Action Research:
E-Readers for Struggling Readers
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Abstract

Students must be able to read, comprehend, and analyze complex texts to be successful in a middle school literacy classroom. The purpose of this study is to assess an intervention using technology that aims to improve the Lexile Levels of students with the ultimate aim of improving reading comprehension. This study utilizes a mixed-methodology relying on both quantitative and qualitative measures. Lexile Levels will be recorded for a Pre-Test using SRI testing software. Students will also record main idea annotations on informational texts that will be scored against a TN Core rubric analyzing reading comprehension. Students will utilize E-Readers three times a week for twenty minutes per session. Students will be trained to use the in-text features to facilitate comprehension-building skills. Both the quantitative and qualitative measures will be analyzed every four and a half weeks with the aim of a 15% increase in Lexile Level. If student growth occurs over the first four and a half week period, the reading intervention program using E-readers can be scaled up to reach 40-50% of the 7th grade student body.
Chapter 1: Introduction

Statement of the Problem

Low-level readers in literacy classrooms don’t have the fundamental reading skills to complete responses to literature. It is challenging for teachers who have mixed-level classrooms to remediate fundamental reading skills when attempting to teach more complex reading skills. Conversely, students who don't have foundational reading skills struggle in literacy classes and don't feel motivated to make attempts at reading complex texts. In a classroom setting, both the teacher and student perspective pose challenges. The teacher may struggle to circulate and spend enough time with all students who are struggling to read the text. The student may not attempt to read the text or may glean a wholly incorrect interpretation of the text. Therefore, the learning process is curbed significantly because a teacher simply does not have the time to remediate these foundational fluency and comprehension skills in a group-based setting. Any type of assistive technology that enables students to improve their basic fluency and comprehension skills would be incredibly useful in this setting.

Purpose of the Study

The purpose of the study is first to find an appropriate way to address reading fluency and comprehension, which are massive roadblocks to student achievement in a literacy classroom. The goal is to address this deficit in a way that remediates basic reading skills while still allowing students to access content on their grade level. Using E-Reader technology is one way to address reading deficits while allowing students to stay in the classroom without pullout services. The overarching purpose is to address reading deficits with an assistive technology that is not teacher-dependent, but student led. While
there is ample research surrounding the challenges of integrating technology in the classroom, there is little research on applications and methods to integrate technology to assist struggling learners. Therefore, this research further contributes to the understanding of technology integration, specifically targeting mobile devices and applications to develop stronger reading comprehension skills.

**Significance of the Study**

Students needs to read, comprehend, and analyze complex texts to be successful in a literacy classroom and to meet the benchmarks set out in Common Core standards. The Common Core standards, which are far less prescriptive, necessitate the use of more complex texts that are traditionally non-fiction. This underscores the need for additional remediation in fundamental reading skills including phonics, the use of context clues, and pacing while reading.

The use of technology in the classroom is not new, but the assistive technologies on E-Readers have made significant strides in the last years. This study is important because it addresses the need for fundamental reading skills that have yet to be addressed in literacy classrooms.

Additionally, assistive technologies have had an uneven role in classrooms in the last fifty years (Kennedy et al., 2010). This is due to lack of technology resources, lack of professional development, and curriculum restructuring that heavily emphasizes standardized testing. Additionally, low-income children, which is the population served in this study, face additional reading challenges due to lack of vocabulary development at home and traditionally entering school behind grade level (Amendum et al., 2011). At-risk students enter school each struggle with different types of skills in a literacy
classroom. In addition, the technology gap mimics the literacy gap for low-income students (Biancarosa et al., 2014). This underscores the urgency with which technology must be integrated in a classroom setting to begin facilitating gap closures. For a teacher, assistive technology allows differentiated instruction to meet the needs of all students. This study is significant because it pairs the need for stronger technology integration in the classroom with a system that develops reading comprehension skills for at-risk populations.

**Theoretical Framework**

This research was first situated within Brinda’s (2011) research on the *Ladder of Literacy*. This research emphasizes engaging students in reading practices that are scaffolded, promote student success, and promote joy in reading. Brinda (2014) states:

> “Educators must figure out a way to ensure that every student gets beyond the basic literacy skills to the more challenging and rewarding literacy of the middle and secondary school levels.”

This quote emphasizes the need for differentiated materials in a literacy classroom that meet the needs of all students. The *Ladder to Literacy* also advocates for efferent and aesthetic approaches to reading a text to emphasize both comprehension and joy of reading (Brinda, 2014).

