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Personalized blended learning strategy to influence reading comprehension

Marissa Wilkening

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Personalized Blended Learning Strategy To
Influence Reading Comprehension

By
Marissa Wilkening
A Graduate Field Experience
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(Advisor)

(Date)
HOW CAN PERSONALIZED BLENDED LEARNING STRATEGIES PROMOTE READING COMPREHENSION FOR STUDENTS WITH HIGH INCIDENCE DISABILITIES AT THE 11TH GRADE LEVEL?

Marissa Wilkening
Cardinal Stritch University

Abstract

As the literacy demands for college and career-oriented programs increase, the need to prepare students to meet these demands becomes a salient matter for discussion. This task can be especially difficult for special educators working with students with special needs, whose reading levels vary greatly. Technology is a promising approach, however, for educators who need to target students at a range of reading levels. The study examined the effects of personalized blended learning strategy on reading comprehension for high incidence special education students at the 11th grade level. The strategy incorporated the use of a computer software program called ThinkCERCA. The study used a mixed method approach, incorporating both qualitative and quantitative data. Findings revealed that both reading comprehension and motivation increased as a result of the intervention. Student perceptions of the program were positive. Results have particular implications for future educators, especially those seeking effective strategies for targeting reading comprehension in at risk adolescents.
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Chapter 1

Introduction to the Study

Educators have found that a one-size fit all approach leaves many students feeling isolated and unmotivated. As a result, teachers are encouraged to differentiate instruction, by tailoring the instruction to meet the needs of individual students. Teachers can differentiate instruction through four primary modalities including content, process for learning, culminating products, and the overall learning environment (Tomlinson, 2015). This task can be both highly challenging and time-consuming, especially for teachers working with large numbers of students, whose academic levels vary greatly. As a result, educators are searching for viable methods to differentiate instruction, in a way that is meaningful and engaging to students.

Personalized blended learning strategy may be the answer educators are searching for. Personalized learning means to tailor learning to the students’ strengths, needs, interests, and experiences (Patrick & Sturgis, 2015). Blended learning essentially is an environment that incorporates technology into both the teaching and learning process. Naturally, personalized blended learning strategy uses technology to meet students at their academic levels, while also incorporating their own interests and experiences.

Statement of the Problem

The problem that provoked this study was the lack of successful reading interventions for special education students at the high school level. In particular, educators working in urban high schools face many challenges when trying to address the needs of their students who are reading at various levels. There is minimal research to support and guide educators who working to address the literacy gap, particularly for adolescent special education students in urban settings.

Purpose of the Study
The purpose of this study was to determine the effectiveness of personalized blended learning strategy on reading comprehension for high incident special education students at the 11th grade level. The researcher used a computer software program called ThinkCERCA to promote reading comprehension. As part of the design of the study, students were able to select topics of interest. Based on the students’ requests, articles would be assigned in the ThinkCERCA program based on the student’s reading levels. Using ThinkCERCA, students followed a 6-step process designed to promote reading comprehension, analytical thinking, and writing.

Step 1: Engage with text
Step 2: Read text and answer multiple-choice questions
Step 3: Annotate text through highlighting
Step 4: Summary writing
Step 5: Build an argument
Step 6: Draft a formal argument

As part of the study, the researcher also sought to evaluate the role that motivation played in improving reading comprehension. Factors such as choice and autonomy have been found to increase student engagement (McCoach & Reis, 2014). The ThinkCERCA provided teachers with the tools to differentiate based on the students interests and academic levels. Additionally, students could move at their individual pace within the program. By creating a learning environment that was entirely student-centered, the researcher wanted to evaluate the effects on motivation. In order to measure student motivation, the researcher used the Motivation to Read Profile-Revised (MPR-R) as a pretest and posttest (Malloy, Marinak, Gambrell, & Mazzoni, 2014).
Rationale for the Study

Several factors have influenced the rationale for this study. These factors include the concern over college readiness amongst high school graduates, the increasing role of technology in the classroom, and the need to engage struggling learners.

Concern over college readiness is at the forefront of these issues. Many students are leaving high school and entering college programs with reading levels that are significantly below grade level (Schumaker, et al. 2006). A study conducted by the University of Kansas Center for Research on Learning found that the reading achievement of students with high-incidence disabilities generally plateaus after seventh grade (Schumaker, et al. 2006). Studies like these prompt the question, “What exactly are high schools doing to ensure that reading improvement continues for students with disabilities?” Whether a student intends to enroll in a four-year college, pursue a two-year technical program, or immediately join the work force, reading is an essential skill. Reading achievement is a pressing concern for adolescent students with high incidence disabilities. This study is significant because it attempts to address this growing concern.

In addition, the increasing role of technology functioned as part of the rationale for this project. Online learning and the infusion of technology into classroom, is a growing trend in education. While many educators have willingly embraced technology, there are still many questions about best practices for implementation. This study was important because it sought to determine the effectiveness of a reading comprehension strategy, which incorporated the use of technology. The results of this study would provide insight into how technology can be used to improve reading comprehension.
Finally, the need to engage struggling learners served as part of the rational for this study. A quick glance at students’ educational histories can reveal much about the effectiveness of traditional education on their learning. For students who have historically struggled to make academic gains, high school is essentially the last straw. If a traditional setting and approach to learning has resulted in minimal gains, it is time to explore other options and pathways for learning. In order to engage students, especially students who have experienced repeated failure; the learning must be highly relevant (Nolan, Preston & Finkelstein, 2015). This study is particularly important because it targets students who are at risk and seeks to incorporate student interests and prior experiences.

**Setting, Population, and Timeline**

The study took place at a Parkland High School, which was part of the Milwaukee Public School District. Students participated in this research project within the schools Personalized Blended Learning (PBL) Lab, which was a space used to provide reading and math interventions. Students qualify for support in the PBL Lab based on the Measure of Academic Progress (MAP), a district-wide assessment. The intervention lab was a regular education environment, ensuring that students were in the least restrictive environment. Both regular and special education students received intervention support in the PBL Lab.

Data provided from the Wisconsin Department of Public Instruction (WINS), helped to provide a more thorough understanding of the student population at Parkland High School. It was found that 36% of students were not economically disadvantaged, while 64% were considered economically disadvantaged. Nearly 16% of students at Parkland were identified as having a disability (Wisconsin Department of Public Instruction, 2014). The racial breakdown at Reagan was as follows: Hispanic (51%), African America (13%), and Caucasian (30%)
(Wisconsin Department of Public Instruction, 2014). As decided at the beginning of the 2014 academic school year, all students in Milwaukee Public Schools (MPS) received free lunch. In the 2013-2014 school year, Parkland was ranked second for best high schools in the state of Wisconsin according to U.S. News. Parkland’s mission statement has three main themes: collaboration among students, staff, parents, and community members, the importance of being a global learner, and college and career readiness.

The sample for this action research was selected based on disability and district assessment scores. Students were considered for this action research if they had a high incident disability, such as Attention Deficit Hyperactivity Disorder (ADHD) or a Specific Learning Disability. In addition to the disability, students had to score below proficient on reading portion of the Measure of Academic Performance (MAP), a district assessment given three times a year. Students who scored below proficient, were scheduled to receive for one block of intervention in the school’s PBL Lab. Using these two criterions, consent forms were sent home to students who were scheduled for PBL intervention. The researcher obtained consent for six students to participate in the intervention.

The intervention began in March and ended in May. Students participated in a total of 20 sessions across the three months, with each session lasting 60 minutes. The personalized blended learning strategy was implemented during the students’ assigned intervention block. Parkland High School using block scheduling, which means students schedules alternate day to day. Students participated in the intervention 2-3 times a week. A pretest and posttest was administered to evaluate the effects of personalized blended learning strategy on reading comprehension and motivation.
Definition of Terms

Specific Learning Disability (SLD): disorder in which one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations (Department of Public Instruction, 2015)

Attention-Deficit Hyper-Activity Disorder (ADHD): disorder in which one may experience difficulties in paying attention, concentrating on tasks, and/or remaining physically still (Department of Public Instruction, 2015)

Blended learning: includes a combination of face-to-face learning and online learning (Childress & Benson, 2014)

Computer-assisted instruction: uses a computer to differentiate and augment traditional instruction (Regan, Berkeley, Hughes, & Kirby, 2014)

Personalized Learning: a learning experience tailored to meet individual needs, skills, and interests (Childress & Benson, 2014)

Digital literacy: pertains to the ability to strategically use the Internet and technology for various purposes including education, work, commerce, and interpersonal relationships (Nolan, Preston & Finkelstein, 2015)
Chapter 2

Review of Literature

As schools are moving towards a focus on college readiness, it is difficult to ignore statistics that reveal that 70% of high school students graduate within four years and of that number only 37% are considered to have the skills deemed necessary for college (Childress & Benson, 2014). Additionally, only 20% of low-income high school graduates are considered college ready (Childress & Benson). The reality of these statistics provide serious implications for educators working with populations considered to be most “at risk” including those from low-income families, those with a shortage of credits, and those who qualify for special education services. Considering that the achievement gap has been at times referred to as a literacy gap, it is necessary for urban schools to provide high-quality reading instruction that is designed to target students significantly below grade level.

A major goal of reading instruction is for students to become proficient at comprehending text. When working with students with special needs, it is likely that reading levels may vary greatly. The variance in reading levels among students can make it difficult for teachers to provide meaningful reading instruction that addresses each learner’s needs. A promising approach for educators can be found through the incorporation of personalized learning. Personalized learning is an instructional practice tailored to meet students’ academic needs and interests. As Childress and Benson (2014) stated, “Personalized learning can meet all students where they are, motivate them based on their interests and academic levels, accelerate their learning, and prepare them to be true lifelong learners” (p. 34). Personalized learning steers away from traditional classroom practice, in which direct instruction is the focus, and instead employs a variety of instructional practices including individual and small group time with the teacher, as
well as time spent on computer software programs. This new model for learning is student-centered. Learning is based on the students’ interests, prior experiences, and abilities (Demski, 2012). While differentiation and individualization are components of personalized learning, what distinguishes it most is its flexibility in content and theme (Demski, 2012).

Related to personalized learning, is the concept of blended learning, which infuses technology into instruction. Blended learning is the combination of traditional classroom learning and online learning. Blended learning can be a solution to offering alternative learning environments to students who have varied learning styles and needs (Yasar Kazu, Demirkol, 2014). Successful incorporation of computer-assisted programs may provide teachers with a more manageable way to provide students with an authentic learning experience, which truly addresses their diverse needs. A study conducted by Tagsold and Argueta (2014) sought to determine the effectiveness of 1:1 computing program in enhancing learning for students with special needs. The authors found that 1:1 laptops provided teachers with both a greater ability to provide differentiated forms of assessments, as well as instructional materials. In turn, many teachers reported finding a greater increase in confidence and motivation by special education students, some of which historically struggled to stay on task and engaged.

While personalized blended learning strategy offers many viable components, there are other factors that need to be taken into consideration when designing interventions to increase reading comprehension. It is crucial that educators acknowledge the connection between reading and writing. When teachers follow a set of standards, it can become a habitual practice to teach reading and writing in isolation (Ferdig, 2007). Lytle and Botel (1988) explained this concept further, “To learn to read one needs to write in a variety of genres and for many different purposes. To write, one needs wide experiences with reading, thereby gaining knowledge of the
world and knowledge of the possibilities inherent in written language” (p. 12). When designing intervention programs to improve reading comprehension, it is important that the strategy used seek to incorporate a balance between reading and writing activities.

The purpose of this study is to determine the effect of personalized blended learning strategy on reading comprehension for high incidence special education students at the 11th and 12th grade levels. This study summarizes studies that address the important questions pertaining to this action research project: What does it mean to comprehend text? How is technology used to increase student engagement? How can a personalized blended learning approach be used to promote reading comprehension? What instructional practices improve the comprehension development of high incidence special education students at the 11th and 12th grade levels? The first section focuses on access to technology in schools. The next section focuses on technology and instruction. The subsequent section focuses on the role motivation plays in student learning. The fourth section focuses on specific computer-assisted programs used to promote reading comprehension. The final section focuses on an evaluation of remedial interventions.

Access to Technology

With an ever-changing landscape for skills needed to be successful in the workforce, one thing that is for certain is the need for young adults to have strong computer skills. As the need to develop computer literacy in students becomes more apparent, the importance of providing students with daily access to technology becomes imperative. The question then begins to shift from what educators must teach and why they should teach it, to how educators can provide all students with the opportunity to develop strong critical thinking and information technology skills.
One study sought to determine how educators and school districts could most effectively implement technology in classrooms. Keppler, Weiler, and Maas (2014) designed a study to determine the effects of the Littleton Public School District’s approach to laptop infusion model and its impact on instruction and learning. The purpose of the study was to document the Littleton Public School (LPS) computing infusion program and determine its effectiveness compared to other laptop infusion programs. The researchers posed three key questions, which they wanted to address in their study: (1) How has the Littleton Public Schools (LPS) model for infusing technology into the classroom influenced learning? (2) How has the LPS model influenced teaching? (3) How cost effective is the LPS model? The researchers’ hypothesis was that the LPS laptop infusion model would affect schools academics, while also being a more cost-effective approach (Keppler, Weiler, & Maas 2014). The independent variable in this study was the laptop infusion. The dependent variables were the academic results and the cost analysis.

Three school districts were involved in the study. Littleton Public Schools (LPS) is a suburban school, located in the metro area of Denver, Colorado. It serves approximately 15,000 students, in which 20.79% qualify for the Federal Free and Reduced Lunch program. The population used within this study focused primarily on LPS teachers and students enrolled in language arts classes, grades 5 through 12. The researchers did not provide further information regarding the participants.

The LPS district wanted to determine how a one-to-one computing program could improve writing. Considering that part of the researchers’ purpose within this study was to analyze the cost effectiveness of the LPS model, two additional school districts were analyzed to compare: one used a one-to-one Mac school district and a non-infusion school district. The school district that utilized a traditional one-to-one Mac approach reported that 39% of its
students qualified for the Free and Reduced Lunch Program and its minority students made up 39% of the student population. The one-to-one laptop program was rolled out after an agreement made with Apple Computers and an effort on behalf of the school district to recruit more students (Keppler, Weiler, & Maas 2014). The non-infusion school district has more than 28,000 students enrolled and considered one of Colorado’s largest school districts. The school reported its ethnic break down being 66% White and 28% Hispanic (Keppler, Weiler, & Maas 2014). Information regarding socioeconomic status was not provided. While funding for technology has been provided to the school, it has been spent primarily on providing schools with projectors, document cameras, and computer labs.

The researchers used a mixed methods approach in order to gain a more thorough understanding of the impact of laptop infusion in the classroom. The researchers used four primary methods to collect their data including, interviews with LPS teachers, focus group discussions with students, a quantitative classroom observation tool, and a cost analysis formula. Teacher and student interviews indicated positive feelings towards use of the netbooks. Emergent themes included having a more feasible way to edit and revise work, students taking greater risks in their writing, and teachers’ appreciation of professional development centered on the netbooks. Additionally, the researchers found by using an observational tool that student engagement increased with the use of the netbooks in the classroom. Finally, by dividing the cost of the infusion effort by the number of students being served, the researchers found the LPS model to be more cost-effective than a traditional infusion program.

Several conclusions were drawn from the analysis. The findings of this study indicated that when schools adopt an overall purpose for the infusion of laptops, such as writing in the case of LPS, academic results tend to be greater. Additionally, the authors found that while the
netbooks provided teachers with more ways to differentiate instruction and expand collaboration within the classroom, extensive professional development is critical to factor to teacher effectiveness. Finally, the authors determined that the most effective teachers within this model were the ones who had shifted away from the traditional model of teaching in which direct instruction is the focus of the lesson, and used an approach that allowed for more one-on-one conferencing with students. This study supports the current study because it suggested a need to provide all students with access to technology and to incorporate technology into the learning process. The study would support further research that seeks to determine how technology can specifically improve an area of academics such as reading comprehension.

While technology provides many promising avenues for educators, special considerations need to be made when supporting students with special needs. Blended learning environments, in which technology is used to support content, requires a level of independency. Students who tend to struggle academically may need more explicit instruction on how to learn using technology. Teachers in blended learning environments need to be aware of additional resources, strategies to extend the learning, and ways to provide supplemental practice (Greer, Rowland, & Smith, 2014). Technology provides teachers with many tools and resources and it is important that they have adequate training on how it can be best utilized.

With an intention to understand best practices for implementing technology, Tagsold and Argueta (2014) study focused their efforts on evaluating the effectiveness of technology with students with special needs. The study was designed to determine the effectiveness of 1:1 computing program enhanced learning for students with special needs, as well as identified the challenges to successful implementation. The researchers hypothesized a 1:1 laptop program would affect students with disabilities academically, socially, and emotionally. The independent
variable in this study was 1:1 laptop programs and the dependent variables were students’ academic, social, and emotional response to the programs.

