Out	Tested Out	Tested Out	Mid / Late 9	Grade 8	Grade 8	–	–	09/13/21
[redacted]	620	Grade 8	Tested Out	Tested Out	Tested Out	Grade 7	Grade 8	Grade 8	–	–	09/10/21
[redacted]	611	Grade 8	Tested Out	Tested Out	Tested Out	Grade 8	Grade 6	Grade 8	–	–	09/10/21

Student	Scale Score	Overall Placement	Placement by Domain						Annual Growth Measures		Date
			PA	PH	HFW	VOC	LIT	INFO	Typical Growth	Stretch Growth®	
[redacted]	601	Grade 7	Tested Out	Tested Out	Tested Out	Grade 7	Grade 8	Grade 6	–	–	09/14/21
[redacted]	582	Grade 5	Tested Out	Tested Out	Tested Out	Grade 8	Grade 5	Grade 4	–	–	09/10/21
[redacted]	348	Grade K	Tested Out	Grade K	Tested Out	Grade K	Grade K	Grade K	–	–	09/13/21
[redacted]	-	*Not Completed*	–	–	–	–	–	–	–	–	–
[redacted]	-	*Not Completed*	–	–	–	–	–	–	–	–	–
[redacted]	-	*Not Completed*	–	–	–	–	–	–	–	–	–
[redacted]	-	*Not Completed*	–	–	–	–	–	–	–	–	–
[redacted]	-	*Not Completed*	–	–	–	–	–	–	–	–	–
[redacted]	-	*Not Completed*	–	–	–	–	–	–	–	–	–
[redacted]	-	*Not Completed*	–	–	–	–	–	–	–	–	–
[redacted]	-	*Not Completed*	–	–	–	–	–	–	–	–	–
[redacted]	-	*Not Completed*	–	–	–	–	–	–	–	–	–
[redacted]	-	*Not Completed*	–	–	–	–	–	–	–	–	–
[redacted]	-	*Not Completed*	–	–	–	–	–	–	–	–	–