In conjunction with the need to promote joy in a literacy classroom, technology integration has been emphasized as a mechanism to meet the needs of the global economy and better prepare students for college and career. According to Spires et al. (2012), 93% of children and teens use the Internet, and the majority of students access
this information outside of the classroom. Additionally, with the move to Common Core standards, students need a stronger background in reading and comprehending informational texts, and contemporary readers must be able to understand texts in the context of the digital age (Spires et al., 2012).

In melding the need for both stronger literacy skills with the digital age, there is a new opportunity emerging for literacy teachers to use technology to remediate skills and promote joy in reading. From this body of research, the question *what technology can be used to help struggling readers reach grade level proficiency in the 7th grade* emerged. This study aims to both promote a love of learning using a scaffolded approach while integrating technology, a 21st century competency for students globally.

**Research Question**

What technology can be used to help struggling readers reach grade level proficiency in 7th grade?

**Hypothesis**

7th grade students who use E-Readers three times a week for twenty minutes a day will increase their Lexile level by 15% from Pre to Post test over a 4.5-week period.

**Delimitations**

There is limited funding from the school to purchase assistive E-Reader technology. This means that the study will be first be limited by the type of software that is purchased for the E-Readers. Additionally, the students with the lowest Lexile levels are grouped into one cohort (or homeroom), which means that not all the students who
need the intervention will receive the treatment. Since there are only 5-7 iPads that could be utilized, only 1/3 of the students in this cohort will have access to the E-Reader technology. This means that the growth potential is severely limited.

**Literature Search Procedures**

The databases used most frequently for this research were JSTOR and ERIC. However, when searching for a specific researcher, a multitude of databases were used to locate the article in question. This research began by looking at the evolution of technology utilized in classrooms and what has contributed to or detracted from an environment that promotes technology integration. Throughout this research process, key theorists who have carried out research on the use of E-Readers or reading comprehension were noted to be further researched. After analyzing the studies that dealt specifically with the use of E-Readers, software packages mentioned by studies in Israel and by the Department of Education were further researched. Only software mentioned within a peer-reviewed study was analyzed because software packages advertised online haven't necessarily been tested by researchers or educators. After completing this preliminary round of research, another round was conducted to ensure there were no overlooked sources that could further contribute to the body of research.

The keywords used most frequently in the research included, "E-Readers, assistive technology, technology in the classroom, and technology used to remediate reading." There was a significant effort made to only utilize sources published in the last ten years because of the nature of the topic. Moore's Law argues that the power of technology doubles every two years. This means that it would not be useful to look at sources that were not published in the most recent years.
Key Terms

To fully understand the scope of the study, there are a few key terms that need to be defined to comprehend the educational context, deficits, and strategies outlined in the research. First, a Lexile Level is a measure that quantifies a student's reading level through a test that is traditionally administered on a computer. The numerical representation of a Lexile Level corresponds to a student's grade level and is an easy and accurate way for teacher's to measure students reading ability (Spires et al., 2012). Lexile level is of note in this study because the measure for success is improvement on an exam like the SRI that measures Lexile Level. The other aims of the study are to improve reading comprehension and fluency. Reading comprehension refers to a student's ability to understand a text by making inferences and connecting the information to prior knowledge (Kennedy et al., 2012). Reading comprehension can be built with self-monitoring strategies, some of which are addressed by the intervention described in this study. Reading fluency refers to student ability to read quickly and accurately (Kennedy et al., 2012). Students who are fluent readers also read with automaticity, meaning they are able to phonetically sound out words. Students who lack fluency or comprehension skills would need remediation from an instructional leader, meaning they would need additional skills practice or would need to access the information in a different modality. E-Readers offer information to student in a different way. An E-Reader is a handheld device where you can access electronic versions of printed materials and download applications that can be utilized on the device (Schneps et al., 2013). This study relies on using applications to remediate reading comprehension and fluency that can be downloaded on an E-Reader device. Common E-Readers are Kindles and iPads.
Chapter 2: Literature Review

Technology Tools to Support Reading in the Digital Age

This article focuses on the importance of integrating technology in a literacy classroom to develop critical thinking skills and differentiate instruction. The authors argue that with the emergence of E-Reading technology, which includes any digital device, teachers have an obligation to use technology organically in their curricula. Despite the fact that the two national studies have shown no positive reading growth, there is not enough evidence to dissuade researchers and practitioners from continuing to develop and implement technology. The authors provide three key recommendations for implementing technology to improve literacy: utilize the Universal Design for Learning (UDL) model, provide schools with systemic support to ensure teachers are set up for success, and use the data collected from e-reading devices to inform instruction. This article effectively demonstrated the importance of using technology to differentiate instruction and why collecting and using data from these devices is effective. However, the authors failed to describe schools where E-Reading technology has been successfully implemented and the ways UDL can be used in tandem with technology.