The researchers conducted the study in 18 North Carolina high schools. The study included 8 early college (EC) high schools and 10 traditional high schools, with 9,500 students and 600 teachers involved in the program. While the study did not provide additional demographic information on participants in the study, it stated that the high schools in the study, “reflect the state’s diverse geographic, economic, and cultural landscapes” (Tagsold & Argueta, 2014, p. 218).

The researchers organized 60 focus groups in which they recorded and analyzed the data collected. The researchers recorded, transcribed, and imported data into a program called Atlas.ti.software (Tagsold & Argueta, 2014). The researchers used open-ended questions in which specific themes were coded and analyzed. Questions that the focus groups received had to do with teacher roles, student engagement and achievement, and greatest successes and failures. While the focus groups served as a primary source of feedback, the researchers also collected data using methods such as online surveys, classroom observations, site visit checklists, and attendance and discipline records.

The researchers explored how the 1:1 computing program affected students with special needs, and found that the focus groups provided the richest form of data. The researchers identified key themes based on the data teachers provided pertaining to students with special needs. The key themes were communication, organization, confidence, reading ability, and assessment (Tagsold & Argueta, 2014). The researchers determined that quality note taking improved and teachers provided additional online study guides or resources for students. Students with special needs who struggled with organization benefitted from online folders to
store their documents. The researchers noted an increase in confidence as diversified texts allowed students with special needs greater access to lesson objectives. In some cases, teachers were able to provide students with online textbooks that could be read to them. Finally, researchers concluded that the 1:1 laptops provided teachers with a greater ability to provide differentiated forms of assessment, such as allowing a student to create a presentation or record of video of himself or herself responding to a prompt.

Along with the successes indicated by teachers, there were trends in the challenges teachers reported with the 1:1 laptop initiative. The most consistent concern with the difficulty in managing effective use of the laptops and ensuring that students are not playing games or browsing non-school related material. Another concern of the study was a lack of professional development for teachers on how to most effectively utilize the laptops.

The study findings implied that students with special needs benefited in a variety of ways from a 1:1 computing program, including socially, emotionally, and academically. The study found that the 1:1 laptops increased teachers’ ability to provide differentiated texts and instructional guides, promoting reading comprehension for students with special needs. The study was beneficial because it supports the philosophy that technology is a central element in improving academic outcomes for special education students.

This section of the literature review focused on student access to technology in the classroom. School districts implemented various computing programs in order to increase technology in the classroom. Their level of success was found to be contingent with other factors including the amount of teacher professional development offered, having a clear focus or aim for the technology such as writing, and the willingness of educators to steer away from the traditional model of teaching. It was also found that technology could be used to specifically
advance the learning for special education students. Teachers consistently reported that computers increased engagement among students and provided them with more tools to differentiate instruction.

**Technology and Instruction**

As more and more schools embrace technology, educators must ask themselves: How can technology be used to improve learning and students’ academic outcomes? The study conducted by Kazu and Demirkol (2014) explored the effects of a blended learning environment on academic achievement at the high school level. The purpose of the study was to compare students’ academic achievement in a blended learning environment to a traditional classroom environment. The study determined if a blended learning environment would yield greater academic achievement than a traditional classroom environment. The authors’ hypothesis was that a blended learning classroom environment, in which technology was utilized to deepen student learning of material, would lead to greater academic achievement among students than a traditional classroom setting. The independent variable was the type of classroom environment: blended learning model versus traditional classroom setting. The dependent variable was the academic achievement results measured by the posttest.

The experimental group, where blended learning was offered was referred to as the 12/B group. The control group, which received traditional instruction, was referred to as the 12/C group. The study was conducted in a 12th grade biology class, in which students were studying the same topic across six weeks. The primary topic throughout the 6 weeks was genetics. Participants in the study were given a pre-test and post-test. Following the pre-test, no achievement discrepancy was noticed. The study took place during the 2010-2011 academic school year at Diyarbakir Anatolian High School. There were 54 participants with the
experimental and control group having an equal number of students in each group (27). Achievement tests were given at both the 10th and 11th grade levels, as well as a pre-test was used to ensure that the experimental and control groups were chosen objectively according to their biology achievement averages. The researchers did not offer further information about the participants.

To ensure that teacher effectiveness was not a factor throughout the 6-week study, the same instructor taught both the control group and the experimental group throughout the duration of the study. Following the pretest, the control group continued in the traditional classroom setting, while the experimental group engaged in a flipped classroom design. A flipped classroom is a form of blended learning that allows students to receive direct instruction primarily through online videos of the instructor. The purpose of having students engage with the new material through videos outside of class time was to increase student-teacher interaction around the topic versus a teacher lecturing on the topic. Along with the teacher created videos, a blog page was designed in which students had unlimited access and could post questions, write comments, and take notes around the lesson objectives.

Following the ending of the study, a posttest was given to students in both groups to measure academic achievement of the same content covered on the pretest. The experimental group scored a 29.25 grade average on their pre-test. Their final test grade average on the post-test was a 78.70. Paired Samples Test revealed a significant difference when comparing the post-test scores to the pre-test scores for the experimental group. The significant difference indicates that the blended learning environment was successful. The control groups’ pre-test average was a 28.88. Their post-test average was a 72.22. A Paired Samples Test concluded that there was also
a significant difference between the pre-test average and the post-test average for the control group.

When comparing the averages of the final scores, the authors found that the experimental group scored was more successful than the control group. Analysis of the data from the study supported that a blended learning model is more effective than a traditional classroom setting. When analyzing the data, the researchers used arithmetical mean, standard deviation, cluster analysis, item difficulty index, item discrimination index, KR$_{20}$, reliability coefficient, percentage, and frequency to determine the effects of blended learning (Yasar Kazu & Dermirkol, 2014). While factors such as access to technology and student ability to navigate online were taken into consideration, the study concluded that successful implementation of blended learning may lead to increased academic achievement among students.

The study connects to the purpose of the current study, in that it was designed to determine the effects blended learning can have on high school students. The researchers wanted to determine if a blended learning environment would produce greater academic achievement than a traditional classroom environment. The study’s findings supported the need to further investigate the extent to which technology can increase academic performance in adolescent students.

As technology proves to be an essential tool for increasing academic achievement among students, it is important to look more specifically at how it can be used to improve reading proficiency for struggling readers. For students with mild disabilities, reading tends to be the most frequent area of difficulty. A study conducted by the National Center for Educational Statistics (2011) found that 68% of fourth graders receiving special education services scored below basic on the reading assessment report compared to 30% of students without disabilities
(as cited by Cullen, Alber-Morgan, Schnell, & Wheaton, 2014). As changes in education are made, it is important to understand what strategies for incorporating technology have proven to be most successful when seeking to improve reading proficiency.

A study conducted by Laverick (2014) was designed to determine if technology-based strategies and materials could be used to improve the reading proficiency for students. The researcher sought to answer the following questions: (1) What ways can reading specialists use digital technology to improve the reading proficiency of their students? (2) What extent do reading specialists perceive technology-based instruction as a method to improve literacy skills? (3) How did reading specialists demonstrate professional development as a result of technology-based instructional practices? The researcher’s hypothesis was that technology-based instruction and materials would better enable the reading specialist candidates to meet students’ individual reading needs. The independent variable in the study was technology-based strategies and materials. The dependent variable was candidates’ perception of the role technology plays in students reading proficiency levels.

The participants in this study were 19 certified K-12 teachers who were enrolled in a graduate program, seeking a reading specialist certification. While the name of the university was not provided, the study took place at a rural mid-sized university, as part of a 5-week summer reading program. The participants, responsible for teaching the children and adolescents enrolled in the Summer Reading Program, were expected to assess, diagnose, and design lessons to meet students’ individualized literacy needs (Laverick, 2014). The researchers did not provide information about the gender or ethnicity of the participants.

Prior to the start of the study, the researcher provided the participants with instruction on numerous technologies and evidence-based practices that had been proven successful in
promoting literacy growth in students. The participants selected instructional techniques, which involved technology, as a response to students’ needs found through initial testing and ongoing assessments. At the end of the 5-week program, an open-ended questionnaire was given to each candidate. Their responses were analyzed using a program called NVivo 10 and an average score was found to determine the candidate’s perceptions of the effectiveness of technology integration into literacy instruction. Additionally, teacher work samples (TWS) were evaluated to determine the way in which the candidates utilized technology in literacy instruction. Documents, which were analyzed included a calendar, assessments, instructional goals, lesson plans, reflective journal, evidence of communication with parents, summary of child’s growth, and student work samples and assessment results (Laverick, 2014). Finally, the researcher relied on faculty observations to determine the candidate’s effectiveness in implementing technology-based instructional strategies.

The questionnaire used at the end of the 5-week program was coded and organized into 12 major themes: recording experiences, engaging experiences, boosted creativity and innovation, purposeful and meaningful instruction, collaboration with colleagues, technology as assessment, digital recorder and fluency, audio recorder, document camera to create dramatic experiences, use of computer programs, technology and literacy development, and effective classroom management (Laverick, 2014). Candidates were asked to rate the extent to which they felt technology had improved student reading proficiency on a scale of 1-5, with 5 being the greatest impact possible. The responses averaged 3.9 were found to be the overall effectiveness reported by candidates. The first question the researcher wanted to answer in the study pertained to the ways reading specialists used technology to improve reading proficiency. The researcher deduced that audio and video recordings could be used for both progress monitoring, as well as
student engagement and reflection. Additionally, PowerPoint, iTunes, Youtube, and iMovies were used to keep students engaged and motivated throughout the daily lessons. The second question pertained to the extent to which technology was perceived to increase reading proficiency. Fluency was found to be the most improved area of reading. TWS provided evidence of student growth through reading assessments, student surveys, diagnostic tests, and timed readings. Additionally, during the observations the researcher noted that students’ seemed to have an increase in confidence and ownership. Flip cameras allowed students to evaluate their own work and set personal goals. The last question the researcher focused on in the study was pertaining to the professional development of the candidates. The study revealed that candidates were able to explore new instructional practices, which they planned to incorporate into the own teaching. The author discerned that collaboration increased greatly among candidates in the study, as they were able to share new strategies and tools with their peers.

The findings in this study indicated that technology-based instruction can be utilized to increase reading proficiency. Technology-based strategies can increase student engagement by replacing many of the paper and pencil activities previously used to support literacy growth, by incorporating things such as videos, audio recordings, presentations, and digital games. Along with instructional practices, technology can be utilized to support assessment by helping teachers more efficiently progress monitor student growth.

Overall, this study provided implications for future use of technology-based practices in literacy instruction. The increased student engagement reported in this study suggested that technology could serve as a strong platform for students who tend to be easily distracted and struggle to remain attentive. Furthermore, the increased student confidence that was noted throughout the study is noteworthy. For teachers working with adolescents who have historically
struggled with reading, methods that have shown to improve confidence and motivation should be considered. For teachers seeking to improve their own teaching practices, this study validated the importance of learning how to effectively incorporate technology into student learning, as it can be a source for teacher collaboration and reflection.

This section discussed how teachers could leverage technology within their instruction. Models such as blended learning classrooms were considered to provide teachers with the ability to provide more small group instruction. Instead of spending the majority of class time lecturing on the new material, teachers could use class time to focus on application of the material. Examples of ways in which teachers utilized technology included online videos, blog pages, classroom websites, and other forms of online media. Moreover, it was found that technology could be used to improve reading instruction for students. Audio recordings, digital games, and presentations were found to be more engaging to students than activities simply involving paper and pencil. Additionally, online software provided teachers with an enhanced ability to progress monitor students. Frequent progress monitoring provided teachers with knowledge about when to adapt, adjust, or reteach concepts.

**Reading and Motivation**

It is a growing concern that students are not being adequately prepared to be successful in college due to a lack of reading and writing skills. To combat this growing concern, the Council of Chief State School Officers and the National Governors Association for Best Practices released the Common Core State Standards (Ivey, 2011). By implementing the standards, which involve difficult and complex processes, the belief was that students would be prepared to meet the demands of college level work. One area not accounted for in the standards, however, is engagement. One expert describes the issue saying, “Shockingly absent from current
conversations on improving adolescent literacy and, college and career readiness, is the problem of student engagement in school and in literacy building” (Ivey, 2011, p. 98). By the time many struggling readers reach high school, they have experienced years worth of repeated failures. The conversation then, must take into consideration ways to engage and motivate students to want to improve upon their literacy skills.

The study conducted by deFur and Runnells (2014) explored the implementation of a survey tool created to measure the adolescent literacy self-efficacy, called Adolescent Literacy and Academic Behavior Self Efficacy (ALAB). The purpose of the study was to demonstrate support for the survey, which was designed to measure a student’s level of self-efficacy in regards to literacy. The survey tool would look at specific factors, which have been determined to correlate with motivation and academic performance. Based on the studies findings, the researchers intended for the tool to be used within the field, as a way to provide useful information when designing interventions for adolescents. The researchers were particularly interested in identifying any differences in the levels of literacy self-efficacy between students with special needs and students without disabilities. The researchers also chose to examine differences regarding sex and age. The authors’ identified seven areas as important factors related to literacy self-efficacy: (a) read and understand expository text; (b) read and understand narrative texts; (c) engage in writing tasks; (d) apply strategies that support reading and writing success; (e) stay engaged during classroom instruction; (f) use organizational skills to complete assigned tasks on time; (g) succeed on classroom and state literacy assessments (deFur & Runnells, 2014). The researchers hypothesized that there would be a significant difference in the levels of literacy self-efficacy between students with special needs and students without
disabilities. The independent variable was the type of student: with disability or without a disability. The dependent variable was the level of literacy self-efficacy.

The study took place in a mid-Atlantic state and included both rural and suburban schools. Each school had a designated staff member in charge of administering the survey with a representative sample, including a minimum of at least 30 students. Eight of the ten schools complied with the study requirements and submitted a combined total of 271 student survey results. Although ethnicity data was not directly collected through the surveys, half of the participating schools were predominantly (>95%) White. The other half of the schools were considered to be more diverse ranging from 64%-81% students identified as White. The survey responses included 132 females and 138 males, ranging from ages 11-18. A total of 22 students were identified as having an Individualized Education Plan (IEP) or 504 Plan. Students selected to participate in the survey were instructed to read the paper copy of the survey and select the best description, unless it was part of a student’s accommodation to have the assessment read out loud. There were four questions pertaining to each of the seven subcategories related to literacy self-efficacy, with a total of 28 questions. Responses to the questions followed a Likert-scale format in which a 0 represented a Not sure I can do this response and 9 represented a Real sure I can do this response (deFur & Runnells, 2014).

Following the implementation of the survey tool, responses were entered into PASW 18.0 and intensive factor analysis and reliability analysis were conducted to confirm the survey tools authenticity. Once the validity and reliability of the survey were confirmed, the researchers sought to compare the results between several categories: students with disabilities and students without disabilities; girls and boys; and middle school and high school age students. Through factor analysis, the researchers found that four strongly correlated subscale items emerged:
reading, self-regulation, strategic learning, and writing. Focusing on the self-regulation subscale, a significant difference (p<0.05) was noted between students with disabilities (M=6.3) and students without disabilities (M=7.3). Furthermore, a significant difference (p<0.01) was identified with self-regulation self-efficacy between males (M=7.0) and females (M=7.4). Writing was another subscale item on the survey. A significant difference (p<0.01) was recognized between middle school (M=6.7) and high school students (M=7.7). A significant difference (p<0.05) was also revealed between students with disabilities (M=6.1) and students without disabilities (M=7.1). Strategic learning was also identified as a subscale and a significant difference (p<0.01) was uncovered between students in middle school (M=6.1) and students in high school (M=6.9). Finally, reading self-efficacy was observed as the last subscale item on the survey. To the researchers' surprise, no significant difference was recognized between any of the groups of respondents.

As adolescent literacy skill improvement continues to be a growing area of need, especially among students with disabilities, the authors suggested that the survey may be an effective tool for teachers to gauge student perceptions and beliefs. The tool may be exceptionally useful to monitor any changes in student literacy self-efficacy that may have occurred as a result of a literacy intervention. Students who experience repeated academic failure might be at risk of lacking the motivation to continue learning. The survey tool may not only be helpful in constructing appropriate interventions, but also evaluating the effectiveness of those interventions. The researchers did provide a cautionary note that students with disabilities may sometimes be overly confident in their academic and school-related abilities, which could tamper with the accuracy of the survey (deFur & Runnells, 2014).
The study connects with the current research, in that self-efficacy and motivation play a critical role in a student’s willingness to engage and persevere through challenging tasks related to literacy. If a student has continually failed at reading and writing activities, it is important that interventions are designed to allow the student to experience success with the skills being practiced. The authors point out that the belief that one can succeed is equally as important as having the skills and knowledge required to achieve a task. It is necessary to examine student literacy self-efficacy in order to provide personalized reading interventions.

