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# Examining the Effects of Houghton Mifflin Harcourt's READ 180 Program on Reading Achievement and Self-Efficacy in Middle Schools

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Examining the Effects of Houghton Mifflin Harcourt's READ 180 Program on Reading  
Achievement and Self-Efficacy in Middle Schools

By  
Amanda Michelle Cox

A Dissertation Submitted to the  
Gardner-Webb University School of Education  
In Partial Fulfillment of the Requirements  
For the Degree of Doctor of Education

Gardner-Webb University  
2016

## Approval Page

This dissertation was submitted by Amanda Michelle Cox under the direction of the persons listed below. It was submitted to the Gardner-Webb University School of Education and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Gardner-Webb University.

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## **Abstract**

Examining the Effects of Houghton Mifflin Harcourt's READ 180 Program on Reading Achievement and Self-Efficacy in Middle Schools. Cox, Amanda Michelle, 2016: Dissertation, Gardner-Webb University, Reading/Student Achievement/Reading Self-Efficacy/READ 180/Middle School

The purpose of this study was to determine if improving reading achievement through Houghton Mifflin Harcourt's (HMH) READ 180 program impacted a student's reading self-efficacy. Of the students participating in this study, particular attention was placed on the factors of gender, ethnicity, and the length of time students were exposed to HMH's READ 180 program.

The setting for this research was three middle schools in upstate South Carolina. The schools sampled were from a combination of urban, suburban, and rural populations. The study's methodology was quantitative and correlational.

When reviewing the results of the study, the research indicated that there was a statistically significant effect on the factor of ethnicity concerning STAR Reading Grade Equivalent scores. It was also determined that there was a statistical significance concerning the STAR Reading Lexile scores and the factors of ethnicity and time. Concerning reading self-efficacy, there was statistical significance found in the area of process concerning time. Additionally, statistical significance was found in the areas of social feedback and physiological status concerning ethnicity. Also, a correlation was found between the Reading Inventory and STAR Reading Grade Equivalent score as well as between the student achievement scores and three of the four areas from the Reader Self-Perception Scale 2 (RSPS2).

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## **Chapter 1: Introduction**

### **Statement of the Problem**

How do students arrive at middle school unable to read? Elementary schools are full of reading intervention programs aimed at assisting students who are at risk and/or struggling, yet students arrive at middle schools, and some continue into high school, still grappling with reading. Kaine (2009) stated that students in the middle grades nationwide continue to contend with the development of reading and writing skills that they need in order to meet higher academic standards later in their educational careers. Approximately 7,000 students quit school every day because they are tired of trying to deal with tests that are too difficult and embarrassment from not being able to read assignments (Allington, 2015). “Today 25% of all freshman quit school before they reach 12th grade. These are typically the same students who entered high school reading at the 6th grade level or below” (Allington, 2015, p. 169). With such an emphasis placed on student readiness for college or entrance into the workforce, the ability to read is a critical part of future success. “Failing to graduate a populace that values reading has a long-term consequence for everyone” (Miller, 2013, p. xxi).

### **Related Literature about the Problem**

Students who have trouble reading often experience learning problems (Fink & Samuels, 2007). Students with learning complications often have an aversion to school as well as learning because their attempts result in minimum success (Sagor, 2003). Too many students in middle grades have problems reading and are allowed to advance through and graduate high school without being functionally literate (Calhoon, 2006). “Students in the middle school are expected to read to learn rather than learn to read”

(Kozen, Murray, & Windell, 2006, p. 196).

Policymakers have remarked on the academic predicament many American schools are encountering (Conley & Hinchman, 2004). In addition, the federal government has become more involved in education with the passing of the No Child Left Behind (NCLB) Act (2001). Later, President Obama's Race to the Top (R2T; White House, 2009) required states to become more accountable for student achievement. With overwhelming criticism concerning the power of the federal government over education issues, President Obama signed the Every Child Succeeds Act repealing No Child Left Behind (Layton, 2015).

Conflicting reports have been generated regarding studies on Houghton Mifflin Harcourt's (HMH) READ 180 program, a supplemental reading intervention designed to increase literacy. Caggiano (2007) focused on middle school students and compared results taken from Read 180 program's HMH Reading Inventory (RI) test. The experimental group received additional literacy instruction by participating in the READ 180 program. Caggiano's analysis found mixed results in the investigation. Test scores indicated growth only for sixth-grade students enrolled in the program, while seventh and eighth graders showed no real improvement.