A Ladder to Literacy Engages Reluctant Readers

This article highlights why students tend to become struggling or disengaged readers in the middle school level. Brinda discusses that students tend to become struggling readers from elementary to middle school because text complexity increases. The challenge Brinda poses is to find ways for educators to get students beyond basic literacy levels and into the more rewarding components of becoming a reader. He conducted a study where he worked with 16 struggling 6th grade readers. The study took
place over a three-month period at two schools: one was a suburban high-performing middle school and one was a much lower-income urban middle school. He utilized the ladder of literacy, which begins with comprehension and ends with discussion. This same type of ladder, which promotes both curiosity and comprehension is utilized in the E-Reader technology to both help students develop literacy skills and become stronger readers. The study reflected positive growth in student comprehension and attitudes toward reading. Brinda ultimately argues that we have to think beyond the scope of the curriculum to interest students in reading. This source was an important framework in understanding how and why student attitudes toward reading can change.

New Literacies and Emerging Technologies: Perspectives from the United States and Chinese Middle Level Teachers

This study assesses the context of education in the United State and China as it relates to the use of technology in the classroom. The authors’ purpose is to examine where both countries are in relation to the goal of digital equity for all students. The authors’ key question was to ask how technology challenges what it means to be literate given that 93% of students use the Internet. The study surveyed 291 teachers in the United States and China in a cross-cultural study. On average, these teachers had been in the classroom for 11 years. The study concluded that teachers believed technology was integral in the classroom, but felt that the need for 21st century skills doesn’t align with mandates to prepare students for state mandated tests. This paradigm is precluding teachers from relying more heavily on assistive technology in their classrooms because
there is a constant pull to prepare students for multiple-choice exams. This study is particularly important to reflect upon in the use of E-Readers for struggling readers because teachers and administrators must feel comfortable and empowered to use technology before large-scale reforms using technology are implemented. This research also supports the need for institutional reform around assistive technologies in the classroom. Teachers will not feel comfortable with using technology for remediation unless it is clearly included in a school’s curriculum and learning strategies.

**Literacy Instruction, Technology, and Students with Learning Disabilities:**

**Research We Have and Research We Need**

This article describes how students with learning disabilities could benefit from technology integrated literacy interventions. The authors provided a conceptual framework for multi-media instructional design within an RTI framework. Using Mayer’s CTML Theory and Fox’s Enzymatic Theory of Education, the author’s describe the cognitive modalities in which technology could help learning disabled students develop literacy skills. The authors described the importance of skill-based literacy development using technology to make remediation more targeted to student learning style and less redundant. This article heavily emphasized the important role of practitioner investment in technology and its use as a complementary tool and not a supplemental tool in instruction. The authors’ focus was on how technology connects to the cognition of learning disabled students. It would have been helpful to know what types of technological programs are most effective and align with the theories suggested.

**The Effectiveness of Technologically Facilitated Classroom-Based Early Intervention**
This study assessed how a technologically facilitated reading intervention affected the fluency, vocabulary development, and reading comprehension of kindergarten and first grade students. The study was administered to 364 students at seven rural schools in the Southeast United States. This intervention was designed for students who typically struggle with traditional classroom instruction. The authors posited that a pullout model usually works best for students with phonological deficiencies, students who lack oral language skills, and children in poverty. Yet, they also said that the pullout model tends to be very disruptive. The intervention was also designed for teachers who don’t receive or have access to ample professional development because they serve in rural areas. The authors emphasized the importance of leveraging technology in schools where students and teachers lack the resources more privileged districts boast. The reading intervention was delivered via webcam for fifteen minutes to students involved in the study. Students involved in the study outperformed the control group. The authors did caution that assessing the growth of reading comprehension is challenging to measure. This study was useful in analyzing why and how reading deficiencies exist in lower-income schools. Children in poverty are at the highest risk for failing to learn to read, so implementing different types of reading interventions, like the E-Reader technology is crucial to set them up for success.