Having valid and reliable tools to measure self-efficacy is essential to monitoring authentic student growth. The next step for educators is to look at what strategies increase student motivation. Finding specific techniques and tools that can be used to influence engagement, is especially important for teachers. Relevance has been shown to improve student motivation (deFur & Runnells, 2014). When instruction is relevant to a student’s life, achievement and engagement tend to increase. When designing intervention, it is important to determine ways to account for the student’s background and interests.

The study conducted by Marinak (2013) strived to examine teacher practices that could increase student’s motivation to read. As part of the study, motivation was viewed as the child’s’ self-concept as a reader and overall value of reading (Marinak, 2013). The purpose of the study was to determine the effectiveness of specific strategies to improve students’ motivation to read. In the study, the researcher used a mixed methods approach to measure the effects of a motivation intervention. The author hypothesized that students’ motivation would be affected as a result of the intervention. The independent variable was the motivation intervention and the dependent variable was the student’s level of intrinsic motivation as measured by a self-report instrument.
The researcher used a quasi-experimental design paired with Participatory Action Research (PAR), meaning research was conducted by, with, and for the people affected by the problem (Marinak, 2013). In this study, three characteristics informed the interactions throughout the process including (a) active participation of teachers and researchers in the construction of knowledge, (b) promotion of self awareness that leads to individual and/or collective change, (c) building of relationships between the researcher and teachers for planning and implementation purposes (Marinak, 2013). The participants in the study included teachers and students. The teacher participants as part of the treatment group included two fifth grade teachers, two reading specialists, a learning support teacher, and the building principal. The participants from the control group included two fifth grade teachers who were comparable in terms of experience and education. The student participants were comprised of 76 fifth grade readers from two suburban school districts in the mid-Atlantic region. The treatment group had a total of 32 participants (15 boys, 17 girls). The control group totaled 44 participants (28 boys, 16 girls). The two districts were found to be comparable in regards to the number of minutes in reading instruction, the number of economically disadvantaged students, types of incentive programs, and class size. Each school had approximately 30-35% of students qualifying for free and reduced lunch. Information regarding the race of student participants was not provided.

At the beginning of the study, all participants took the Motivation to Read Profile to measure the reading motivation of students in both the treatment and control group. The MRP consists of two parts: survey questions and a conversational interview. As part of the PAR framework, a motivation intervention was designed by the staff participants and researcher to be implemented throughout the second semester of the school year. The intervention consisted of three primary practices including student choice during teacher read aloud, utilizing Jigsaws
during informational text reading, and providing book clubs in addition to silent reading. The intervention was implemented with students in the treatment group throughout the duration of the second semester.

Following the intervention, students in the control and treatment groups were given the MRP to measure reading motivation. Students in the treatment group scored higher on the MRP than students in the control group, which indicated the treatment group were more motivated to read. A one-way ANOVA was conducted on the MRP results. The results revealed no significant difference between the control (M=56.75) and treatment groups (63.34). The MRP assessed two main components: self-concept and value. There were no statistical significant differences between the control group (M=31.34) and treatment (M=29.65) group when the results for questions related to self-concept were compared. Statistical analysis showed that there was a significant difference between the two groups for questions related to value (Treatment M=29.06; Control M=25.56). Students in the treatment group scored higher on items related to the overall value of reading. As part of the qualitative results, the teachers in the treatment group shared positive insights into the intervention strategies. Teachers reported attentiveness and active engagement during choice time. Additionally, analysis of field notes and documentation found numerous indicators of reading motivation during the Jigsaw activities. Teachers reported high levels of enthusiasm and engagement. Finally, analysis of field notes and documentation also found that book clubs were motivating to students. Teachers reported not being needed to facilitate groups, as students took active roles in leading the discussions.

This study is important for several reasons. By designing an intervention that included choice, collaboration, and authenticity the teachers in this study were able to increase students’ motivation to read. Teachers and students reported a greater enthusiasm and engagement among
students during reading time. Additionally, students in the treatment group scored higher for reading motivation than students in the control group. Students in the treatment group, scored especially higher for questions related to the value of reading. The study suggested that choice, collaboration, and authenticity promote student reading motivation and that future research is needed to discover if these methods would yield positive results with students at the high school level. The study connects to the current study, as students’ voices and individual interests are important components to personalized blended learning strategy. Additionally, this study suggests that motivation is an important factor for consideration when designing interventions to improve reading proficiency.

Student interests and content relevance are important factors in engaging students. These factors alone are not enough. If instruction is not geared to include students at a wide range of academic levels, teachers risk marginalizing groups of students. The study conducted by Little, McCoach, & Reis (2014) was designed to evaluate the effects of differentiated reading instruction on achievement amongst students in middle school. The purpose of the study was to examine the effects of a differentiated instructional approach that involved choice, individualized instruction, and structured independent reading on reading achievement. The researchers used two questions to guide their inquiry through the study: (1) To what degree can the regular reading curriculum be replaced by an independent and interest-based program (SEM-R) without adversely affecting scores on standardized assessments of reading fluency and reading comprehension? (2) How does the performance of middle school students who participate in the SEM-R intervention compare with that of the control group on measures of fluency and comprehension (Little, McCoach, & Reis, 2014)? The authors hypothesized that students who received the intervention, which incorporated students’ interests, would affect their overall
engagement and achievement. The study was based on the School wide Enrichment Model-Reading Framework (SEM-R), seeks to help teachers reach all learners by building on students’ individual levels, backgrounds, and interests (Little, McCoach, & Reis, 2014). The independent variable was the SEM-R strategy and the dependent variable was students’ reading achievement.

The study used a multi-site cluster-randomized design. The study included 2,150 students ranging from 6th to 8th grade. The student participants were spread across 47 classrooms in four different schools. Students and teachers were randomly assigned per grade level to be a part of the control group or treatment group. All schools involved in the study served a high percentage of students from low-income backgrounds, ranging from 50% to 80% qualifying for free and reduced lunch (Little, McCoach, & Reis, 2014). Two of the four schools had primarily African-American students (above 60%). One of the schools had Hispanic students making up 46% of the population. Each school in the study had 60% or less of their student population meeting the passing scores for the state reading assessments (Little, McCoach, & Reis, 2014). Teachers participating in the study received a one-day professional development session on the practices of SEM-R and received on-going support every 2-3 weeks throughout the study. Teachers were expected to implement SEM-R with students in the treatment group every day for 45 minutes. Each 45 minutes session was divided into 3 phases, beginning with a teacher led introduction in which students were exposed to a variety of genres and types of texts. Then students transitioned into self-selected reading of books, during which the teacher conferenced briefly with students one-on-one, in order to provide more individualized support. Finally, students participated in project-oriented activities related to reading.
Data was collected through pre- and posttest measures, which assessed students on fluency and comprehension. Statistical analysis revealed that two of the four treatment groups scored a significantly higher than the control group on the fluency portion. The standardized mean differences between the control group and treatment groups, amongst the four schools, ranged from -0.04 to 0.34. This range of differences for the averages indicated that the effects of the treatment group were significant at some schools, but not all. When comparing comprehension, the researcher found no statistical differences between the control group and treatment group on the reading comprehension portion of the assessment. When comparing standardized mean differences between the control group and treatment group, scores ranged from a low of 0.05 to a high of 0.19. Among the four schools, the researchers were unable to find any statistically significant differences in the area of comprehension.

This study focused on how practices associated with differentiation, such as promoting student choice and accounting for personal interests, could influence reading achievement, specifically in the areas of fluency and comprehension. While the statistical results of this study were mixed, it provided implications for direct instruction. The study showed that a decrease in the amount of teacher-led whole group instruction does not have to negatively influence student academic outcomes. Instead the study implied that teachers could replace time spent giving direct instruction with more individualized support. Teachers in this study spent more one-on-one time supporting students’ individual academic levels. This study connected to the current study, as it promoted student choice in learning, as well as the importance providing differentiated reading instruction. It also implied that there might be benefits to non-traditional learning environments, in which direct instruction is limited.
This section focused on factors related to student motivation and reading. Research has shown that the students who have repeatedly failed and struggled to become proficient at reading are also the students who struggle to find the value in learning to read (Ivey, 2011). Researchers have shown that there are benefits to gauging students’ levels of self-efficacy in order to establish an intervention that will account for self-concept and perceptions of reading (deFur & Runnell, 2014). Moreover, strategies that involve choice, collaboration, and authenticity may also increase student motivation (Marinak, 2013). Ultimately, teachers may consider decreasing the amount of time spent providing whole group direct instruction, in order to incorporate more one-on-one individualized support (Little, McCoach, & Reis, 2014). Methods involving differentiation help ensure that students’ academic levels are being targeted, but these methods must consider the students’ backgrounds and motivations.

**Computer-Assisted Strategies**

In traditional classrooms, curriculum is the primary driver of instruction. In a learning environment that is student-centered, the course goals and objectives are tailored to fit the needs of the student. Students can move at a pace that is most appropriate for them. Instead of relying solely on a teacher to provide content, students take a lead role in exploring areas of interest and seeking knowledge (Nolan, Preston, Finkelstein, 2012). While creating a student-centered environment is paramount to designing effective reading intervention, another salient factor is determining which reading comprehension strategies to incorporate.

Ponce, Mayer, and Lopez (2013) conducted a study to explore the effects of a computer-based spatial learning strategy for student academic achievement in the area of reading and writing. The purpose of this study was to assess the effectiveness of computer-based instructional practices, which incorporate the use of spatial learning strategies, in promoting reading and
writing achievement. Spatial strategies used within the computer software program included graphic organizers that showed important concepts such as cause and effect relationships and compare and contrast. The researchers hypothesized that students who received computer assisted instruction that incorporates the usage of graphic organizers would yield greater standardized tests scores in the area of reading and writing than students in traditional classrooms (Ponce, Mayer, & Lopez, 2013). The independent variable was the type of language arts instruction: computer-assisted versus traditional curriculum. The dependent variable was the academic achievement results measured by the posttest.

In the study, the experimental group received the computer-assisted instruction was called the CBI Group. The control group that participated in the traditional instruction for language arts was called the TI Group. The participants included a total of 2,468 students. The students in the study belonged to 69 classrooms from 12 different schools. There were 1,265 students in the experimental group (CBI) and 1,203 students in the control group (TI). Grade levels in the study included 4th, 6th, and 8th. In the control group and experimental group, three of the schools were municipal and three were subsided. Of the six schools in the TI Group, five schools were considered as being medium in terms of socioeconomic status and one as medium-high. As for the CBI group’s socioeconomic status, one school was considered medium-low, four as medium, and one as medium high. The researchers did not offer further information on the participants (Ponce, Mayer, & Lopez, 2013).

Students in both groups were given a pretest at the beginning of the year. Teachers in the experimental group received training on how to implement the computer-assisted technology in their classrooms prior to the start of the year. Teachers in the experimental group on average implemented 14 sessions, which integrated the software-assisted instruction. The sessions
occurred over the span of the first school semester in the year 2010. On days in which the teachers in the experimental group were not using the software-assisted instruction, the standard curriculum for language arts was continued. Methods used in the experimental group began with teachers implementing an activity that encouraged students to connect with the topic, which was discussed in the lesson. Students then transitioned to the computer software program where they would engage with the text through highlighting of main ideas and supporting details. Teachers helped students select the most appropriate type of graphic organizer to input information from the text. Finally, students began in the writing process, by relying on their graphic organizers that linked to paragraph structures.

On the pretest, the control group and experimental group scored at about the same level. On the posttest, the experimental group (CBI) averaged a higher score than the control group (TI). The increase yielded a greater pretest to posttest gain for students in the experimental group. Students in the CBI group had a positive z-score, while students in the TI Group had a negative s-score. To determine if the averages on the posttest for the CBI group were significantly different a multilevel model was conducted. Using a p < 0.05, the researchers determined there to be a significant difference, favoring the group that received the computer-assisted instruction. Students in the CBI Group scored 0.25 (in z-score) higher than students in the TI Group when the average score from the pretest was compared (Ponce, Mayer, & Lopez, 2013). The authors concluded that the computer-assisted software, which incorporated spatial concepts, was more effective than the traditional language arts curriculum.

These studies evaluated the effectiveness of using computer-assisted technology to improve reading comprehension. The strategies used in the software program, including connecting to the topic, highlighting main ideas and details, and writing with graphic organizers,
are all strategies used in the software program for the current study. The study supports the implementation of a personalized blended-learning strategy, and also provides insight on literacy instructional strategies that can be used to promote reading comprehension.

Using technology, students can improve their reading comprehension skills, while also expanding on their digital literacy. In order for this type of environment to be successful, teachers must be comfortable in taking more of a facilitator role. Technology should not be viewed as a replacement for the teacher, but as a tool to differentiate and personalize for students. Practices such as providing immediate feedback, guided practice, and teacher modeling will all be necessary when using personalized blended learning strategy to improve reading comprehension.

One study investigated more closely how teachers could assist students in the process of learning from technology. Ae-Hwa Kim, Vaughn, Klingner, and Woodruff (2006) designed a study that incorporated technology into reading instruction. The purpose of the study was to analyze the effects of Computer-Assisted Collaborative Strategic Reading (CACSR), in promoting reading comprehension with students with disabilities. As part of the design for collaborative strategic reading (CSR), students were taught strategies to use before reading, during reading, and after reading. By combining collaborative strategic reading with technology that could differentiate text and personalize learning, students with disabilities would make substantial gains in the area of reading comprehension. The independent variable in this study was the computer-assisted program, which incorporated collaborative strategic reading. The dependent variable was the students’ reading comprehension. The researchers hypothesized that the combination of CSR with technology would affect reading comprehension in students with disabilities at the middle school level.
Two middle school special education teachers participated in the study. Students were randomly assigned from the two teachers’ sections to either the intervention group or the comparison group. A total of 16 students participated in the intervention group and 18 students in the comparison group. There were 12 boys and 4 girls in the experimental group, as well as 9 boys and 9 girls in the control group. The ethnicity breakdown for the experimental group was as follows: African America (4), Hispanic (7), and European American (5). The ethnicity breakdown for the comparison group was as follows: African America (3), Hispanic (5), and European American (10). The grade level breakdown for students in the experimental group was as follows: 6th grade (2), 7th grade (7), 8th grade (7). The grade level breakdown for students in the control group was as follows: 6th grade (3), 7th grade (9), 8th grade (6). The two groups were evaluated prior to the intervention by demographic variables including grade, ethnicity, gender, socioeconomic status, age, and reading achievement scores. There were no significant differences found between the two groups: experimental or control.

Students in the experimental group received 50-minute instructional sessions using the CACSR strategy two times a week over 10-12 weeks. Students were first assessed on reading comprehension using the Woodcock Reading Mastery Test-Revised (WRMT-R) focusing on the Passage Comprehension subtest and CSR measures. Subtests from the (WRMT-R) measured Word Identification and Word Attack skills. Along with pretesting, measures that followed included training of teachers, implementation CACSR strategy, post testing of students, and student interviews. The CSR consists of four main concepts: preview, click and clunk, get the gist, and wrap-up. Teachers provided an overview of each strategy, modeled how to use it, and provided opportunities for guided and independent practice. The CACSR program, included features such as a learning log, dictionary, and quick review of terminology. Students using the
program were able to read passages at their own instructional levels and can accessed computer-driven supports when necessary. Following the intervention, students were given posttests using the (WRMT-R), as well as a CRS assessment designed to measure specific skills taught in the program. An interview questionnaire was also given at the end of the study to determine student’s perceptions of the CACRS program.

Statistical data analysis revealed that students significantly improved their reading comprehension as a result of the intervention. Additionally, the experimental group scored significantly higher than the control group on all measures of assessment. Qualitative results of the study showed that 12 out of the 16 students in the experimental group perceived the CACSR program positively. Of the four students who did not provide only positive feelings toward the program, two provided both positive and negative attitudes and two only provided negative responses toward the program. Common themes cited by students using CACSR included enjoyment working with peers and student control over learning (Ae-Hwa, Vaughn, Klingner, Woordruff & et al., 2006).