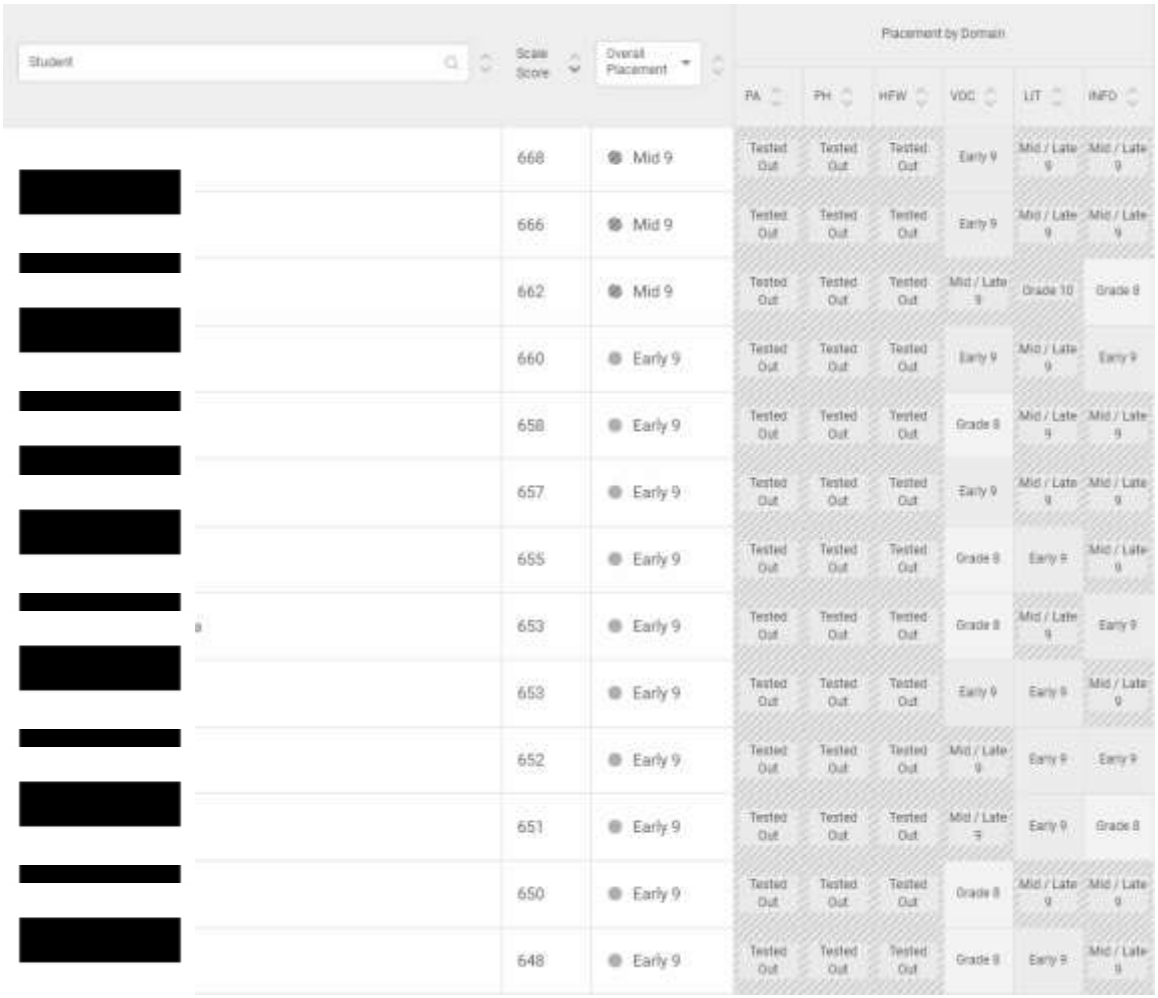
Student	Scale Score	Overall Placement	Placement by Domain						Annual Growth Measures		Date
			PA	PH	HFW	VOC	LIT	INFO	Typical Growth	Stretch Growth®	
[redacted]	-	*Not Completed*	–	–	–	–	–	–	–	–	–
[redacted]	-	*Not Completed*	–	–	–	–	–	–	–	–	–
[redacted]	-	*Not Completed*	–	–	–	–	–	–	–	–	–
[redacted]	-	*Not Completed*	–	–	–	–	–	–	–	–	–
[redacted]	-	*Not Completed*	–	–	–	–	–	–	–	–	–
[redacted]	-	*Not Completed*	–	–	–	–	–	–	–	–	–
[redacted]	-	*Not Completed*	–	–	–	–	–	–	–	–	–