**E-readers are More Effective than Paper for Some with Dyslexia**

This study looks specifically at the text-to-print implications of paper versus E-Readers in the classroom. While the study was targeted towards students who have dyslexia, the authors discussed that the same principles described could be applied to students who struggled with text to print competencies. The study first asserted that
E-Readers offer accessibility options for students that are not available in print, which is why they should be more integrated into classrooms. In this study, the E-Readers were used to display only a few words per line to help students who struggle with sight words and decoding words. The authors’ also asserted that the E-Readers are useful because they offer options to reformat the text in a way that is customized to the needs of the individual students. In this study, 103 high school students participated. Before participating in the intervention, every student had 300 minutes of practice time on the iPads. The authors discussed the importance of providing students with practice time to ensure they are comfortable using the technology before participating in the study. The researchers saw a positive effect in using the E-Readers as an assistive technology particularly with fluency and automaticity in reading. This study is important to look at in integrating E-Readers because it is one of the few studies that assesses particular functions of E-Readers in a classroom-based setting. The study relied specifically on manipulating the formatting of the font and movement of the text, which kept students moving through the text.

**Effectiveness of Reading and Mathematics Software Products**

This article is one of two major studies published by the Department of Education detailing a two-year study in 33 school districts with 9,548 students assessing the efficacy of reading software in building literacy competencies. The reading programs tested were Destination Reading, Waterford Early Reading Program, Headsprout, Plato Focus, Leap Track, and Academy of Reading. Major private publishers of educational resources developed these software packages. This study was purely quantitative; there were no observations completed in a classroom setting. After the first year of the study, there was
no statistically significant growth for the students who underwent the reading intervention. Researchers hoped there would be growth in the second year of the study because students would’ve had an opportunity to master using the product. However, at the end of the second year, there was no statistically significant growth from pre to post test. This study is incredibly significant because it is only one of two studies conducted by the DOE about technology usage. However, it is important to note that it was a purely quantitative study and there were no in class observations or analysis of how the programs were integrated into the curriculum.

**Reading Electronic Books as a Support for Vocabulary, Story Comprehension and Word Reading in Kindergarten and First Grade**

This article describes a study that was conducted in Israel looking at the effect of E-Readers on literacy development in Kindergarten and 1st grade students. The researcher assessed word meaning and word reading using the hotspots and other text features that are included in E-Readers. The intervention was given to the control group for 25 minutes during each day of instruction. The conclusion of the study was that the use of E-Readers elicited reading growth in the control group. The authors of the study also commented on the importance of using E-Readers in an authentic context where they are not used to “kill and drill” skills. The study design was strong and assessed growth over an entire school year. I’m interested in learning about the effect of E-Readers on older children and which specific elements of the E-Readers were most effective in eliciting student growth.
Learning to Write: Technology for Students with Disabilities in Secondary Inclusive Classrooms

This article focuses on specific applications that can be utilized on an E-Reader or another mobile device to promote literacy skills for students who have disabilities in a secondary school setting. The article describes a number of technologies a teacher may want to integrate into his or her classroom including: digital text, text to speech, word prediction, cognitive organization, electronic reference, speech or voice recognition, and alternate writing. The article also describes specific resources like Project Gutenberg, which offers over 19,000 e-Books free online. The Library of Congress also offers thousands of E-Books that can be downloaded for use in a classroom setting. Finally, the article describes OCR (Optical Character Recognition), which allows teachers to turn a printed document into a text that can be utilized on an E-Reader. This is an incredibly useful technology for non-fiction Common Core aligned texts that may not be available as traditional downloads. Finally, the article explores how struggling readers aren’t proactively monitoring comprehension, so embedding tools like a dictionary or a text-to-speech function within a text sets students up for success.

Read and Write Gold

Read and Write is a software package that can be utilized on E-Reader devices and was field-tested in a study conducted by the Department of Education. Read and Write is important to assess as a source because it is what would be utilized in the classroom. Within the Read and Write program, which is a publication from Text Help, a teacher can upload a document or text for students to access on the E-Readers. There are also a database of resources that a teacher could pull from for students who traditionally
struggle to read. The most impressive component of this software are the in-text features that are useful for students with a multitude of learning deficits. These include: text to speech, a talking dictionary, a speechmaker, voice notes, word prediction, and phonetic word speller, to name a few.