When working with special education students, it is likely that reading levels may vary greatly. This study’s finding of successful incorporation of computer-assistive programs may provide teachers with a more manageable way to provide students with an authentic learning experience, which addresses their diverse needs. This study connects to the current study in that it evaluated the effectiveness of a computer-software program that taught specific strategies designed to improve reading comprehension. While students in the study had the flexibility to read passages at their reading levels and could learn at a pace most appropriate for them, the teachers were still a crucial element in the learning process as they modeled strategies and provided direct feedback for students.
For some students with disabilities, school is associated with failure. A personalized blended learning approach may be one of the first opportunities for students who have a history of failure to feel successful at school. As the founder of a digital literacy course in New York City expressed, “The learning must be highly relevant—both to help cover ground they already lost and because, if they don’t see the value in their classes, they tune out pretty quickly” (Nolan, Preston, & Finkelstein, 2012, p. 43). Time with students is limited, making it critical for educators to create environments that allow students to make the most out of their learning experience. For many students at the high school level, it is the last opportunity to impact their ability to read and comprehend text. It is imperative that teachers have the resources to be able to meet students at the academic levels.

Tied into technology and instruction is the concept of technology and learning. When considering the influence technology can have on a teacher’s ability to provide instruction, it is also necessary to understand the influence technology has on the learning process. A study conducted by Reagan, Berkeley, Hughes, and Kirby (2014) analyzed the effects of a computer-assisted instructional program. The purpose of the study was to investigate the effects of computer-assisted instruction on word recognition skills with upper elementary and middle school students with mild disabilities. More specifically, the researchers wanted to determine if utilizing Lexia Strategies for Older Students (SOS) could change the academic outcomes for four upper elementary students. The hypothesis was that Lexia SOS would affect the students academic outcome in the following areas: word reading, mastery of word reading, maintenance of word reading, and generalization of word reading skills within passages. The independent variable in this study was Lexia SOS and the dependent variable was word recognition skills in upper elementary students with mild disabilities.
A special education/technology support teacher identified students for the study using the following criteria (Regan, et al., 2014): (a) male or female in upper elementary grades (fourth, fifth, and sixth) who, (b) reading disability, and (c) reading goals in their Individualized Education Plan (IEP). While student names were changed to protect identity, a description of each participant was provided. Monica was a 12 year old, 6th grade African American student with a learning disability. Shannon was an 11 year old, 6th grade white student who also qualified for special education services due to a learning disability. Doug, an 11 year old, fifth-grade white male received special education services for Autism. Gus was a 9 year old, 4th grade white male who received special education services for Attention Deficit Hyperactivity Disorder (ADHD).

Prior to the start of the study, teachers received training for how to deliver the Lexia SOS program with students. Training sessions occurred throughout the duration of the study to ensure best practices were being routinely applied. At the beginning of the study, the researchers collected baseline data prior to implementing the intervention by removing students from class to read aloud probe words. The researchers used a multiple-probe design in which students were introduced to Lexia instruction and focused on mastery of one skill at a time. When the participants reached a criterion (>90% accuracy) they received probes in their next three sessions to assess skills. If a student was able to maintain the same level of performance for at least two additional days, the student began receiving instruction for a new skill. Lexia SOS recommends using the program for a total of 45-60 minutes per week in blocks of 15-20 minutes. Within the software program both teachers and students can reflect on accuracy, frequency of errors, and reading speed (Regan, et al., 2014).

Analysis of the data found that Lexia SOS increased participants’ word recognition skills. When comparing posttest fluency data to baseline fluency data collected prior to implementation
of the intervention, 3 out of the 4 participants increased their accuracy. Monica’s passage fluency increased from 67 to 76 correct words per minute (CWPM), Shannon’s from 82 to 103 CWPM, and Doug’s from 107 to 124 CPWM. While Gus’ rate decreased slightly from 120 to 118, his average number of errors significantly decreased from 8.67 to 1.33. Overall, the students’ response to participating in the Lexia SOS program was positive. Students’ comments included Lexia SOS, “was fun and helped you learn” and “learned how to break down words, read, and spell better” (Regan, et al., 2014, p. 115). Students shared that the enjoyment of the games embedded in the program and the ability to view their own improvement (Regan, et al., 2014).

While the findings from this study support the use of Lexia SOS in future practice, the researchers pointed out that previous studies of the Lexia SOS software with middle school remedial readers had mixed results. In the study, direct instruction was no longer than 5 minutes. Findings suggest that future use of Lexia SOS, coupled with additional direct instruction, may produce even more positive results (Regan, et al., 2014). The researchers suggest that an effective follow-up to the current study would be to determine how Lexia SOS or other CAI could fit into the framework of Response to Intervention (Regan, et al., 2014).

The study was helpful to researchers wanting to explore how CAI can be used to support students with special needs who have been identified as being below proficient in the area of reading. One of the strengths of Lexia SOS was its ability to differentiate instruction to meet the needs of the students. The study also suggested the importance for intervention programs to establish a clear balance between the amounts of time spent on technology and the amount of direct instruction provided by the teacher. The study made a strong case for researchers looking to incorporate technology into future remedial literacy programs. The study connects to the current research because it supported future use of computer-assisted instruction. While the
participants in the study were at the upper elementary and middle school levels, the focus was on how computer-assisted instruction could affect students with mild disabilities. The findings of the researchers supports further investigation of how a form of computer-assisted instruction could promote reading comprehension for high incident special education adolescents.

This section focused on specific strategies that could be used to improve reading comprehension among students with special needs. One study (Ponce, Mayer and Lopez, 2013) found that spatial strategies coupled with technology could improve reading comprehension. Additionally, Computer-Assisted Collaborative Strategic Reading (CACSR) was also found to significantly improve reading comprehension, while simultaneously receiving positive feedback from the student participants (Ae-Hwa, Vaughn, Klingner, Woordruff & et al., 2006). Furthermore, another study (Deshler, Shumaker, and Woodruff, 2004) found that intensive remedial literacy instruction should be implemented in high schools with a focus on teaching specific strategies such as questioning and paraphrasing to improve reading comprehension. Finally, Lexia SOS supported literacy growth for students with special needs at the upper elementary and middle school levels (Regan, et al., 2014). This section, along with the previous sections, support the implementation of personalized blended learning strategy to improve reading comprehension for students with special needs. The next section will focus on remedial literacy courses for adolescent students.

**Remedial Literacy Instruction**

Schools desire to provide their students with the skills they need to have successful futures. Urban high schools face many obstacles as they repeatedly serve students who have not yet acquired foundational reading and writing skills. One of the many challenging issues schools face is how to address the needs of students who are multiple grade levels behind. Schools must
find a way to do more than simply help students pass the required courses for graduation. They must seek to address the reading and writing needs of the struggling learners.

The study conducted by Deshler, Shumaker, and Woodruff (2004) explored the effects of a semester long course that taught a series of reading comprehension strategies, including visual imagery, questioning, paraphrasing, and to students at the 9th grade level. The purpose of the study was to determine the effectiveness of the semester-long course designed to improve reading comprehension. The authors hypothesized that students who received the remedial course that taught specific strategies would have a greater impact on reading comprehension than students who received traditional reading instruction. The independent variable was the semester long course that explicitly taught reading strategies including visual imagery, questioning, paraphrasing, and vocabulary. The dependent variables were the results of Gates MacGinitie Reading Test administered at the end of the study.

The sample consisted of 54 9th graders between two high schools. The demographic information of the two high schools was not included. The experimental group had 27 students, and each student was two or more grade levels behind in the area of reading comprehension. The control group also had 27 students and each student was matched to a student in the experimental group according to ethnicity, gender, and reading comprehension scores. The participants in the control group received traditional reading instruction.

Following the pretests each group received, students in the experimental group participated in a semester-long course where they received instruction 1 hour daily for reading strategies. Students were taught the Visual Imagery Strategy which helped students create a movie in their minds of the text they were reading. They were taught the Question Strategy that encouraged students to question as they read and make predictions. Students were taught the
Paraphrasing Strategy to learn how to identify the main ideas and details in text. The Vocabulary Strategy was the last technique students learned to help identify key words or phrases as clues. The instructor of the experimental group followed an eight-stage instruction model that was proven to be effective in teaching learning strategies. The instructional sequences begin with the instructor’s description, and modeling of the strategy. Students then practice explaining the strategy out-loud and then apply it. As students mastered material, they were given more difficult material to continue application of the strategy (Schumaker, et al., 2006).

Pretest results showed that on average students in the experimental group scored a 5.8 grade level for reading comprehension, as compared to the control group, which scored an average of 6.3. On the posttest, the experimental group scored a 6.8 grade level, indicating they made a year worth of growth for reading in comprehension in the semester course. The control group on average scored a 6.3 grade level on the pretest and an average of a 5.8 grade level on the posttest. An ANCOVA found the scores of the posttest to be statistically different.

The results from the study supported the conclusion that intensive literacy intervention designed to teach explicit strategies can promote reading comprehension. Research reveals that many students with disabilities and those considered at risk (described in the study to be failing at least one course per semester) come to a plateau near 6th grade and fail to make regular growth in the area of reading comprehension (Schumaker, et al., 2006). In response to the lack of growth, a significant amount of students are entering high schools several grade levels behind. This study supports the current research in that intensive reading intervention is needed in order for students, especially those with reading disabilities, to access the general curriculum and meet graduation requirements.
While many educators acknowledge the need to provide intensive literacy intervention at the high school level, it can be difficult to determine the most appropriate and effective programs to use. Schools want to avoid using trial and error to select curriculums and programs designed to provide literacy interventions. Instead it is important that schools carefully review the options that are available in order to find evidence-based interventions that have proved to be effective with populations similar to that which the school serves (Wright, 2006).

The study conducted by Lang et al. (2009) sought to determine and compare the effectiveness of several reading interventions at the high school level. The purpose of the study was to implement and monitor four interventions designed to improve literacy to determine relative strengths and weaknesses. The schools in the study would implement the four interventions, with three of the interventions being new to the school: Read 180, REACH, and RISE. The fourth intervention, SOAR, was already part of the district's efforts to improve reading proficiency for students below target, and would serve as the control group within the study. The authors’ hypothesized that the interventions would affect student’s reading proficiency. The independent variable was the type of reading intervention and the dependent variable was literacy achievement as measured by a universal screener within the district.

This study focused on four literacy interventions: Read 180, REACH, RISE, and SOAR. The authors referred to SOAR as *business as usual* as it was already part of each high schools effort to support struggling readers. In the case of this study, it should be noted that the SOAR group, which was the control group did not mean no intervention was provided. Each intervention group had specific characteristics and methods. Read 180 is a 90 minutes a day intensive intervention designed to meet the needs of students below proficient in the area of reading. The students rotate through three components as part of the program, starting with direct
instruction, transitioning to Read 180 software, and closing with independent and modeled reading (Lang, et al., 2009). The Read 180 software was designed to individualize to the students' academic levels and supported student skill development in the areas of fluency, decoding, and comprehension. REACH is an intensive literacy program designed to accelerate learning for students who are significantly below proficient in the area of reading. The three main components to the REACH intervention include Corrective Reading, Reasoning and Writing, and Spelling through Morphographs (Lang, et al., 2009). The program was founded on the principle that explicit and systematic instruction is necessary for students to begin achieving at grade level standards. Frequent teacher modeling and one-on-one check-ins between the teacher and student was incorporated. RISE is an intervention based on the idea that teachers, given the time, professional development, and resources can create a curriculum that is tailored to meet the needs of struggling readers. Daily instruction in the RISE curriculum involves texts, which vary in difficulty and topic. Through professional development, teachers created units based on students’ interests and needs. RISE included independent reading time, whole group instruction, and small group instruction (Lang, et al., 2009). Finally, SOAR was the title of the school-based intervention, which was used at the time of the study. As part of the SOAR curriculum, several teacher guides and workbooks were provided as resources for implementation.

This study took place over the course of three years. In year one, the focus was on building a partnership with cooperating schools and establishing intended outcomes and goals. In year two coaching and professional development was provided to participating teachers to ensure that interventions were implemented with fidelity. In the final year of the study, students were selected for the study and the interventions were offered accordingly. Seven high schools in a large Florida school district were involved in the study. The authors relied on students’ reading
performance on the Florida Comprehensive Assessment Test (FCAT) to identify participants for the study. A total of 1,265 9th graders were identified as struggling readers based on their performance on the universal screener. From this pool, the researchers classified students as Level 1 (below a 4th grade reading level) or Level 2 (between a 4th-6th grade reading level). There were 385 students at the Level 1 and 812 students at the Level 2. Next, students were randomly assigned to one of the four interventions offered at the school. Information regarding the participants’ ethnicity and socio-economic background was not provided.

The results from all four interventions, including students in the SOAR classroom (control group) exceeded the benchmark set for expected yearly growth. The researchers used pretest and posttest data to calculate Development Scale Score (DSS) differences. The gains made by students considered to be high-risk ranged from 124 DSS points on the Read 180 group to 170.52 DSS points for the students in the SOAR groups. Students in the moderate-risk group ranged from 69.85 DSS points for the SOAR group to 104.53 DSS points for the Read 180 group. When comparing the four interventions, there were no statistical differences for students who were considered a Level 1. For students who were in the moderate level for intervention, reliable differences were found between two of the intervention groups and the control group. Students in the Read 180 and RISE groups significantly outperformed students in the SOAR groups. It was noted that the Read 180 was the most effective intervention for students at the moderate level, but was the least effective for students with the high level of need. Read 180 seemed best equipped to target students who had reading levels between the 4th-6th grades.

Although the substantial growth of students within the study cannot only be attributed to the interventions, it does suggest that further evaluation and consideration should be given to the interventions in the study. The study supported the increase of high intensity intervention in
order to improve reading. While certain programs proved to target certain levels and skills better than others, the one commonality was that each program was implemented consistently and for an extended duration of at least 60 minutes. This research connected to the current study because it supports the need for intensive intervention for adolescent students below proficient in the area of reading.

This section focused on remedial literacy interventions. One particular remedial course taught a series of reading comprehension strategies including visual imagery, questioning, and paraphrasing to students at the 9th grade level. By focusing on the explicit teaching of specific strategies, students were able to make a years worth of growth in a semester long course. Other intervention programs such as Read 180, REACH, RISE, and SOAR have had varying levels of success. When evaluating the effectiveness of each program, there did not appear to be one particular program that stood out amongst the four. Instead their levels of success seemed to depend upon the population of students. For example, Read 180 was the most effective intervention for students at the moderate level, but was the least effective for students with the high level of need. This section suggested there is no one size fits all intervention program, and instead educators need to focus on developing a greater understanding of the needs of their population in order to select the most appropriate strategies.

**Conclusion**

This chapter presented a review of literature on the access to technology in schools; the role technology plays in instruction and the learning process, as well as reading comprehension strategies. As technology advances in the 21st century, the skills students need to be successful in the workforce are changing. With this shift in mind, many schools are adopting programs to give
all students access to computers. As technology becomes more accessible, teachers are finding that it is much easier to differentiate and personalize learning for students.

Access to technology is a critical component to personalized blended learning strategy. In order to be considered a blended learning environment some form of technology must be routinely accessed, including things such as email, blog pages, videos, or computer software programs. School districts have adopted different 1-to-1 computing programs, and have had varying levels of results. Something school districts should take note of, however, is a study conducted by Thomas Greaves, CEO of The Greaves Group, and educational consulting firm. In a survey, conducted by Greaves, of more than 1,000 schools, he found that 1-to-1 laptop initiatives outperformed all other tech-distribution initiatives. The results of 1-to-1 laptop initiatives have been generally positive, with even greater reports of success in schools in which teacher professional development for both teachers and administrators were provided (Demski, 2012).

Secondly, there are many ways in which technology can influence instruction and allow for a more personalized blended learning approach. In traditional classrooms, it can be nearly impossible to differentiate to meet all students’ needs. Teachers can implement technology, however, in a way that individualizes learning much more effectively and efficiently. One of the benefits to technology is the option for teachers to allow students to move through content at their own pace (Duncan 2013). As one teacher describes their experience with personalized learning, “Before you had to teach to the middle. Now you can deliver 35 different experiences” (as cited by Childress and Benson, 2014, p. 35). Things such as Web-enabled communication, streamed videos of instruction, and online sites that provide on-demand explanations for
academic topics have provided educators with a variety of strategies for improving the way instruction is delivered and received (Duncan, 2013).

Third, motivation and engagement are critical components to improve the reading skills of students with special needs. Academic strategies alone will not change outcomes. Teacher provided interventions must have a sense of the students’ self-concept and perceptions of reading in order to deliver the most meaningful instruction. Numerous studies (Tagsold & Argueta, 2014; Laverick, 2014; Keppler, Weiler, & Maas 2014) have shown that technology increased student engagement. In many ways it has changed the way students progress through the learning process. Through the use of online learning, students are able review over lessons as many times as necessary, in order to understand a concept. They are able to take a sense of ownership in their own learning. Students who engage in computer-assisted programs receive a wealth of data, as programs automatically keep track of things such as the time to complete a problem, the number of questions correct, and progression through a lesson (Headden, 2013). As students are provided with immediate feedback, they are able to begin setting personal goals, which they can strive towards.