Appendix N-iReady Post-test Results

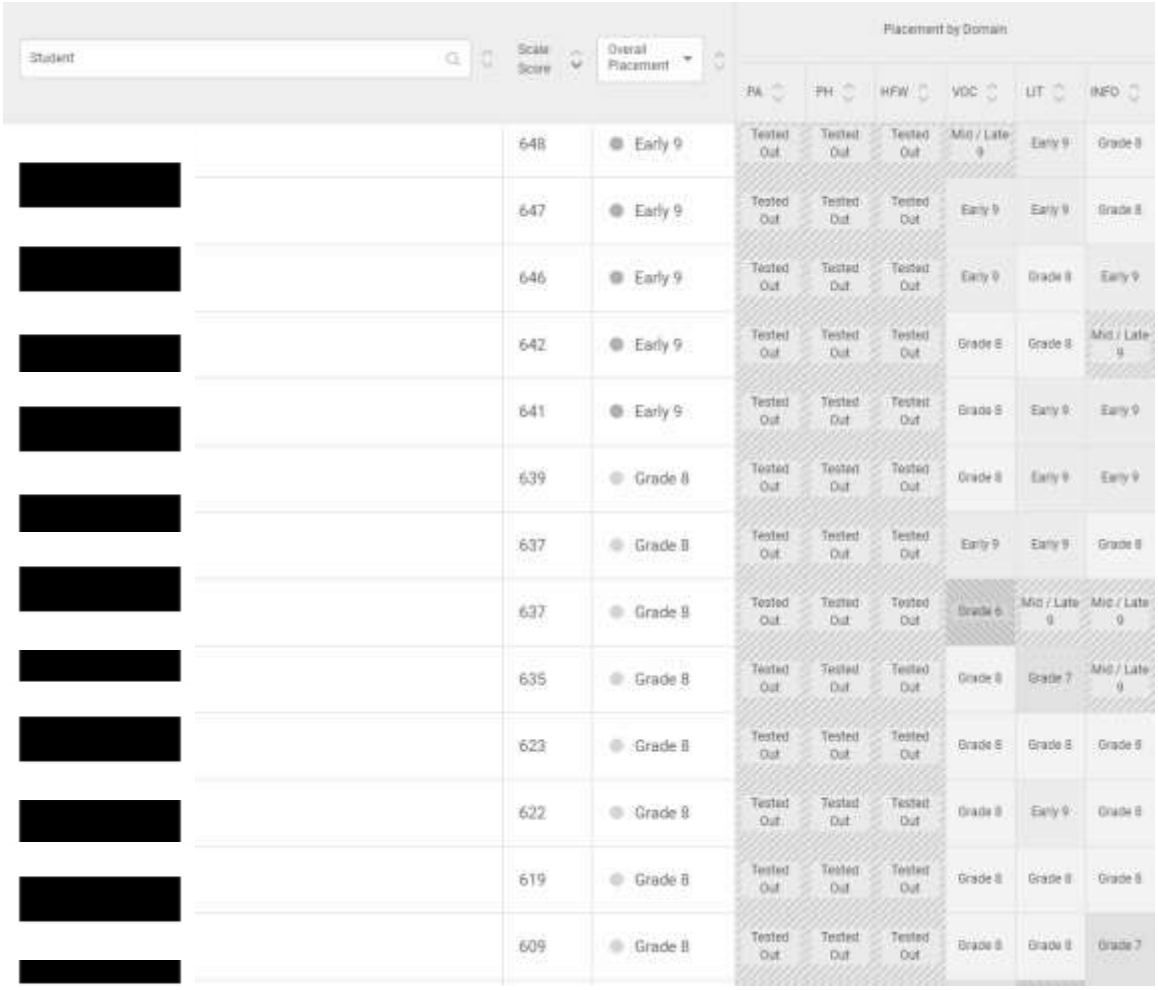
Student	Scale Score	Overall Placement	Placement by Domain					
			PA	PH	HFW	VOC	LIT	INFO
[redacted]	722	Grade 10	Tested Out	Tested Out	Tested Out	Grade 10	Grade 10	Grade 12
	721	Grade 10	Tested Out	Tested Out	Tested Out	Grade 12	Mid / Late 9	Grade 10
	717	Grade 10	Tested Out	Tested Out	Tested Out	Grade 11	Grade 10	Grade 10
	717	Grade 10	Tested Out	Tested Out	Tested Out	Mid / Late 9	Grade 10	Grade 12
	712	Grade 10	Tested Out	Tested Out	Tested Out	Mid / Late 9	Grade 10	Grade 11
	704	Grade 10	Tested Out	Tested Out	Tested Out	Grade 10	Mid / Late 9	Grade 10
	700	Late 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Mid / Late 9	Grade 10
	697	Late 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Grade 10	Mid / Late 9
	696	Late 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Grade 12	Grade 10
	691	Late 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Grade 10	Mid / Late 9
	690	Late 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Grade 10	Mid / Late 9
	687	Late 9	Tested Out	Tested Out	Tested Out	Grade 11	Grade 10	Early 9
	686	Late 9	Tested Out	Tested Out	Tested Out	Early 9	Grade 10	Grade 10