**Improving Adolescent Literacy: Effective Classroom and Intervention Practices**

This article was published through the Department of Education with the goal of providing context on the literacy gap that currently exists in the United States and strategies to utilize in closing the gap. The authors posit that after grade four, students significantly struggle to acquire the more advanced literacy skills that are necessary to be successful in a literacy classroom. This was particularly important to note in this study because significant literacy deficits were noted in a 7th grade classroom serving high-needs students. Additionally, the study suggested that the most important ways to improve literacy skills include: providing explicit vocabulary instruction, provide explicit comprehension instruction, provide opportunities to discuss a text, increase student motivation in the learning process, and make individual interventions available to students. These suggestions spurred the idea of using E-Readers to address needs for high-risk students.

**Fluency Tutor for Google**

This is a product produced by Text Help and Google and is an App that can be used by teachers and students. It is a leveled text tool to help students improve their reading fluency and comprehension. The tool was mentioned in a study by the Department of Education as a mechanism for improving fluency and comprehension. This is a free tool that is incredibly useful for school in high-need because there are no costs associated with
using the program. The teacher has the ability to share a passage with multiple students. Additionally, the website has analytics for a teacher to assess, much like Google Analytics. The application automatically tabulates student fluency and metrics from their recording. The teacher can utilize the metrics to assess student growth over time. This would be a useful tool to use in conjunction with Read and Write Tutor to provide students with additional reading practice.

Chapter 3: Methods

Research Design

The research questions for this study is what technology can be used to help struggling readers reach grade level proficiency in 7th grade? This is a mixed-methods research project. There are quantitative and qualitative measures included within the research methods. Quantitatively, students will take a Pre and Posttest to measure the changes in their SRI levels throughout the study. Qualitatively, the teacher will analyze the differences in student annotations of the main idea on non-fiction articles throughout the study on a weekly basis. This is a quasi-experimental design because the researcher will be determining who receives the intervention based on reading level. Five to seven students will the lowest Lexile Level in each cohort will be provided with an E-Reader that has an assistive reading application to help with fluency and comprehension. The
research design means that more attention will be paid to threats to internal validity because the researcher manipulates so much of the methodology.

**Sampling Procedure**

Students in the 7th grade will be selected to participate in this study based on their Lexile Level. Males and females will be involved in the study because 5-7 students from the cohort with the lowest Lexile levels will be selected to participate in the study. If there is growth after the first re-testing of Lexile levels at 4.5 weeks, the study will expand to the three other cohorts of students. With the highest number of participants possible, it is possible to have 28 students included in the study.

The fact that students in the lowest cohort are grouped by ability is a limitation within the study because this means that only 5-7 of the lowest students in the 7th grade are eligible for the intervention. The ideal way to sample for this study would be to look at the Lexile Levels of all students in the 7th grade and pull the students with the lowest 28 Lexile Levels. Unfortunately, this type of sampling procedure is not possible within the structures of the school setting.

**Research Participants**

There will be no advertisements to participate in this research study because students can only be selected to participate in the study based on their Lexile levels. These are students who are on average 2.5 years behind grade level on a Lexile test. They struggle with basic decoding, fluency, and comprehension in the texts they read. By and large, they do not enjoy reading and are challenging to motivate during an in-class setting to begin working on assignments. Particularly with Common Core aligned texts, which are non-fiction and typically contain a great number of domain-specific vocabulary, these
students become incredibly frustrated by the texts and often say, “I don’t get it” or “I can’t do this.” In a class of students who are all struggling to read complex texts, it can be challenging for a teacher to meet the individual remediation the lowest level readers need.

**Constructs and Variables**

This study analyzes the reading comprehension construct and addresses alternate ways to remediate reading challenges. Reading comprehension is the extent to which a reader understands the different levels of meaning within a text. Reading comprehension tends to suffer greatly in the middle school years because text complexity increases more rapidly during those years. This study also focuses on the curriculum standard construct in determining ways to use assistive technology to remediate State Performance Indicators (SPI).

The independent variable is the E-Reader intervention. Students will access applications on an E-Reader to remediate reading skills. Therefore, the dependent variable is reading comprehension. Growth in reading comprehension will be assessed by an SRI test that analyzes growth in Lexile levels.

**Procedures**

Before the study begins, all students in the 7th grade will take an SRI test (which measures Lexile Level) as a formative assessment. The teacher will then look at the data and determine the five to seven lowest students in the lowest ability grouped cohort. After identifying these students, the teacher will also look at these students’ main idea annotations on a text to further analyze reading comprehension qualitatively. After the teacher has identified these students, the teacher will first get written consent from the
participants to participate in the study. Then, the teacher will begin piloting the study with the 5-7 students from the lowest ability grouped cohort.