Numerous studies (Kazu & Demirkol, 2014; Laverick, 2014; Regan, et al., 2014) have supported the use of personalized blended learning strategy to improve reading comprehension. By personalizing learning, students are able to have a voice and choice in the material they cover, leading to increased engagement. By using a blended method, which incorporated technology teachers can facilitate learning that is geared to meet the students’ academic levels. Computer-assisted programs, which incorporate a balanced amount of reading and writing, positively affect reading comprehension (Ferdig, 2007). Explicit instruction and modeling
strategies that support active text engagement, such as highlighting main ideas and details, students can improve their reading comprehension proficiency (Ponce, Mayer, & Lopez, 2013).

In conclusion, many educators are searching for ways to incorporate more technology in the classroom. Research has shown that teachers who utilize technology can improve academic outcomes for students. Additionally, personalization in education leads to more student-centered learning, in that content is based on student’s background and interests knowledge (Nolan, Preston, Finkelstein, 2012). The review of literature indicated that personalized blended learning strategy must be considered when designing reading comprehension interventions for high incidence special education students at the high school level.
Chapter 3

Procedures for the Study

By infusing technology into instruction and incorporating practices, which take into account students’ individual interest and learning styles, personalized blended learning strategy offers a promising approach for increasing reading proficiency. Teachers working in urban settings often work with students who have varying levels of reading comprehension, which makes it difficult to provide an authentic learning experience for all children. By the time students reach high school, there can be drastic differences in students’ reading levels, especially amongst students with disabilities. For students who have historically struggled with reading, the motivation and self-efficacy needed to improve reading skills often dwindles.

The purpose of this study was to determine the effect of personalized blended learning strategy on reading comprehension for high incidence special education students at the 11th grade level. Data were collected to explore the effects of personalized blended learning strategy on reading comprehension. Additionally, the researcher collected data to determine the effects of the reading intervention on student motivation. This chapter will include: a description of the research site and sample population, a description of the instruments used in the collection of data, the procedures used to implement the project, and an explanation of how the data were analyzed.

Description of Sample Population

The project site was a large urban high school. The action research occurred in the high school’s Personalized Blended Learning (PBL) Lab, an intervention room for students below proficient in the area of math and reading. The study consisted of six student participants. The reading project targeted students in the high school eleventh grade. Participants were selected
based on their Measure of Academic Progress (MAP) scores, a district-wide assessment used to
gauge reading comprehension, as well as their Individualized Education Plan (IEP). Students
considered below proficient based on the district assessment scores and qualified for special
education services for Specific Learning Disability (SLD) or Other Health Impairment (OHI).
Six out of ten students participated in the reading project. Of the participating students, 33%
were female and 67% were male. The ethnic breakdown was as follows: 16% African American,
16% Asian, 33% Caucasian, 33% Hispanic. Five of the students qualified for special education
services for a Specific Learning Disability (SLD) in the area of reading. One student received
special education services for Other Health Impairment (OHI) for behaviors associated with
Attention Deficit Hyperactivity Disorder (ADHD). The study consisted of two female students
and four male students. To protect the identity of students, pseudonym names were used to
describe the students in more detail.

Maria was a Hispanic female student with special needs. She qualified for special
education services due to a specific learning disability. Maria received special education services
for math, reading and writing. On the Winter 2015 Measure of Academic Progress (MAP), Maria
scored a 182 on the reading portion, which is below the district of 213 and national average of
224. Maria’s score on the MAP assessment placed her in the 1st percentile nationally. Maria
struggled with reading grade level texts fluently. She benefitted from using audio versions of text
to support her understanding of the content.

Phillip was a Caucasian male student. He qualified for special education services due to a
specific learning disability. On the Winter 2015 Measure of Progress (MAP), Phillip scored a
213 on the reading portion, which was equal to the district average of 213, but below the national
average of 224. His score placed him in the 25th percentile nationally. Phillip received special
education services for both reading and writing. Analysis of writing samples showed that Phillip struggled to organize ideas. For essays, he would typically write one long paragraph with scattered topics and ideas. Additionally, he struggled with Standard English spelling, grammar, punctuation, and subject/verb agreement.

Judith was a Caucasian female student. She qualified for special education services due to a specific learning disability. Historically, she struggled with both math and reading. Until her junior year, she routinely was in self-contained classes to support both areas. On the Winter 2015 MAP, Judith scored a 219 on the reading portion. Her score was slightly above the district average of 213, but below the national average of 224. As a junior, Judith was enrolled all regular education courses. Judith was typically able to state the main idea of text, but struggled to make additional analysis or inferences beyond what was explicitly stated. Judith understood how to format a 5-paragraph essay. She used correct grammar and mechanics in her writing. She had difficulty expanding on ideas and providing supporting details.

James was an Asian male student. He qualified for special education services for Other Health Impairment as a primary disability, and Speech and Language as a secondary disability. James exhibited behaviors associated with Attention Deficit Hyperactivity Disorder (ADHD). On the Winter 2015 MAP, James scored a 213 on the reading portion, which was equal to the district average of 213, but below the national average of 224. James received specialized instruction in the area of expressive language and fluency shaping. James previously received all specialized instruction for reading in regular education settings. James was able to read assigned classroom texts and could identify main ideas about the plot and characters. He struggled when he was asked to evaluate an argument or point of view. On writing assignments, he struggled with organization and providing evidence to support his claims.
Josue was a Hispanic male student who qualified for special education services for a Specific Learning Disability. He received special education services for reading, writing, and math. On the Measure of Academic Performance, Josue scored a 200 on the reading portion, which was below the district average of 213, as well as the national average of 224. His score placed him in the 6th percentile nationally. Josue had age appropriate fluency and decoding skills. His primary difficulty was in the area of comprehension. Based on information provided in his Individualized Education Plan (IEP) Josue was able to identify the main idea of grade level text correctly approximately 50% of the time.

Joseph was an African American male student. He qualified for special education services for a Specific Learning Disability in the area of reading comprehension. He received special education services for just reading. On the Measure of Academic Performance, Joseph scored a 212 on the reading portion, which was just below the district average of 213 and below the national average of 224. His score placed him the 24th percentile nationally. Along with the supports Joseph received at school, he had worked with literacy specialists outside of school since he was 5 years old. While his fluency and decoding skills had improved from the additional support, he still struggled to comprehend text.

Each student in the study qualified for special education services and was scheduled for one block of the PBL Lab to receive additional reading interventions. These students participated in the intervention on alternating school days. While all the students in the study were in the 11th grade, their reading levels greatly varied. Each student also had different areas of difficulty and need. Before students began the reading program, their reading comprehension and motivation to read was assessed. The next section will focus on the procedures used to implement a reading
intervention that would personalize the learning experience for students by incorporating technology.

**Description of Procedures Used**

All sessions occurred in the school’s Personalized Blended Learning (PBL) Lab, a computer lab that provides tier 2 and tier 3 reading and math interventions. At the beginning of the study, students completed a survey called *Motivation to Read-Revised (MRP-R)* (*Attachment A*). The survey consisted of two parts: self-assessment questionnaire and interview. Students completed the questionnaire independently and were asked to provide verbal responses for the interview portion. The researcher wrote students responses for each question and saved them for analysis. The survey and interview took approximately 30 minutes to complete with each student. The survey and interview were administered individually with students. To introduce students to the *Motivation to Read*, the researcher explained the purpose of the survey by emphasizing the importance of teachers understanding their students’ feelings and perceptions of reading.

Following the survey, students were given a reading comprehension pretest, which was part of the ThinkCERCA database. (*Attachment C*) The pretest had three parts: multiple-choice questions, annotation, and inferences. As part of the pretest, students read a 9th grade informational text by Victoria Kim (2014) called, *Where did all the bandits go?* (*Attachment B*). The text was part of the ThinkCERCA database. After reading the text, students answered a series of five multiple-choice questions, which measured comprehension of the text. Then students used a highlighter to identify specific parts of the text including: the author’s claim, an example of evidence, reasoning to support evidence, and the counter-argument. Finally, students
wrote 3 inferences based on the text. The results for the pretest were collected and measured using both the ThinkCERCA software and a separate teacher created rubric.

Following the pretesting, personalized blended learning strategy was implemented through 20 sessions, lasting 60 minutes each. Due to block scheduling, students participated 2 or 3 times a week in the intervention. Within the ThinkCERCA program, students selected informational texts from a variety of topics based on their own interests and experiences. Topics included social media, crime prevention, healthcare, genetics, sports, and much more. Once students selected a topic, the teacher assigned a text geared to that individual student’s reading level. Each session began with the teacher addressing the small group of students together.

Typically, the teacher would model a skill or reinforce the concepts used within the ThinkCERCA program. Students would then transition to either a desktop computer or laptop. Students would login to their ThinkCERCA accounts, locate the assigned text, and worked independently on the assigned lesson.

Each lesson had 6 components all designed to promote reading comprehension:

1. Connect with the topic through the recalling of prior experiences and knowledge;
2. Read through the text and complete 5 multiple-choice questions (students also had the option to listen to an audio version of the article);
3. Annotate text by using different color highlighters embedded in the program to represent the different positions offered in the article;
4. Write a brief summary of the article (sentence frames were provided in the program for students who struggled with the organizational process of summarizing);
5. Build an argument based on the text using evidence and reasoning to support your claim;
(6) Write a formal argument.

Steps 1-6 were implemented across two 60-minute sessions. Students completed steps 1-3 in a session and 4-6 in another session. While students worked independently in ThinkCERCA, the teacher conducted one-on-one conferences with students. Conferences were used to build relationships and provide differentiated instruction. At the conclusion of the study, students participated in a posttest survey using the MRP-R and ThinkCERCA reading comprehension assessment, to document student growth. Additionally, students participated in a posttest for the reading comprehension (Attachment E). The same procedures used during the pretest were used for the posttest. Students read a 9th grade informational text called *The Feds’ Ultimate Solution to Curb Distracted Driving* by Damon Lavrinc (Attachment D). Students then answered five multiple-choice questions, annotated the text, and wrote inferences based on the text. The next section describes the data collection.

**Description of Data Collection**

To determine the effects of personalized blended learning on the reading comprehension of high school students, a mixed method design was used. Both qualitative and quantitative data were collected with pre and post assessments.

**Pre and Post Assessments**

ThinkCERCA Reading. To assess reading comprehension students were given a pretest and posttest that consisted of three parts: multiple-choice questions, annotating text, and making inferences. Students were given a pretest and posttest that consisted of three parts: multiple-choice questions, annotating text, and making inferences. Students read a 9th grade informational text and then answering a series of 5 multiple-choice questions. Next students used highlighters to identify specific parts from the text including the claim, evidence, reasoning, and counter
argument. Finally, students identified three inferences based on the text. Pretest and posttest data were collected for the reading comprehension assessment.

**Motivation to Read Profile-Revised.** The MRP-R consisted of two parts, including a survey and a conversational interview. The MPR-R was constructed based on the expectancy-value theory of motivation. As part of the expectancy-value theory, motivation relies primarily on an individual’s perception that they will succeed when performing the task and their perceived value of the task (Malloy, Marinak, Gambrell, & Mazzoni, 2013). The MRP-R assessed the individuals’ self-concept as a reader and their value of reading. (Malloy, Marinak, Gambrell, & Mazzoni, 2013).

The survey had a total of 20 questions, in which 10 questions measured perceived value of reading and 10 questions measured self-concept as a reader. Following the survey, students participated in a conversational interview, which consisted of 8 questions. The key themes were identified the pretest and posttest interview.

**Conclusion**

The purpose of chapter 3 was to describe the student participants and learning environment. In summary, Reagan High School was selected for the reading comprehension project to improve the reading comprehension of students with disabilities. The Motivation to Read-Revised was used to identify the student’s self-concept as a reader and perceived value of reading. The ThinkCERCA reading comprehension assessment was used to identify students understanding of informational text. The data collection of the personalized blended learning strategy was implemented in 6 steps: connection to text, reading of text and multiple choice questions, annotating, summary writing, building an argument, and writing a formal argument.
The next chapter will present and analyze the data collected to measure the effectiveness of the personalized blended learning strategy.
Chapter 4

Presentation and Analysis of Data

This study examined the effect that personalized blended learning strategy would have on reading comprehension for high incidence special education students in the 11th grade. Additionally, the study sought to determine how factors related to motivation would be affected as a result of the intervention. Pretest and posttest data were collected for reading comprehension and motivation, in order to better understand the effects of the intervention. The researcher hypothesized that the implementation of personalized blended learning strategy with 11th high incident special education students would improve student reading comprehension abilities. The null hypothesized stated that personalized blended learning would have no effect on the student’s reading comprehension. During the months of March, April, and May students engaged in 20—60 minute sessions focused on personalized blended learning strategy twice a week. The personalized blended learning strategy provided students with an opportunity to select texts based on their personal interests and reading levels. In addition, students identified key elements of the text including the claim, evidence, reasoning, and counter argument.

The ThinkCERCA assessment was used to collect information about the students reading comprehension and was divided into three subtests: multiple choice, annotation, and inferences. The Motivation to Read-Revised (MRP-R) Assessment was used for the pre and posttest to determine the student value of reading and self-concept as a reader. The chapter will include a presentation and analysis of the quantitative results from both the ThinkCERCA and MRP-R assessments. Analysis will also be provided for the themes identified as part of the one-on-one interview as part of the MRP-R. Finally, other comparative analysis will provided to evaluate the determine the strength of the correlation between the pretest and posttest scores.
Pre-Test and Post-Test Comparative Data Analysis

The purpose of the study was to determine the effectiveness of personalized blended learning strategy. ThinkCERCA, which is a computer software program designed to promote reading comprehension, was used throughout the study. In addition, a ThinkCERCA pretest and posttest was given to students to document growth based on the personalized blended learning strategy. Table 1 shows the computation of the pre-test and posttest raw scores of the ThinkCERCA reading comprehension assessment.

Reading Comprehension

TheThinkCERCA assessment collected information about the students reading comprehension. The assessment was broken into three subtests: multiple choice, annotation, and inferences. The multiple-choice section had five questions with four possible responses. The annotation section involved the student referring back to the text to identify four key elements including the claim, an example of evidence, an example of reasoning, and the counter argument. There was one correct answer for the claim and counter argument, while the text provided multiple examples of evidence and reasoning which the student may have identified for the assessment purposes. Finally, students wrote three inferences based on the text.

After reading the 9th grade informational text, students answered the five multiple-choice questions pertaining to the article. Then students identified specific parts of the text using a highlighter and labeling each part correctly. Students identified the claim, an example of evidence, an example of reasoning, and the counterargument. Finally, the last subtest was based on the student’s ability to write inferences based on the text they read. Students received a score on the pretest and posttest for each subcategory of the test, as well as an overall score. The tables and analysis are below.
Table 1 displays the quantitative results for the ThinkCERCA pretest and posttest, which was used to measure reading comprehension. The study included six student participates. The table shows the scores students received on both the pretest and posttest. The test consisted of three parts: multiple choice, annotation, and inferences. Each subtest was analyzed in order to determine specific areas of growth. Additionally, the table displays the mean, median, and standard deviation for each section of the assessment. Finally, the table provides the p-value that was used to determine the strength of correlation between the pretest and posttest results.

**Multiple Choice Comprehension.** Following the pretest, the average score on the multiple-choice section was 40. The average student score on the multiple-choice questions doubled according to posttest results (M=80), indicating student growth. The median on the pretest (Md=40) was 40 points lower than the median after the posttest (md=80). On both the pretest and posttest there was a normal distribution of the data; however, the posttest median (Md=80), indicated that 50% of students scored 80% or higher on the multiple choice section following the posttest. When comparing the standard deviation for the pretest and the posttest, a decrease is noted (SD₁= 17.89; SD₂= 12.65). This decrease indicates that the scores were more
compact around the increased mean after the posttest than they were after the pretest. When considering the distribution of the data, as well as the increase in both the mean and median, students showed significant growth following the reading intervention in the area of rate.

**Chart 1: Multiple-Choice Comprehension**

![Multiple Choice Comprehension Chart](image)

**Annotation.** The next subtest measured on the ThinkCERCA reading comprehension assessment was annotation. The pretest and posttest data sets were compared using statistical analysis (Chart 2). Following the pretest, the average score for this subsection was 62.5. Posttest data revealed that the average score (M=66.67) increased by 5.17. The median stayed the same for both the pretest and posttest (Md=62.5), indicating that following both assessments, 50% of students scored above 62.5. Based on the posttest results, this data yields a positive skew (M>Md) indicating that there were more low-end scores. When comparing the standard deviations for both the pre-test (M=62.5) and the posttest (M=66.67), an increase is noted (SD₁ = 13.69; SD₂ = 20.41), which indicated that the scores on the posttest were not as compact around the increased mean.