Campbell (2006) also examined the impact of READ 180 on middle school students' achievement. One group of students participated in the READ 180 program, while another group of students participated in a traditional English language arts class integrating rigorous reading instruction. Again, the RI test results were used to measure with comparisons made with pre and posttests. Campbell was unable to identify any statistically significant differences between the two groups of middle school students participating in the study; however, when Campbell analyzed other variables in the data,

discrepancies were present.

### **Deficiencies in the Literature**

In the 1990s, READ 180 was developed and then launched in 1999. From the start, a large body of evidence has been published concerning the program. In 2011, Scholastic published the latest update, changing the name from READ 180 to READ 180 Next Generation. The updated version was implemented into the district during the 2012-2013 school year. In addition, Scholastic Reading Inventory (SRI), one of the assessments used within the program, updated in August 2014, became SRI College and Career (Scholastic, Inc., 2014). Since the rollout of these updates, there has been no large body of evidence published that highlights either READ 180 or SRI College and Career.

### **Significance of the Study**

In 2016, HMH launched the latest version of READ 180, now known as READ 180 Universal. This updated version has a more personalized student experience, provides an updated learning management system to assist teachers, and has new content (HMH, 2016). With 4 years invested in the READ 180 program, this study may be significant in providing useful research into the effectiveness of the program for the students in our district. In addition, the resulting data may serve as a useful tool in assisting administration in their decision to retain the current READ 180 program, upgrade to the newer version of READ 180 Universal, or abandon the program all together.

Students excelling in reading are more likely to find success in other academic areas and be more focused on academics in general (Child Trends Data Bank [CTDB], 2015; Grimm, 2008, Guthrie & Wigfield, 2000). With the knowledge that good readers are inclined to graduate high school and college at higher rates and are more likely to

gain employment after graduation (CTDB, 2015), how students feel about themselves as readers may hold the key to helping students in their readiness towards college and life afterwards.

### **Purpose Statement**

The purpose of this study was to determine if improving student achievement through HMH's Read 180 program impacts a student's reading self-efficacy in a diverse district that serves urban, suburban, and rural populations in northern South Carolina. Of the students participating in HMH's READ 180 program, particular attention was placed on the factors of gender and ethnicity. In addition to examining the factors of gender and ethnicity, a deeper analysis occurred which examines the length of time students were exposed to HMH's READ 180 program.

### **Research Questions**

This study was guided by the following research questions.

1. Is there a statistically significant difference in student reading achievement as a function of gender, ethnicity, and time served in READ 180?

H<sub>0</sub>: There is a statistically significant difference in student reading achievement as a function of gender, ethnicity, and time served in READ 180.

H<sub>1</sub>: There is no statistically significant difference in student reading achievement as a function of gender, ethnicity, and time served in READ 180.

2. Is there a statistically significant difference in student reading self-efficacy as a function of gender, ethnicity, and time served in READ 180?

H<sub>0</sub>: There is a statistically significant difference in student reading

achievement as a function of gender, ethnicity, and time served in READ 180.

H<sub>1</sub>: There is no statistically significant difference in student reading achievement as a function of gender, ethnicity, and time served in READ 180.

3. Is there a correlation between reading achievement and reading self-efficacy?

H<sub>0</sub>: There is a statistically significant correlation between a student's reading achievement and his/her reading self-efficacy.

H<sub>1</sub>: There is no statistically significant correlation between a student's reading achievement and his/her reading self-efficacy.

## Definitions

**Self-efficacy.** The belief or lack of belief in one's ability to bring about a particular outcome or change (Yancey, 2014).

**Tweens.** Students in Grades 4-8, or ages 10-14, who are no longer children but are not quite teenagers (Lesesne, 2006).

**Lexile measure/score.** A scale score from the Lexile Framework that determines the difficulty of text and the reading level of readers (MetaMetrics, 2016). In this study, both the HMH RI and the Standardized Test for the Assessment of Reading (STAR) generate the student's current Lexile level.

**Struggling readers.** Students who have gaps in their reading development but do not qualify for special education services (Brooks-Yip & Koonce, 2010).

**Literacy.** The "ability to assess, evaluate, and integrate information from a wide range of textual sources" (Reardon, Valentino, & Shores, 2012, p. 18).

**Computer-adaptive testing (CAT).** Implies that the rigor of questions increases

or decrease as students correctly or incorrectly answer questions (Scholastic Inc., 2014).

**Response to Intervention (RTI).** A multi-tiered approach to assist students who are struggling. The learner's progress is monitored at each level of intervention to determine if and what additional interventions are needed (RTI Action Network, n.d.).