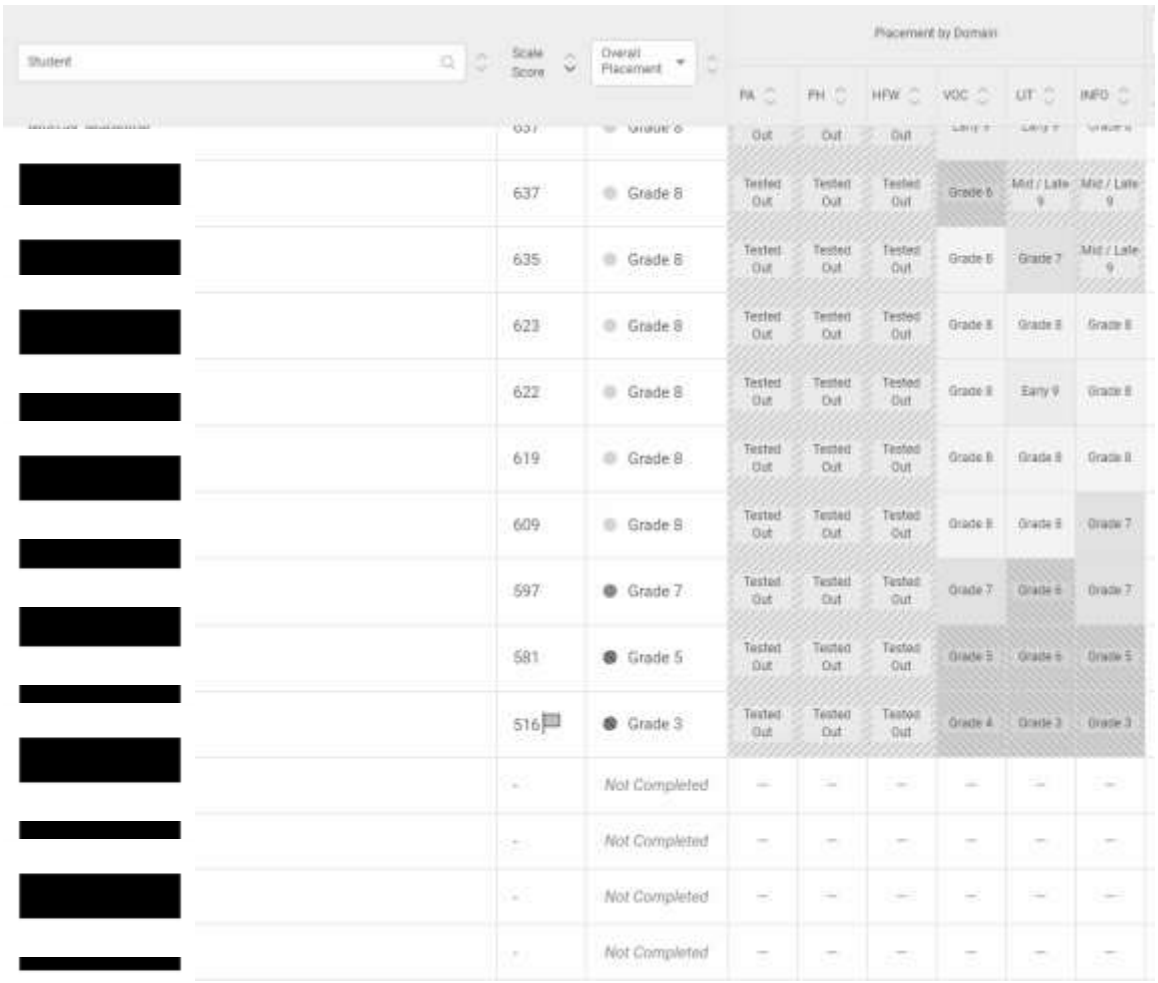
Student	Scale Score	Overall Placement	Placement by Domain					
			PA	PH	HFW	VOC	LIT	INFO
[redacted]	687	Late 9	Tested Out	Tested Out	Tested Out	Grade 11	Grade 10	Early 9
	686	Late 9	Tested Out	Tested Out	Tested Out	Early 9	Grade 10	Grade 10
	686	Late 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Mid / Late 9	Mid / Late 9
	685	Late 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Mid / Late 9	Mid / Late 9
	683	Mid 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Mid / Late 9	Mid / Late 9
	681	Mid 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Mid / Late 9	Mid / Late 9
	680	Mid 9	Tested Out	Tested Out	Tested Out	Early 9	Mid / Late 9	Mid / Late 9
	679	Mid 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Early 9	Grade 10
	677	Mid 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Mid / Late 9	Mid / Late 9
	676	Mid 9	Tested Out	Tested Out	Tested Out	Grade 8	Grade 10	Mid / Late 9
	674	Mid 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Mid / Late 9	Early 9
	672	Mid 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Mid / Late 9	Early 9
	669	Mid 9	Tested Out	Tested Out	Tested Out	Early 9	Mid / Late 9	Mid / Late 9