**Chart 2: Annotation**
**Inference.** The final subsection on the pretest and posttest assessed the student’s ability to make inferences based on the text (chart 3). Following the pretest, the average score for this section was 52.67. The average score following the posttest was 69, indicating a 16.33 increase in the mean score from the pretest to the posttest. Additionally, the median after the posttest (Md=66) increased by 16 points from the pretest (Md=50) results. Following the intervention period, 50% of students were able to make inferences based on the text improving from 80% accuracy, as compared to the pre-test data, which showed that 50% of students responded with 50% accuracy on questions related to making inferences. Based on the posttest results, the data yielded a positive skew (M>Md) which indicated that there were more low-end scores. When comparing the standard deviations for both the pretest (M=52.67) and the posttest (M=69), an increase is noted (SD₁= 6.53; SD₂= 16.48), which indicated that the scores on the posttest were not as compact around the increased mean.

**Chart 3: Inferences**
Comprehensive Assessment. Finally, a total score including all three subsections was found for both the pretest and posttest assessments. The average score on the pretest was 51.72. The posttest average (M=71.89) indicates a 20.17-point growth from the pretest score. The median after the posttest (Md=69.5) increased by 18.67 points from the pretest (Md=50.83) results. Following the intervention period, 50% of the students scored higher than 69.5 on their reading comprehension assessment. Based on the posttest results, this data yielded a positive skew (M>Md) indicating that there were more low-end scores. When comparing the standard deviations for both the pretest (M=51.72) and the posttest (M=71.89), an increase is noted (SD$_1$= 6.17; SD$_2$= 13.32), indicating that the scores on the posttest were not as compact around the increased mean.

Chart 4: Comprehension Assessment Total Score
Motivation to Read Profile-Revised (MRP-R)

The Motivation to Read Profile-Revised (MPR-R) was administered with students prior to intervention and directly following the intervention period. The assessment was divided into two parts: survey and conversational interview. The survey was twenty questions with 10 items designed to measure value of reading and 10 items designed to measure self-concept as a reader. Questions on the survey followed four-point scale. Examples of value of reading questions included “Reading is something I like to do…” and my “When someone gives me a book for a present…” Examples of questions designed to gauge the students self-concept as a reader included, “When I have trouble figuring out a word I don’t know, I…”, and “When I read out loud, I am…”. Table two shows the results for of the survey portion for both the pretest and posttest. Following the pretest and posttest questionnaire students participated in a conversational interview with the researcher. The conversational interview consisted of 8 questions. The researcher typed student responses in a digital document.

Table 2: Motivation to Read Profile-Revised Results

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Self-Concept</th>
<th>Overall Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posttest</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comprehension Assessment Total Score

The chart shows the comparison of Comprehension Assessment Total Score between Pretest and Posttest. The chart includes Mean, Median, and Standard Deviation. The comparison is shown in terms of Percentage.
<table>
<thead>
<tr>
<th></th>
<th>Pre Test</th>
<th>Post Test</th>
<th>Pre Test</th>
<th>Post Test</th>
<th>Pre Test</th>
<th>Post-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 1</td>
<td>22</td>
<td>29</td>
<td>20</td>
<td>20</td>
<td>42</td>
<td>49</td>
</tr>
<tr>
<td>Student 2</td>
<td>28</td>
<td>29</td>
<td>26</td>
<td>27</td>
<td>54</td>
<td>56</td>
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<tr>
<td>Student 3</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>Student 4</td>
<td>22</td>
<td>25</td>
<td>22</td>
<td>25</td>
<td>44</td>
<td>50</td>
</tr>
<tr>
<td>Student 5</td>
<td>23</td>
<td>26</td>
<td>17</td>
<td>17</td>
<td>40</td>
<td>43</td>
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<tr>
<td>Student 6</td>
<td>35</td>
<td>37</td>
<td>31</td>
<td>32</td>
<td>66</td>
<td>69</td>
</tr>
<tr>
<td>Mean</td>
<td>25.67</td>
<td>28.33</td>
<td>23.33</td>
<td>24.17</td>
<td>49</td>
<td>52.5</td>
</tr>
<tr>
<td>Median</td>
<td>23.5</td>
<td>27.5</td>
<td>23</td>
<td>24.5</td>
<td>46</td>
<td>49.5</td>
</tr>
<tr>
<td>StDevS</td>
<td>5.09</td>
<td>4.72</td>
<td>4.89</td>
<td>5.27</td>
<td>9.7</td>
<td>9.1</td>
</tr>
<tr>
<td>Correlation</td>
<td>.021</td>
<td>0.071</td>
<td></td>
<td>0.011</td>
<td></td>
<td>0.05</td>
</tr>
<tr>
<td>PValue</td>
<td>0.05</td>
<td>0.05</td>
<td></td>
<td>0.05</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MRP-R Value of Reading.** The average score for the value of reading following the pretest was 25.67 (Chart 5). The average student score for the value questions increased by 2.66 points according to the posttest results (M=28.33). The median after the pre-test (Md=23.5) is 4-points lower than the median after the posttest (Md=27.5). Following the intervention period, 50% of students scored higher than a 27.5 for questions related to the value of reading, compared to the pretest data, which showed that 50% of students scored above 23.5. Based on the posttest results, this data yields a positive skew (M>Md) indicating that there were more low-end scores. When comparing the standard deviations for the pre-test (M=25.67) and the post-test (M=28.33), a decrease is noted (SD₁= 5.09; SD₂= 4.72). The decrease indicates that the scores were more compact around the increased mean following the intervention. The distribution of the data, as well as the increases in the mean and median, students exhibited growth for questions related to the value of reading.

**Chart 5: MRP-R Value Questions**
**MRP-R Self-Concept.** The Motivation to Read Survey measured two constructs associated with motivation: value of reading and self-concept as a reader. The results for questions related to self-concept there was a slight increase from the pretest mean (M=23.33) to the posttest mean (M=24.17). The median after the pre-test (Md=23) is 1.5 points lower than the median after the posttest (Md=24.5). Following the intervention period, 50% of students scored higher than a 24.5 for questions related to the self-concept of reading, compared to the pretest data, which showed that 50% of students scored above 23. Based on the posttest results, this data yields a negative skew (M<Md) indicating that there were more high-end scores. When comparing the standard deviation for both the pretest (M=23.33) and the posttest (M24.17), an increase is noted (SD₁= 4.89; SD₂= 5.27), meaning scores were slightly more spread out around the increased mean.

**Chart 6: MRP-R Self Concept Questions**
MRP-R Total Score. Finally, the total score, which included both questions regarding value of reading and self-concept, was determined for the pretest and posttest assessments. The mean for the total score on the pretest was 49. The posttest mean (M=52.5) indicated a 3.5-point growth from the pretest score. The median after the posttest (Md=49.5) increased by 3.5 points from the pretest (Md=46) results. Prior to the intervention period, 50% of students scored above a 46 on the survey. Following the intervention period, 50% of the students scored higher than 49.5 on the survey. Based on the posttest results, this data yields a positive skew (M>Md) indicating that there were more low-end scores. The standard deviations for both the pretest (M=49) and the posttest (M=52.5), a decrease is noted (SD₁= 9.7; SD₂= 9.1), which indicated that the scores on the posttest were more compact around the increased mean.

Chart 7: MRP-R Total Score
MRP-R Survey Themes

Several themes emerged following the pretest including: a lack of pleasure reading amongst the students, engagement with text through social media, limited reading confidence, and participant uncertainty about how to support and improve their reading skills.

**Theme 1: Lack of Pleasure Reading.** The first major theme that arose following the pretest was a lack of pleasure reading amongst the student participants. The first question on the survey asked the students about the kind of books they enjoyed. The researcher prompted students to state specific topics or genres that they enjoyed. Some of the genres reported included: sports, cultural history, adoption, mysteries, and romance. Every student was able to respond with at least one genre or topic that they found interesting and engaging. This question was followed, however, by a question that asked if students read different things at home than at school. Only one of the six students reported reading a book other than assigned classroom texts. Additionally, students were asked what books they want to read now and not one student was
able to state a book that they were interested in reading. Students responded by restating genres for books they enjoyed.

**Theme 2: Engagement with Text.** While the pretest revealed that the majority of participants did read books for enjoyment, they did participate in reading online through social media sources such as Facebook, Twitter, blogs, and email. All of the participants had a Facebook account and 50% had a Twitter account. Participants reported using their social media accounts daily, which often times involved reading posts from other individuals, trending articles, and sometimes engaging in instant messaging.

**Theme 3: Low Confidence.** The third major theme that was identified following the pretest interview was a low confidence level in reading ability amongst participants. Students were asked the question, “What kind of reader are you?” Four out of the six participants responded to this question with a response that indicated they were a struggling reader. The two participants who did not allude to difficulty with reading, responded by describing the type of things they read and how often. One of the students explained his difficulty with readings saying, “I am someone who struggles with reading and it is difficult for me to break down bigger words.” When students were asked what was difficult about reading, unfamiliar words and understanding the meaning were the two most common responses.

**Theme 4: Unaware of Reading Strategies.** The final theme that was found following the pretest was participant uncertainty on how to support and improve their reading skills. Participants were asked what they needed to do in order to become a better reader. The general response for this question was to read more books and practice. Participants were unable, however, to identify specific strategies that might help them navigate and understand challenging texts. Additionally, participants were asked how their teacher could help them to become better
readers. Responses tended to be vague in description. One participant responded saying, “The teacher can ask me questions about the book.” Another participant stated, “Help me to learn new words.” Overall, their responses indicated that they had limited understanding of strategies that would support their reading comprehension skills.

As part of the posttest, students were administered the same conversational interview. The pretest and posttest responses were analyzed. Several key themes were identified: suggestions for teachers to use texts that incorporate students’ interests, the importance of reading, and continued reading through social media.

**Theme 5: Incorporating Interests.** The first key theme that emerged following the posttest was the importance for teachers to incorporate student interests into reading. Students were asked the question, “How could your teacher help you become a better reader?” Previously, students provided vague responses including having the teacher ask more questions or break down large words. Participants were not able to name specific strategies. Half of the participants, however, stated that incorporating personal interests would be helpful. One student explained this saying, “When teachers use books that have to do with things kids like it is easier to listen and learn.” Student’s interests were a theme in the posttest interview.

**Theme 6: Importance of Reading.** Another theme identified in the posttest interview was the importance of learning to read. As part of the interview, students were asked if it is important to learn to read well. All of the students expressed a desire to improve their reading skills because they felt it was important to their futures. One student responded saying, “Yes, because it is something you have to do the rest of your life. It would be hard to get a job if you can’t read.” Another student said, “Yes I think it is important because reading is everywhere.” Students seemed to place a high value on learning to read well. The interviews showed that
students had an understanding of the importance of reading in their current lives, as well as in their future.

**Theme 7: Consistent use of Technology.** Finally, students expressed a continued usage of social media. It was evident in the pretest conversational interview that students did most of their reading on social media. This trend also emerged from the posttest interview. Students shared information about how they used social media daily. When using social media, students explained that they read other friends posts and popular articles. On student explained how when looking at his newsfeed on Facebook, he often would click on articles that his friends posted. While students did not express interest in reading books, social media continued to be the primary place in which students engaged with text outside of the classroom.

**Other Comparative Analysis**

After the pretest and posttest comparative analysis, the pretests and posttests subsections and total scores from both the ThinkCERCA and MRP-R were correlated. The correlation, which is the strength or degree to the relationship, was determined using the general interpretation in Table 3.

**Table 3: General Interpretation of Correlation Coefficient**

<table>
<thead>
<tr>
<th>Size of Correlation Coefficient</th>
<th>General Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>.8 to 1.0</td>
<td>Very Strong Relationship</td>
</tr>
<tr>
<td>.6 to .8</td>
<td>Strong Relationship</td>
</tr>
<tr>
<td>.4 to .6</td>
<td>Moderate Relationship</td>
</tr>
<tr>
<td>.2 to .4</td>
<td>Weak Relationship</td>
</tr>
<tr>
<td>.0 to .2</td>
<td>Weak or No Relationship</td>
</tr>
</tbody>
</table>

*Source: Salkind, N.J., 2000, p. 96*

The correlation strength of the relationships between the Quantitative Results: Reading Comprehension pretests and posttests of multiple choice [.0059], annotate [.305], inferences [.04] were correlated. In addition, the correlation strength of the relationship between the
Motivation to Read Profile-Revised pretests and posttests of value [.021], self-concept [.07], and overall score [.011] were correlated.

The correlation strength of the relationships between the pretests and posttests were: weak or no relationship between the pretest and posttest of Reading comprehension: multiple choice [.00] and inferences [.04], and a weak relationship between pretest and posttest of annotate. The conclusion drawn from the correlation of the Quantitative Results: Reading Comprehension pretest and posttest was positive and indicated that the improvement was a result of the personalized blended learning strategy.

The correlation strength of the relationships between the pretests and posttests were: weak or no relationship between the pretest and posttest of value [.02] and self-concept [.07] as well as the overall score [.01]. The conclusion drawn from the correlation between the Motivation to Read-Revised pretest and posttest was an improvement and can be attributed to the personalized blended learning strategy.

The researcher hypothesized that the personalized blended learning strategy would increase the student’s reading comprehension. The null hypothesis stated that the personalized blended learning strategy would not affect reading comprehension. For each pretest and posttest of the ThinkCERCA assessment, a one tail dependent t-test was completed with the probability level of p<.05 to investigate causation.

The p values are compared to the values in the abbreviated table (table 4 and 5); the level of significance it .05.
### Table 4: T-Values for Comprehension

<table>
<thead>
<tr>
<th>P value</th>
<th>0.005</th>
<th>0.305</th>
<th>0.04</th>
<th>0.016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple Choice</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEAN n-1</td>
<td>MEAN n-1</td>
<td>MEAN n-1</td>
<td>MEAN n-1</td>
<td></td>
</tr>
<tr>
<td>Pre-Test</td>
<td>40</td>
<td>5</td>
<td>62.5</td>
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<tr>
<td>Post-Test</td>
<td>80</td>
<td>5</td>
<td>66.67</td>
<td>5</td>
</tr>
<tr>
<td>Annotation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Test</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-Test</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inference</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Test</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-Test</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Test</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-Test</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The computations of the t-values for Reading Comprehension multiple choice [.005], annotate [.305], and inference, [.04] and total [.016]. The obtained t-values were compared to the values in the modified table of critical values of the t distribution in Table 4. The obtained t-values of multiple choice, annotation, and inference do not exceed the critical value under p.05. The critical value under p<.05 which is [2.015]. Therefore the null hypothesis that states the personalized blended learning strategy will have no effect on reading comprehension is rejected.

### Table 5: T-Values for Motivation

<table>
<thead>
<tr>
<th>P value</th>
<th>0.021</th>
<th>0.071</th>
<th>0.011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Test</td>
<td>25.67</td>
<td>5</td>
<td>23.33</td>
</tr>
<tr>
<td>Post-Test</td>
<td>28.33</td>
<td>5</td>
<td>24.17</td>
</tr>
<tr>
<td>Self-Concept</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-Test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-Test</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The obtained t-values of Motivation to Read Profile-Revised value [.021] and overall score [.011] are not greater than the critical value under p<0.05 which is 2.015. The obtained t-value for self-concept [0.071] was greater than the critical value under p<0.05. Therefore, the null hypothesis that states that personalized blended learning strategy will have no effect on student’s motivation is partially rejected.
Table 6: Distribution of T-Values

<table>
<thead>
<tr>
<th>df</th>
<th>.10</th>
<th>.05</th>
<th>.01</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1.476</td>
<td>2.015</td>
<td>3.365</td>
</tr>
</tbody>
</table>

Source: Salkind, N.J., 2000, p. 335

According to data collection and analysis of this action research project, the personalized blended learning strategy was effective in improving both reading comprehension and motivation in adolescent students with high incidence disabilities.

Conclusion

This chapter presented and analyzed results related to reading comprehension and motivation to read. The purpose of this study was to analyze the effects of personalized blended learning strategy. The presentation of the data collected was presented in three sections including a comparative analysis, general interpretation of correlation coefficient, and distribution of t-values. Now, Chapter 5 will provide a discussion of the results related to the review of literature, strengths and limitations of the study, as well as recommendations for future research.
Chapter 5

Conclusions

Technology is inarguably an increasing and ever-changing part of our society. As technology has changed the way many professions operate including health, business, entertainment, and more, it is not surprising that many educators have sought to understand how technology could be used to improve academic outcomes. As concerns arise regarding the reading and writing skills of high school graduates, efforts are being made to rethink the way we prepare students to meet the demands of post-secondary life. While the Common Core State Standards establish an end goal designed to raise the bar for students, the standards do not address the pathway by which students can meet that end goal, nor do they provide the supports needed for struggling readers (Lang, Torgersen, Vogel, Chanter, Lefsky, Petscher, 2009).