The teacher would ideally pull these students during a focus or intervention time to introduce them to the assistive technology. The teacher should be careful to positively frame the intervention by describing to the students what the assistive technology aims to do (improve reading comprehension). The teacher should follow a traditional lesson with an introduction to the iPads and should model for students how to access the application and how to access the texts for the day. Then, the teacher should begin showing students how to utilize the different functions on the app including: text to speech, picture dictionary, pronunciation tutor, word predictor, and voice notes (to name a few). The teacher will also show students how to take main idea annotations on the iPads with a voice note or a written note. The teacher could ask students to take notes during the demonstration or could provide the students with iPads right away and they could follow along as the teacher demonstrated. The teacher should provide ample practice time for students to utilize the iPads before the study begins. In Schneps et al.’s 2013 study, students were provided with over 300 minutes of practice time on E-Readers before the study began. This practice time is crucial for student success in the long term.

All texts utilized in the literacy class will be uploaded to the E-Readers prior to class time. After the practice session, students should experience a gradual release of responsibility in using the E-Readers. The intervention calls for use of the E-Readers three times a week for twenty minutes a session. At the beginning of the study, student involved in the intervention will move to a table in the room and will receive explicit directions from the teacher on how to access and read the text effectively. As students
become more competent utilizing the E-Readers and students understand the procedures around utilizing the iPads, the teacher can allow students to work on the iPads on their own. Utilizing a gradual release of responsibility in this study is crucial for successful student outcomes.

At the four and a half week mark, the teacher should re-administer the SRI test to individuals involved in the study to determine if there has been the hypothesized growth of 15% in Lexile Level. The teacher should also collect the iPads to analyze if student main idea annotations indicate stronger reading comprehension competencies. If the study elicits the hoped for growth at this mark, the teacher should implement the intervention using the same process in other cohorts he or she teaches.

Data Collection

There will be both qualitative and quantitative measure to analyze the efficacy of this study. Quantitative measures will be tracked growth on an SRI test over a four and a half week period. Students will take the same type of test administered by Scholastic to ensure there are not threats to internal validity. There is also a qualitative element to this study. The teacher will analyze main idea annotations on a text during the pre and posttest. Main idea annotations are an excellent way to gauge student comprehension of a complex text, which is the focus of this study. In looking at reading comprehension, it is important to have a qualitative and quantitative component to ensure that both vocabulary and complex inference skills are taught.

Data Analysis

The SRI data will be tracked in Excel immediately after the Pre-test. After the Post-Test, student data will be entered into a parallel column and percent growth will be
analyzed per student. Additionally, average student growth in the intervention will be analyzed to determine if the 15% growth goal was met. This type of growth tracking should continue throughout the duration of the study to better understand at what point in the intervention students are growing the most and whether there is a point when growth plateaus.

In addition to analysis of the SRI, the main idea annotation must also be analyzed. The annotations should be assessed on a weekly basis throughout the study. First, the teacher should look at the annotations for each student and utilize the TN Core rubric using the “Development” category to assess whether the students comprehended the text on a rating of one to four. This rating should happen weekly and should be stored in an Excel file until the last week of the study. At that point, the teacher should track the average score for each student. The teacher should also determine percent growth from week one to week four and should compare this to the SRI data. It’s important to have both a qualitative and quantitative measure in the analysis because reading comprehension is not something that can easily be analyzed through a multiple-choice exam.

**Ethical Considerations**

To ensure respondent confidentiality, each student will be assigned a number that represents his/her identity in the study. These numbers will be utilized in the data analysis and publication. Only the lead researcher will have access to the document that pairs the numerical assignment to the student’s identity. It is crucially important to protect the identity of the students who are participating in this study. Removing any identifying
information from the analysis is crucial to ensure that the data sets aren’t indicating student reading ability and growth or lack thereof.

Additionally, this is not a new type of intervention. Teachers globally are experimenting with effective ways to utilize technology in a literacy classroom. To that end, researchers and institutions like the Department of Education have field tested the use of E-Readers to promote literacy development. Therefore, many of the applications have been refined and improved to promote student success, which also reduces the risk of harm to student learning. This intervention takes place in the classroom, which also removes a layer of possible harm from the study because students are simply receiving differentiated materials as opposed to pull out services.

References