Student	Scale Score	Overall Placement	Placement by Domain					
			PA	PH	HFW	VOC	LIT	INFO
[redacted]	668	Mid 9	Tested Out	Tested Out	Tested Out	Early 9	Mid / Late 9	Mid / Late 9
	666	Mid 9	Tested Out	Tested Out	Tested Out	Early 9	Mid / Late 9	Mid / Late 9
	662	Mid 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Grade 10	Grade 8
	660	Early 9	Tested Out	Tested Out	Tested Out	Early 9	Mid / Late 9	Early 9
	658	Early 9	Tested Out	Tested Out	Tested Out	Grade 8	Mid / Late 9	Mid / Late 9
	657	Early 9	Tested Out	Tested Out	Tested Out	Early 9	Mid / Late 9	Mid / Late 9
	655	Early 9	Tested Out	Tested Out	Tested Out	Grade 8	Early 9	Mid / Late 9
	653	Early 9	Tested Out	Tested Out	Tested Out	Grade 8	Mid / Late 9	Early 9
	653	Early 9	Tested Out	Tested Out	Tested Out	Early 9	Early 9	Mid / Late 9
	652	Early 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Early 9	Early 9
	651	Early 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Early 9	Grade 8
	650	Early 9	Tested Out	Tested Out	Tested Out	Grade 8	Mid / Late 9	Mid / Late 9
	648	Early 9	Tested Out	Tested Out	Tested Out	Grade 8	Early 9	Mid / Late 9



Student	Scale Score	Overall Placement	Placement by Domain					
			PA	PH	HFW	VOC	LIT	INFO
[redacted]	648	Early 9	Tested Out	Tested Out	Tested Out	Mid / Late 9	Early 9	Grade 8
[redacted]	647	Early 9	Tested Out	Tested Out	Tested Out	Early 9	Early 9	Grade 8
[redacted]	646	Early 9	Tested Out	Tested Out	Tested Out	Early 9	Grade 8	Early 9
[redacted]	642	Early 9	Tested Out	Tested Out	Tested Out	Grade 8	Grade 8	Mid / Late 9
[redacted]	641	Early 9	Tested Out	Tested Out	Tested Out	Grade 8	Early 9	Early 9
[redacted]	639	Grade 8	Tested Out	Tested Out	Tested Out	Grade 8	Early 9	Early 9
[redacted]	637	Grade 8	Tested Out	Tested Out	Tested Out	Early 9	Early 9	Grade 8
[redacted]	637	Grade 8	Tested Out	Tested Out	Tested Out	Grade 6	Mid / Late 9	Mid / Late 9
[redacted]	635	Grade 8	Tested Out	Tested Out	Tested Out	Grade 8	Grade 7	Mid / Late 9
[redacted]	623	Grade 8	Tested Out	Tested Out	Tested Out	Grade 8	Grade 8	Grade 8
[redacted]	622	Grade 8	Tested Out	Tested Out	Tested Out	Grade 8	Early 9	Grade 8
[redacted]	619	Grade 8	Tested Out	Tested Out	Tested Out	Grade 8	Grade 8	Grade 8
[redacted]	609	Grade 8	Tested Out	Tested Out	Tested Out	Grade 8	Grade 8	Grade 7