For teachers working special education students in urban settings, attempting to address the CCSS can pose serious challenges. By the time many special education students reach high school, their reading levels can vary drastically. Studies including one conducted by Ae-Hwa et. al. (2006) as well as one conducted by Reagan et. al. (2014) used computer software programs to target reading comprehension for students with disabilities. Both studies were found to have positive results, indicating that the software programs had been effective in improving reading comprehension. Personalized blended learning strategy may also be a solution for educators working with high incident special education students in urban environments. By tailoring what students learn, how, when, and where they learn it, students are offered a truly individualized learning experience (Childress & Benson, 2014).

The purpose of this study was to determine the effect of personalized blended learning strategy on reading comprehension for high incidence special education students at the 11th grade.
level. In addition, the researcher sought to understand the effects of the reading intervention on student motivation. The researcher hypothesized that the implementation of personalized blended learning strategy with 11th high incident special education students would improve student reading comprehension abilities. The null hypothesis stated that personalized blended learning would have no effect on the student’s reading comprehension. Based on pretest and posttest results, the researcher has rejected the null hypothesis. This chapter will synthesize the problem, analysis the review of literature, and data results. The sections of this chapter will deal with the explanation of the project results, strengths and limitation of the research and recommendations for future research.

**Explanation of Results**

Personalized blended learning strategy was implemented through an intervention class period. Students identified by the school as needing remedial reading support were programmed for one block of intervention in the school’s PBL Lab. This strategy helped ensure that the intervention was in addition to their traditional English course. The study sought to evaluate the effects of the personalized blended learning strategy on reading comprehension and motivation. In order to determine if the intervention had a significant effect on reading comprehension and motivation, pretests and posttests were given to the students. A ThinkCERCA assessment was used to measure student’s reading comprehension at the beginning and ending of the study. Additionally, the Motivation to Read Profile-Revised was used as a pretest and posttest to measure the students overall motivation. Based on previous analysis of the results, this Chapter will conclude if null hypothesis was rejected.

**Reading Comprehension**
Multiple-Choice Comprehension. The multiple-choice questions identified the students’ abilities to analyze the informational text. A comparison of the pretest [40] and the posttest [80] mean scores identified a weak or no relationship. The null hypothesis was rejected based on the t-test p-value [.0059]. This indicated that the personalized blended learning strategy had an effect on students’ reading comprehension. Therefore the slight increase was an attribute of the implementation of the personalized blended learning strategy.

Annotation. The annotation section identified the students’ abilities to identify specific parts of text including the claim, evidence, reasoning, and counter argument. A comparison of the pretest [62.5] and the posttest [66.67] mean scores identified a weak relationship. The null hypothesis was rejected based on the t-test p-value of [.305]. This indicated that the personalized blended learning strategy had an effect on students’ reading comprehension. Therefore the slight increase was an attribute of the implementation of the personalized blended learning strategy.

Inferences. The inference section identified the students’ ability to make predictions supported by evidence within the text. A comparison of the pretest [52.67] and the posttest [69] mean scores identified a weak relationship. The null hypothesis was rejected based on the t-test p-value of [.04]. This indicated that the personalized blended learning strategy had an effect on students’ reading comprehension. Therefore the slight increase was an attribute of the implementation of the personalized blended learning strategy.

Comprehensive Assessment. The comprehensive assessment combined each of the three subsections: multiple-choice, annotation, and inferences. A comparison of the pretest [51.72] and the posttest [71.89] mean scores identified a weak relationship or no relationship. The null hypothesis was rejected based on the t-test p-value of [.016]. This indicated that the personalized
blended learning strategy had an effect on students’ reading comprehension. Therefore the slight increase was an attribute of the implementation of the personalized blended learning strategy.

**Motivation to Read Profile-Revised**

**MRP-R Value of Reading.** The value questions identified the importance students’ placed on learning to read well. A comparison of the pretest [25.67] and the posttest [28.33] mean score identified a weak or no relationship. The null hypothesis was rejected based on the t-test p-value of [.02]. This indicated that the personalized blended learning strategy had an effect on students’ motivation to read. Therefore the slight increase was an attribute of the implementation of the personalized blended learning strategy.

**MRP-R Self Concept.** The self-concept questions identified the way in which students’ perceived their abilities to read. A comparison of the pretest [23.33] and the posttest [24.17] mean score identified a weak or no relationship. The null hypothesis was rejected based on the t-test p-value of [.07]. This indicated that the personalized blended learning strategy had an effect on students’ motivation to read. Therefore the slight increase was an attribute of the implementation of the personalized blended learning strategy.

**MRP-R Total Score.** The total score was compiled including the value and self-concept questions. A comparison of the pretest [49] and the posttest [52.5] mean score identified a weak or no relationship. The null hypothesis was rejected based on the t-test p-value of [.01]. This indicated that the personalized blended learning strategy had an effect on students’ motivation to read. Therefore the slight increase was an attribute of the implementation of the personalized blended learning strategy.

**MRP-R Survey Themes**
Pretest and posttest themes were compared using student’s responses on the interview portion of the MRP-R. Following the posttest, students expressed the importance of using texts that incorporated students’ interests. Based on the pretest results, in which it was noted that students did not engage in pleasure reading, this theme indicates that exposing students to more texts, aligned to their own interests, may increase the amount of reading students do for pleasure. As a result, this theme supports the use of personalized blended learning strategy, which seeks to incorporate individual’s interests, backgrounds, and experiences.

The importance of reading also emerged as a theme following the posttest. Following the intervention, students expressed reading as a vital skill needed in every-day life and for employment. This theme did not emerge on the pretest, indicating that the intervention influenced the way in which students viewed reading. This theme was consistent was the increased posttest mean [28.33] for questions related to the value of reading on the MRP-R.

Finally, it was noted on both the pretest and posttest that students engaged daily with text through technology. Whether it was the use of social media sites, blogs, or online articles, students cited regular use of technology to engage with text. This theme, which was identified on the pretest and posttest, indicates that reading with technology may be a common practice amongst adolescents. The theme supports the use of personalized blended learning strategy as a method to engage students in reading.

In summary, the null hypothesis was rejected. The personalized blended learning strategy was found to have an effect on reading comprehension, including each subtest: multiple-choice, annotation, and inferences. Furthermore, the personalized blended learning strategy affected students’ overall motivation. Student’s value and self-concept of reading improved as a result of the intervention. Themes, which were noted on the posttest interview, including student interests,
importance of reading, and use of technology, supported the use of personalized blended learning strategy.

**Connection to Research**

There has been much discussion about the best approaches to prepare students for an economy that is influenced by ever-advancing technologies. To be successful in today’s economy, high school graduates must have a variety of skills, with many of those skills placing an emphasis on digital literacy. The ability to easily navigate multiple media formats and sift through large amounts of information, serves as two examples of how the skills required of students have evolved in the last twenty years.

In an effort to prepare students for the future, as well as reap the many benefits technology can provide for educational purposes, many school districts have enacted one-to-one computing programs. Several studies (Keppler, Weiler, &Mass, 2014; Tagsold & Argueta, 2014) sought to determine the effectiveness of laptop infusion programs. Both study’s findings supported the execution of the one-to-one laptop programs. Not only did computers improve the schools’ academic results, computers were also found to increase student engagement and enhance teacher’s abilities to differentiate. This research connects to the current study, which took place in a school with a one-to-one computing program. Moreover, the student participants were all identified as needing additional reading support through the Personalized Blended Learning (PBL) Lab. The PBL Lab contained 80 desktop computers, 20 Chromebooks, and several Smartboards. Personalized blended learning strategy is contingent upon technology. In order for personalized blended learning strategy to be successfully implemented, all students must have daily access to a computer, making the need for a one-to-one computing program an essential component to the strategy.
The review of literature also sought to understand how technology was used to improve teacher instruction. The study conducted by Kazu and Demirkol (2014) explored how a blended learning environment could influence academic achievement. Comparison of the control group and experimental group pretest and posttest results revealed that students in the blended learning environment scored higher than the traditional classroom setting students. This study has implications for the current study because both studies engaged in a blended learning environment. In both classroom environments, technology was used daily and students were required to engage with a form of online learning. The results from previous studies and the current study support the use of blended learning environments with high school age students.

While the primary purpose of this study was to improve reading comprehension, reading motivation was also analyzed to better understand the effects of the intervention on students’ self-concept and value of reading. Motivation is unquestionably a key factor in a students’ reading improvement. For this reason, many studies (deFur & Runneels, 2014; Marinak, 2013; Little, McCoach & Reis, 2014) have been conducted to better measure, understand, and promote the motivation to read within students. The study conducted by deFur and Runnells (2014) explored the validity and reliability of a tool created to measure adolescent literacy self-efficacy. By measuring the correlation of factors related to motivation and academic performance, the researchers used the results from the tool to better understand the influence that self-efficacy plays in academic achievement.

The study conducted by Marinak (2013) also used the MPR-R to assess student’s motivation prior to and following an intervention. The study also found similar results when comparing an intervention group with the control, in that a significant difference was noted for questions related to value, but not for questions related to self-concept. Marinak (2013)
attempted to explain these results by bringing attention to the timeframe of the study and arguing that one semester may not be enough time to increase students’ self-esteem. The current study was even shorter than the study conducted by Marinak (2013). The short timeframe (8 weeks) of the current study may be why there was not a significant growth on the self-concept questions. In contrast, the students’ results for questions related to value may imply that less time is needed to instill in students the importance of reading.

Exploration of technology implementation and the role of motivation in reading both assisted in establishing the theoretical framework for this study. In order to understand the effects of personalized blended learning strategy in this study, connections to previous strategies were established. As discussed in Chapter two, numerous studies (Ponce, Mayer, & Lopez, 2013; Ae-Hwa Kim, Vaughn, Klingner, & Woodruff, 2006) evaluated the implementation of computer-assisted strategies designed to improve reading comprehension. Ponce, Mayer, and Lopez (2013) conducted a study to explore the effects of a computer-based spatial learning strategy for student academic achievement in the area of reading and writing. The strategies used in this study were similar to strategies used in the current study, in that both strategies incorporated a connection activity and then involved students transitioning to computer software programs, where they engaged with text through highlighting. The results for both studies were also similar in that students who received the intervention significantly improved their scores on the reading comprehension posttest.

Chapter Two presented two studies (Deshler, Shumaker, & Woodruff, 2004; Lang et al. 2009) that designed intervention courses with varying levels of success. The study conducted by Deshler, Shumaker, and Woodruff (2004) explored the effects of a semester long course that taught a series of reading comprehension strategies, including visual imagery, questioning,
paraphrasing to students at the 9th grade level. Results from the posttest revealed that participants had made a year’s growth for reading in the semester long class. The study conducted by Lang et al. (2009) sought to determine and compare the effectiveness of several reading interventions at the high school level. The purpose of the study was to implement and monitor four interventions designed to improve literacy to determine relative strengths and weaknesses. The results from all four interventions, including students in the SOAR classroom (control group) exceeded the benchmark set for expected yearly growth. While reading growth was demonstrated through all four interventions, some interventions proved more effective for students with certain reading levels. Previous studies, as well as the current study, support the design and implementation of highly intensive remedial interventions for students at the high school level.

Overall, the current study connects to the studies presented in Chapter two. The current study supports the implementation of one-to-one computing programs and blended learning environments. While personalized blended learning strategy may support the value factor of motivation, additional time may be needed to affect the self-concept factor. Finally, the structure of the study may have supported student growth. By ensuring that intervention time was built into the participants’ schedules, all intervention time was in addition to the participants’ regular scheduled classes.

**Strengths and Limitations**

There were a variety of factors that may have contributed to the outcome of the study. The strengths of this study were in the areas of student choice, design of the intervention, and consistency in data collection. These areas of the study are important strengths because they offer insight to strategies that support motivation and reading comprehension for adolescent
special education students. One factor that may have attributed to the increased posttest results was the opportunity for student choice. Students were able to select from a variety of genres including sports, technology, social media, crime, and much more. Allowing students to select topics they had a predilection for offered students voice and choice in the reading process.

Additionally, the intervention was implemented in small group setting, which allowed for more monitoring and teacher interaction with students. There was never more than six students engaging in the intervention at one time. This allowed for daily one-on-one check-ins with the students. The small intervention group made tailoring instruction and providing meaningful feedback more manageable. The frequent interaction between the students and teacher helped contribute to the positive outcomes of the study.

Finally, there was consistency in the data collection process, which increased the strength of the project. The researcher conducted every aspect of the study. The study included pre and posttest reading comprehension assessments created from the ThinkCERCA program. The researcher also used the Motivation to Read Profile-Revised (MRP-R). The small size of the study made it possible for the researcher to conduct the interview portions of the MRP-R with student individually. In addition, the researcher without the assistance of another person completed analysis and data evaluation.

The study had several limitations including generalizability, timeframe, and reliability of assessment tools and results. These limitations may warrant additional research in order to strengthen the results of this study. This study included the student participants in one high school located in an urban city. The study was more generalizable to urban schools with similar race, ethnicity, and socioeconomic characteristics.
In addition the study was limited by the timeframe. The study took place over 8 weeks, resulting in 20 sessions. Considering this study had both a behavior and academic component, the timeframe for the intervention should have been extended. The study was limited to 8 weeks due to the student’s school schedule and the research approval process.

Another limitation to this study was the reading comprehension tool used as the pretest and posttest assessments. The ThinkCERCA program did not offer a pretest and posttest assessments related to reading comprehension. The only type of progress monitoring that was provided within the program were through 5 question quizzes. As a result, I had to partially design my own pretest and posttest assessments by using a combination of ThinkCERCA quizzes and teacher created assessments. Further research should be conducted to determine what assessment tool would most accurately measure reading comprehension improvement amongst students using the ThinkCERCA software program.

Finally, the small sample size limited the reliability of the assessment results. For example the small number of participants made it possible for one very high or very low score to have a greater influence on assessment results. An increased sample may have provided more insight into the effectiveness of the personalized blended learning strategy. Additionally, the sample only included students at the 11th grade level with high incident disabilities. Further research would need to be conducted to determine if this study’s results can be generalized to include students at different grade levels or with varying disabilities.

In summary, the study had both strengths and limitations. The program incorporated engaging practices such as including the student’s voice and choice in the learning process. Additionally, the intervention was implemented with a small group of students, allowing for more frequent one-on-one conferences with students. While the 8-week timeframe was
considerably short for an intervention focusing on academics and behavior, students demonstrated growth in both areas. The researcher offered concerns about the validity and reliability of the assessment tool, and recommended further research to evaluate the effectiveness of the ThinkCERCA program. The small sample size helped make the management of the action research more feasible; however, the small size of the study made the results less generalizable.

**Recommendations For Future Research**

Future researchers should consider the following recommendations in order to increase the effectiveness of personalized blended learning strategy.

1. Schools districts should provide all teachers and students with access to reliable technology.
2. Principals and school leaders should offer frequent professional development on how to infuse technology and strategies such as personalized blended learning into the classroom context.
3. Schools should select computer software programs that are age-appropriate, engaging, and offer tools for progress monitoring.
4. Schools wanting to target reading and writing simultaneously should consider ThinkCERCA.

In conclusion, I recommend that districts prioritize technology implementation. Additionally, efforts should be made to provide teachers with on-going professional development supporting the implementation of technology and personalized blended learning strategy. ThinkCERCA has several strengths and areas of weakness. As a start-up company, the software is still being improved and developed. The program lacked features for simplistic progress monitoring. On the
other hand, it contained a diverse range of engaging texts for students. The program is aligned to both reading and writing CCSS.

**Common Core State Standards**

The ThinkCERCA software was strategically aligned to Common Core State Standards (CCSS). As stated in the CCSS 11th grade writing standards (W.11-12.1) students must be able to write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. ThinkCERCA’s theoretical framework is built on the premises of this standard. Throughout the program students are taught to identify both evidence and reasoning within texts. They then demonstrate these skills in step 5 and 6 when they work to create a formal argument.

Furthermore, ThinkCERCA connects each of the multiple choice reading questions to CCSS. While students had the option to read literature within the ThinkCERCA program, the texts used throughout the intervention period were solely informational. Each question within the multiple-choice stage aligned to one of the CCSS for informational texts. Following the multiple-choice questions, students furthered their comprehension skills by annotating the text to identify evidence of arguments presented. This task relates to the 11th grade reading standard RI.11-12.1 which states that students will cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.