Student	Scale Score	Overall Placement	Placement by Domain					
			PA	PH	HFW	VOC	LIT	INFO
[redacted]	637	Grade 8	Tested Out	Tested Out	Tested Out	Grade 6	Mid / Late 9	Mid / Late 9
[redacted]	635	Grade 8	Tested Out	Tested Out	Tested Out	Grade 6	Grade 7	Mid / Late 9
[redacted]	623	Grade 8	Tested Out	Tested Out	Tested Out	Grade 8	Grade 8	Grade 8
[redacted]	622	Grade 8	Tested Out	Tested Out	Tested Out	Grade 8	Early 9	Grade 8
[redacted]	619	Grade 8	Tested Out	Tested Out	Tested Out	Grade 8	Grade 8	Grade 8
[redacted]	609	Grade 8	Tested Out	Tested Out	Tested Out	Grade 8	Grade 8	Grade 7
[redacted]	597	Grade 7	Tested Out	Tested Out	Tested Out	Grade 7	Grade 6	Grade 7
[redacted]	581	Grade 5	Tested Out	Tested Out	Tested Out	Grade 5	Grade 6	Grade 5
[redacted]	516	Grade 3	Tested Out	Tested Out	Tested Out	Grade 4	Grade 3	Grade 3
[redacted]	-	Not Completed	–	–	–	–	–	–
[redacted]	-	Not Completed	–	–	–	–	–	–
[redacted]	-	Not Completed	–	–	–	–	–	–
[redacted]	-	Not Completed	–	–	–	–	–	–

Appendix O- iReady Raw Categorical Results

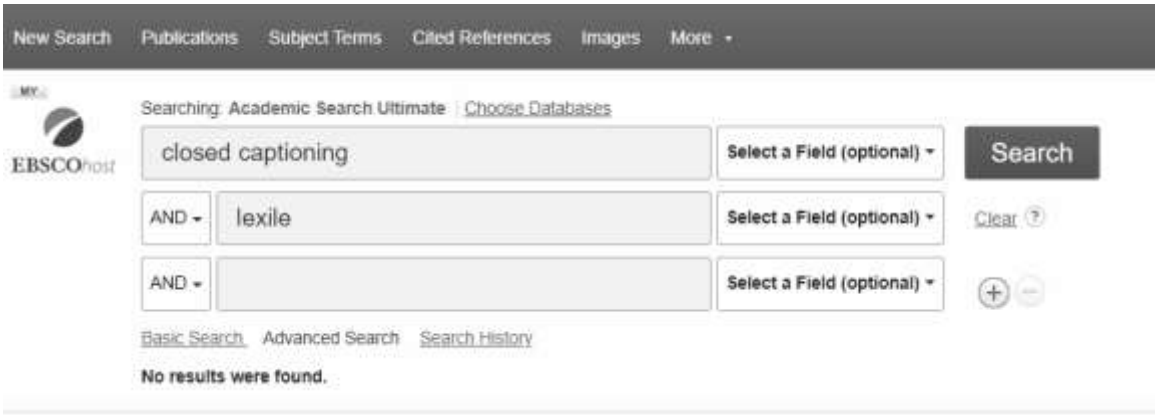
6th Hour iReady Results

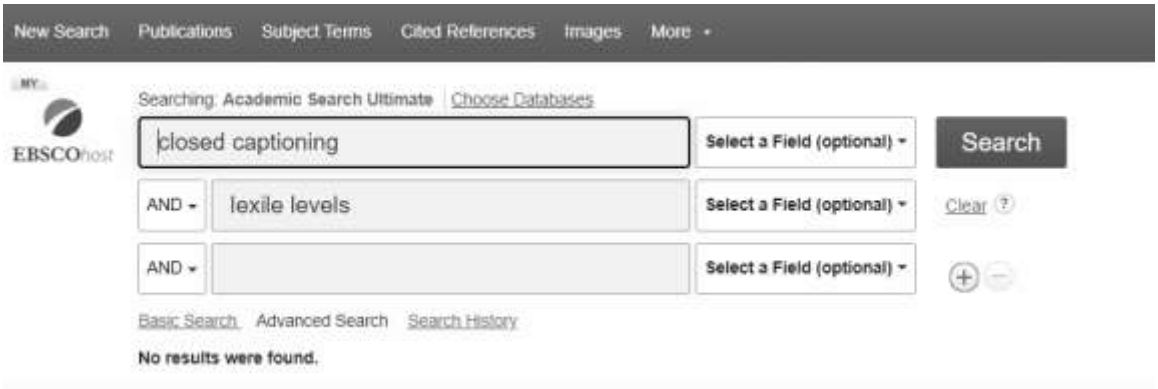
Name	Pre-test Overall	+ -	Vocab	+ -	Comprehension Literature	+ -	Comp Informational Text	+ -
[redacted]	705	721	746	776	661	692	722	718
[redacted]	691	690	714	702	670	704	690	667
[redacted]	665	647	686	650	652	659	656	632
[redacted]	674	681	702	692	661	692	660	663
[redacted]	681	700	661	688	703	692	686	720
[redacted]	671	674	714	691	652	671	649	659
[redacted]	707	687	746	728	680	704	705	640
[redacted]	638	637	621	584	630	665	663	662
[redacted]	631	658	642	636	598	668	654	672
[redacted]	668	680	653	657	680	685	672	702
[redacted]	685	717	682	728	691	719	684	706
[redacted]	697	722	714	714	691	704	688	752
[redacted]	678	686	669	651	661	708	706	706
[redacted]	635	635	628	629	637	602	639	683
[redacted]	670	683	677	692	661	692	672	667
[redacted]	649	648	649	671	652	642	644	631
[redacted]	673	696	663	663	680	737	677	705
[redacted]	663	676	648	628	674	718	667	696

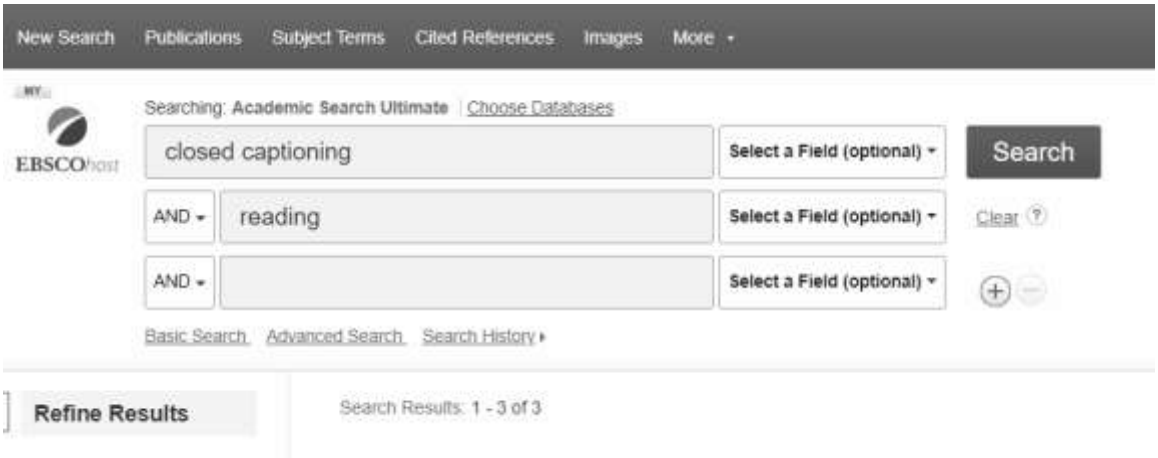
Name	Pre-test Overall	+ -	Vocab	+ -	Comprehension Literature	+ -	Comp Informational Text	+ -
[redacted]	677	653	673	634	671	674	687	652
[redacted]	696	697	663	682	764	719	695	697
[redacted]	705	704	692	714	717	672	710	705
[redacted]	635	609	636	608	648	615	619	602
[redacted]	716	717	702	692	737	719	717	751
[redacted]	677	651	676	671	692	652	665	628
[redacted]	680	691	692	692	670	719	676	671
[redacted]	638	668	621	654	630	662	663	690
[redacted]	686	684	655	663	703	719	705	681
[redacted]	633	650	636	620	651	667	611	668
[redacted]	639	642	621	633	660	623	638	671
[redacted]	611	637	624	645	585	647	618	618
[redacted]	647	672	660	666	643	692	638	659
[redacted]	635	669	622	650	665	690	619	667
[redacted]	674	686	673	682	691	692	660	684
[redacted]	654	679	660	682	643	652	659	705
[redacted]	686	660	701	652	692	681	668	648
[redacted]	653	653	648	645	674	651	638	664
[redacted]	696	685	723	682	691	681	679	690
[redacted]	670	655	682	636	670	660	659	669