**Conclusion**

As Sir Ken Robinson describes personalization in his book *Creative Schools* (2015), “It also means allowing for flexibility within the curriculum so that in addition to what all students need to learn in common, there are opportunities for them to pursue their individuals interests.
and strengths as well” (p. 88). We live in a society where reading skills are needed not only for obtaining employment, but also necessary for many everyday tasks. While all students need to learn to read proficiently, not all students are required to learn at the same pace or in the same manner. Personalized blended learning strategy incorporates students’ individual academic levels and areas of interest. Personalized blended learning strategy may also be a way to improve student motivation, which we know to be an important factor in learning. According to Patrick & Sturgis (2015), “When students understand themselves as having agency and choice, they begin to own their learning and are more motivated and engaged” (p. 5). For students at the high school level who have historically struggled with reading, intentional steps need to be made to reinvest students in the learning process. The results from this study demonstrated that personalized blended learning strategy was able to significantly improve reading comprehension and motivation among six students with high incident disabilities. Although further research is needed to determine if this study can be generalized to include students of other age groups and disabilities, it provides a promising approach to educators seeking to improve reading comprehension.
References


Appendix A

Motivation to Read-Revised (MRP-R) Assessment

MOTIVATION TO READING PROFILE – R

Name: ___________________________________________ Date____________________
DOB _______________________________________________ Grade: ________________
Instructor: ____________________________________________

1. My friends think I am __________
   □ A very good reader
   □ A good reader
   □ An OK reader
   □ A poor reader

2. Reading a book is something I like to do,
   □ Never
   □ Almost never
   □ Sometimes
   □ Often

3. When I come to a word I don’t know, I can __________
   □ Almost always figure it out
   □ Sometimes figure it out
   □ Almost never figure it out
   □ Never figure it out

4. My friends think reading is ______
   □ Really fun
   □ Fun
   □ Ok to do
   □ No fun at all

5. I read __________
   □ Not as well as my friends
   □ About the same as my friends
   □ A little better than my friends
   □ A lot better than my friends

6. I tell my friends about good books I read.
   □ I never do this
   □ I almost never do this
I do this some of the time
I do this a lot

7. When I am reading by myself, I understand _________
   - Everything I read
   - Almost everything I read
   - Almost none of what I read
   - None of what I read

8. People who read a lot are ________
   - Very interesting
   - Sort of interesting
   - Sort of boring
   - Very boring

9. I am ________
   - A poor reader
   - An OK reader
   - A good reader
   - A very good reader

10. I think libraries are ____________
    - A really great place to spend time
    - A great place to spend time
    - A boring place to spend time
    - A really boring place to spend time

11. I worry about what other kids think about my read _____
    - A lot
    - Sometimes
    - Almost never
    - Never

12. I think becoming a good reader is ____________
    - Not very important
    - Sort of important
    - Important
    - Very important

13. When my teacher asks me a question about what I have reading, _________
    - I can never think of an answer
    - I almost never think of an answer
    - I sometimes think of an answer
    - I can always think of an answer
14. I think spending time reading is ______
   - Really boring
   - Boring
   - Great
   - Really great

15. Reading is ______
   - Very easy for me
   - Kind of easy for me
   - Kind of hard for me
   - Very hard for me

16. When my teacher reads books out loud, I think it is ___________
   - Really great
   - Great
   - Boring
   - Really boring

17. When I am in a group talking about books I have read, _______
   - I hate to talk about my ideas
   - I don’t like to talk about my ideas
   - I like to talk about my ideas
   - I love to talk about my ideas

18. When I have free time, I spend ______
   - None of my time reading
   - Very little of my time reading
   - Some on my time reading
   - A lot of my time reading

19. When I read out loud, I am a ________________
   - Poor reader
   - OK reader
   - Good reader
   - Very good reader

20. When someone gives me a book for a present, ______
   - I am very happy
   - I am happy
   - I am unhappy
   - I am very unhappy
### MOTIVATION TO READING PROFILE – R

**Conversational Interview**

| Name: ___________________________________________ | Date ___________________
| DOB  ____________________________________________ | Grade: ________________
| Instructor: ________________________________________________ |

<table>
<thead>
<tr>
<th>Reading Survey scores: SC = _____/40  V= _____/40  Total = _____/80</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What kind of reader are you?</td>
</tr>
<tr>
<td>2. What’s the easiest thing about reading?</td>
</tr>
<tr>
<td>3. What’s hard about reading?</td>
</tr>
<tr>
<td>4. What do you have to do to become a better reader?</td>
</tr>
<tr>
<td>5. How could teachers help you become a better reader?</td>
</tr>
</tbody>
</table>

#### Self-Concept as a Reader

1. What kind of books do you like to read?
   - Tell me about them (topics/genres/information)

#### Value of Reading
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Do you read different things at home than at school?</td>
</tr>
</tbody>
</table>
| 3. | What kinds of things other than books do you read at home? (pause for students to respond)  
  - eBooks (kindle, Nook, IPad, etc)  
  - Computer/laptop/IPad, etc.  
  - Internet (what do you do online?)  
  - Communication? (e.g. email, IM, Blog, Twitter, Facebook, post, chat) |
| 4. | How do you find out about books you might like to read? |
| 5. | What books do you want to read now? |
| 6. | What could teachers do to make reading more enjoyable? |
| 7. | Is it important to learn to read well? |
| 8. | What kind of reading will you do when you’re an adult? |
Appendix B

ThinkCERCA Reading Comprehension: Pretest Text

Where did all the bandits go?

By Victoria Kim *Los Angeles Times*, April 9, 2014

LOS ANGELES — For decades, Southern California was the **undisputed** capital of bank robbery.

When five Bank of America branches were robbed in under an hour, an FBI agent shrugged and called it “just another day in L.A.” It was **fodder** for national news and Hollywood scripts, and the FBI field office had “Bank Robbery Capital of the World” **emblazoned** on its fax cover sheets. In 1992, the worst year, as many as 28 Los Angeles banks were robbed in a single day.

Then the number of robberies began falling, part of an overall trend that has seen crime rates **plummet** across the country.

Now, half a century after this newspaper reported that the region was “Getting Title of Bank Holdup Capital” in 1963, the long-standing reign is fizzling to an end.

The seven-county region covered by the FBI’s L.A. office saw a mere 212 bank robberies in 2013, reaching a low not seen since the 1960s. That’s less than a tenth of what it was at its height in the early ’90s, when the region logged 2,641.

The numbers have gotten so low, in fact, that for the first time in recent memory, the San Francisco region — with less than half the population — had more bank robberies last year, with 227. Other regions have also edged ahead of Los Angeles in recent years, including Atlanta. Compare that to 1983, when L.A. had more bank robberies than the next four regions — New York, San Francisco, Portland, Ore., and Sacramento — combined.

“I was **flabbergasted** when we broke 400. Then we broke 300,” said special agent Stephen May, the bureau’s bank robbery coordinator in Los Angeles. Considering the region’s 19 million people and 4,500 financial institutions, the per capita rate of bank robberies is even lower, May said.
Just as authorities struggled to explain the sharp rise in the 1980s and 1990s — The vast network of freeways? The booming population and number of banks? Availability of weapons on the streets in the wake of the L.A. riots? — there doesn’t appear to be a singular explanation for the steady decline.

Technology is certainly high on the list. Agents used to pull 35mm film from security cameras and have it developed, hoping for a fleeting, grainy image of the bandit. Nowadays, driving to the scene of the heist, investigators get high-resolution photos emailed to them on their smartphones in a matter of minutes. And the Internet makes disseminating the images to the public far faster and easier than relying on the evening newscast.

Beefed-up security measures at banks, including bulletproof plexi glass “bandit-barriers,” have made it harder for robbers to get access to cash and tellers. Convicted robbers are also getting heftier sentences, largely because of firearm enhancements as well as California’s three-strikes law. Under federal law, each count of bank robbery carries a statutory maximum of 20 years, and 25 years for armed robbery.

Lengthy prison terms mean fewer career robbers like William Vance Turner, who robbed his first bank in 1981 and later served prison time for a series of robberies in the ’90s, earning him the nickname the Pershing Square Bandit. Barely a year after his release, he was back to holding up banks — this time wearing a hat that got him dubbed the Goofy Hat Bandit. In 2009, he was sentenced to 16 years in prison after pleading guilty to his latest string of robberies.

“We had a revolving door,” said former agent Bill Rehder, who supervised bank robbery investigations in L.A. for two decades before retiring in 1999.

Another factor may be that would-be robbers are reconsidering whether hitting a bank is worth the effort. In 2003, the average heist in the U.S. yielded more than $10,000. In 2011, the last year the bureau published national statistics; the average haul was just over $7,500. A nonviolent heist in which the perpetrator uses a note most often yields less than $1,000, investigators say, and one in 10 robbers walks away empty-handed.

The sums from traditional robberies seem particularly paltry compared to the loot in the growing number of cyber heists, in which hackers swipe millions on their keyboards without ever setting foot in a bank.
That doesn’t mean people don’t keep trying. The cast of characters who robbed Southern California banks in 2013 included thieves authorities nicknamed the Button-down Bandit, the New Hat Bandits, the Purse Packing Bandit and the Boom Boom Bandit — a man so named for showing the teller what looks like a homemade explosive and a note: “No drama, no boom boom.”

In one case, an assistant bank manager strapped on a fake bomb and robbed her own bank in cahoots with her boyfriend. In another, an innovative crew carved their way into banks through the roof. Those five men were arrested last year, power saw and ladder in hand, after they had cut through the concrete roof of a Citibank in Diamond Bar — in what investigators believe was at least the fourth hit by the gang since 2011.

All five have pleaded guilty and await sentencing this June.
Appendix C

ThinkCERCA Reading Comprehension: Pretest

Multiple-Choice

1) Which of these sentences best explains the main claim, or central idea, of this article?
A. Southern California used to be known as the bank robbery capital of the United States.
B. Rates of bank robbery in Southern California are higher than ever.
C. Bank robbery is no longer profitable enough to be worth the risk for criminals.
D. Rates of bank robbery have sharply declined in Southern California.

2) Which piece of evidence provides the strongest support for the claim that Los Angeles bank robberies are on the decline relative to other cities?
A. The Los Angeles area had 212 bank robberies in 2013.
B. San Francisco has half as many people as Los Angeles but had more bank robberies in 2013.
C. In 1983, Los Angeles had more bank robberies than the next four worst regions combined.
D. Stephen May, the FBI’s bank robbery coordinator in Los Angeles, was amazed at the decline.

3) According to the text, the average bank robbery in 2011 yielded $7,500. Which of these sentences from the text most effectively connects this evidence to the claim that there are now fewer bank robberies in Los Angeles?
A. Another factor may be that would-be robbers are reconsidering whether hitting a bank is worth the effort.
B. In 2003, the average heist in the U.S. yielded more than $10,000.
C. A nonviolent heist in which the perpetrator uses a note most often yields less than $1,000.
D. One in 10 robbers walks away empty-handed.

4) What does FBI agent Bill Rehder mean when he describes bank robbery in L.A. in the 1980s and 1990s as “a revolving door”?
A. Prison security was so weak that criminals escaped very often.
B. Criminals would repeat the cycle of committing crimes and going to prison over and over.
C. Criminals would rob the same banks over and over again.
D. Judges did not take bank robbery seriously and would let robbers go free instead of putting them in prison.

5) What does the word *reign* mean in the sentence, “The long-standing reign is fizzling to an end”?
A. a period of time during which one is the most important
B. a set of rules
C. a government controlled by a certain group of people
D. a time of terrible disasters

Annotation

Direction: Using highlighters, identify and label each of the following in the text: claim, evidence, reasoning, and counterargument.

Inferences

Direction: Based on the text, write three inferences.
Appendix D

ThinkCERCA Reading Comprehension: Posttest Text

THE FEDS’ ULTIMATE SOLUTION TO CURB DISTRACTED DRIVING
By Damon Lavrinc
Wired, June 6, 2013

NOVI, Michigan — Distracted driving kills more than 3,000 people each year in the United States, a figure that represents about 10 percent of all traffic fatalities. How many of those people die because they were fiddling with their phones or navigating their navigation systems isn’t clear, but no matter. The feds say they’ve got “the ultimate solution” for curbing the use of mobile devices while we’re mobile.

Nathaniel Beuse, associate administrator for vehicle safety research at the National Highway Traffic Safety Administration, says government regulation coupled with standards set by automakers and the electronics industry could reduce fatalities. He says we need “a technological solution, some sort of innovation” in which the device or the car would recognize when the driver is using a mobile device and deactivate it. “This would be the ultimate solution,” he says.

Federal regulators want to make it impossible for you to send a text, update Facebook or surf Instagram while driving, a campaign that could have as big an impact on mobile phone manufacturers as automakers. This spring, the NHTSA and its parents at the Department of Transportation laid out — in a 281-page report — several guidelines for accomplishing this. As we noted at the time, a key objective is limiting the amount of time a driver takes his eyes off the road or hands off the wheel, with a maximum of two seconds for each input and total of 12 seconds to complete a task. NHTSA wants automakers to make it impossible to enter text for messaging and internet browsing while the car is in motion, disable any kind of video functionality and prevent text-based information such as social media content or text messages from being displayed.

Beuse, speaking at the Telematics Detroit 2013 conference, says two paths could be taken to this destination. The first is less than feasible because it would require drivers to physically connect their smartphones or mobile devices to the vehicle’s embedded system, disabling functionality while the car is in motion. You can see the problem with that idea.

“We would need] 100 percent compliance to get drivers to pair their phones,” Beuse said. If such integration isn’t user-friendly and dead simple, “[drivers] will be right back to using their handhelds.”

That makes the second idea far more viable: a proximity sensor, in the vehicle or the device, that recognizes when the driver is using the device and requires them to pass it off to a passenger. Think of a seatbelt chime, but more annoying.

This isn’t the first time NHTSA and the DOT have required companies to eliminate certain distracting features while driving. The most obvious example has been disabling video playback
while the car is in motion. But Beuse admits the NHTSA must “figure out how to monitor compliance.” And this won’t just extend to automakers, but the automotive aftermarket that produces in-dash stereos with increasingly complex functionalities.

NHTSA and the DOT, led by outgoing honcho Ray LaHood, have made distracted driving a signature cause during the past four years. Although distracted driving is indeed a problem — the phenomenon accounted for 3,331 fatalities in 2011, up from 3,092 the year before — it’s hard to know just how many crashes and deaths resulted from the use of mobile devices behind the wheel.

“If you look at crash data, there are a number of crashes that are due to distracted driving,” Beuse says, but “our data is not refined enough to pinpoint [the exact cause of those] crashes.” What’s going to be more difficult is to get what NHTSA wants: 100 percent compliance from automakers, consumer electronics companies, aftermarket manufacturers and the public. “We can’t force consumers to pair their device to the vehicle,” Beuse says. “We need a technological solution.”
Appendix E

ThinkCERCA Reading Comprehension: Posttest

Multiple-Choice

1) Which statement best expresses the central idea of this article?
A. A technological solution is the only answer to stop distracted drivers.
B. Drivers should be trusted to make their own decisions about smartphone usage in their cars.
C. Most American drivers are unaware of the dangers of distracted driving, and further education is needed.
D. Government regulations on automobile engineers should be loosened so that safety technology can reach consumers sooner.

2) According to the article, what is the greatest distraction for drivers today?
A. eating while driving
B. smartphones
C. car radios
D. riding with passengers

3) Which of the following statements from the text demonstrate that changes in driving laws will impact mobile companies?

A. NHTSA wants automakers to make it impossible to enter text for messaging and internet browsing while the car is in motion, disable any kind of video functionality and prevent text-based information such as social media content or text messages from being displayed.
B. Distracted driving kills more than 3,000 people each year in the United States, a figure that represents about 10 percent of all traffic fatalities.
C. How many of those people die because they were fiddling with their phones or navigating their navigation systems isn’t clear, but no matter.
D. As we noted at the time, a key objective is limiting the amount of time a driver takes his eyes off the road or hands off the wheel, with a maximum of two seconds for each input and total of 12 seconds to complete a task.
4) According to the article, what is the “ultimate solution” to curb distracted driving?
A. imposing fines for drivers caught using their phones while in motion
B. installing proximity sensors in cars to disable smartphones when cars are in motion
C. installing “smartphone cameras” on all major highways to catch drivers using their phones while in motion
D. educating the public about the dangers of distracted driving by bringing educational programs into schools

5) Which word most closely matches the definition of viable in the statement “That makes the second idea far more viable: a proximity sensor, in the vehicle or the device, that recognizes when the driver is using the device and requires them to pass it off to a passenger”?
A. upsetting
B. legal
C. expensive
D. possible

Annotation
Direction: Using highlighters, identify and label each of the following in the text: claim, evidence, reasoning, and counterargument.

Inferences
Direction: Based on the text, write three inferences.