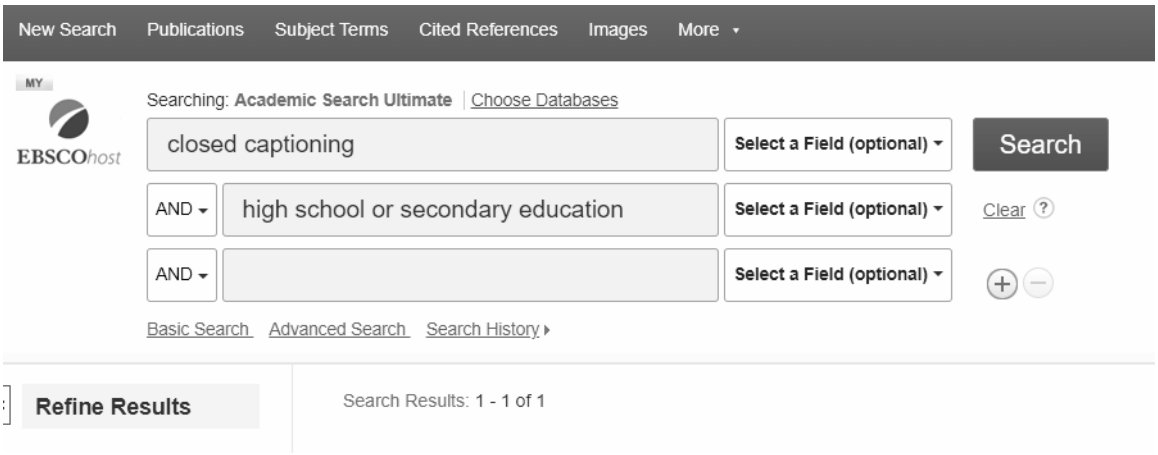
8th Hour iReady Results

Appendix P-Database Results








New Search
Publications
Subject Terms
Cited References
Images
More
Searching: Academic Search Ultimate
Choose Databases
closed captioning
Select a Field (optional)
Search
AND
high school or secondary education
Select a Field (optional)
Clear
AND
Select a Field (optional)
Basic Search
Advanced Search
Search History
Refine Results
Search Results: 1 - 1 of 1

Vitae

Prior to working in education, Jim Pruitt served 8 years in the US Army as a gunner for the 354th Military Police Corps where he completed tours in Portugal, Germany, Kuwait, and Iraq. After his service, Jim came back to the US and where he completed his Bachelor's and Master's degrees at the University of Missouri (Mizzou) where he made the Dean's List and graduated with Honors. While in school, he volunteered with organizations in New Orleans, Navajo Nation tribal lands, as well as taught English in Quetzaltenango, Guatemala.

In 2015, Jim moved to the St. Louis area and began teaching at Holt High School. In 2016, he began organizing cultural exchange opportunities for students. In 2019, he became a Global Education Ambassador where he works with international curriculum and program design for EF, while also giving speeches around the world on the importance of student travel and cultural immersion. Jim anticipates earning his doctorate in Instructional Leadership in Education at Lindenwood University during the spring semester of 2022.