**Achievement gap.** Refers to the discrepancy in academic performance between groups of students (Editorial Projects in Education Research Center, 2011). In this study, the reading achievement gaps focused on the categories of gender, ethnicity, and time.

## **Chapter 2: Literature Review**

### **Introduction**

Evolving into a competent reader allows students to experience victory in all subjects. These academic successes help students develop confidence in their abilities as learners (U.S. Department of Education, Office of the Deputy Secretary, 2004). With all the reading programs and data available, trends in the National Assessment of Educational Progress (NAEP) reading scores for eighth graders in 2015 declined to 265 which was the level students scored in 2011 (CTDB, 2015). In the past 5 years, K-12 educational expectations have focused on providing students with a background that will prepare them for the rigorous demands of college and their career path postschool (CTDB, 2015). In recent decades, growth in the economy has required the labor force in the United States to have more moderate-to-high levels of literacy skills. Literacy plays a critical function in economic growth, social mobility, and democratic participation (Reardon et al., 2012). With trends showing a stagnation or decline in student reading achievement (CTDB, 2015), additional attention may need to be directed toward reader self-efficacy.

This chapter provides a review of the research and literature involving the importance of reading, middle school learners, the theories behind READ 180 and reading self-efficacy, and middle school research. For this literature review, educational and electronic databases used were the Education Resources Information Center (ERIC), Elton B. Stephens Company (EBSCO), ProQuest Dissertation Database, Info Trac, Bulldog One Search, and CTDB as well as other peer-reviewed studies, journals, and books. Some of the resources used throughout the study are older in nature, but the information remains relevant.

## **Importance of Reading**

Falling behind in elementary school, and subsequent failure to read at grade-level during the middle school years, has led to widespread academic issues for secondary students in schools in the United States (Schmidt, Rosendal, & Greenman, 2002). Consequently, students lacking adequate reading skills become unmotivated, lose educational confidence, and become at risk for dropping out of school (Biancarosa & Snow, 2006; Lyon, 2003; Moats & Tolman, 2009). Reading ability is a predictor of educational success (Schmidt et al., 2002; Snow & Biancarosa, 2003).

Educators acknowledge the impact of reading skills in all other academic areas (Heller & Greenleaf, 2007; Lyon, 2003; Lyon & Chhabra, 2004; Moats, 1999). Trying to assist students at the secondary level may be difficult because students who have experienced failure are likely to lose motivation and develop poor self-concepts (Guthrie & Davis, 2003). The reading environment that educators create for middle school students should take into consideration the rigorous demands of literacy that affect students both in and out of school (Moore, Bean, Birdyshaw, & Rycik, 1999; National Adolescent Literacy Coalition [NALC], 2007). To be competitive in the job market, those seeking employment will have to be able to

read and write in many different styles and for many different purposes, guided by an acute awareness of the context at hand and the need to adapt their language to fit that context. They will have to . . . make sense of all kinds of written materials from technical manuals to textbooks, to the terse, grammar-less prose of email and instant messages. (NALC, 2007, p. 7)

Whether students are high school or college graduates, those who are entering the workforce in the 21st century will be writing and reading more than any other period of



time (Moore et al., 1999; NALC, 2007).

### **Middle School Learners**

“Nowhere on the developmental continuum is there greater physical and emotional separation between human beings of the same age than between girls and boys at thirteen” (Wood, 2015, p. 156). If you walk into a random fifth- or sixth-grade classroom, you will see a hodgepodge of students of all heights, weights, and body types. During the tween years, kids are transitioning from their childlike bodies into bodies that look more like adults. The fact that they are all experiencing developmental changes should provide students comfort, but that is not true (Lesesne, 2006). These early adolescents “do not go to bed one night as kids and wake up the next morning in their more adult bodies” (Lesesne, 2006, p. 11).

Due to the grade-level focus of this study, the ages the researcher targeted were 12- and 13-year olds since that is the majority age of seventh graders. Concerning development, 12-year olds struggle with identity. They do not consider themselves children, but they are not teenagers either. Twelve-year olds begin the search for deep, meaningful relationships. As their search grows stronger, their greatest need is to be with friends. Parents and teachers are no longer the focus. Twelve-year olds want the independence they see their friends having. They spend lots of time on cellphones and computers. Vanity is key, with lots of time spent in front of mirrors; and school is the place to be, not the place to work. Twelve-year olds are emotionally unpredictable, their moods change frequently, and it is often hard to know what they are thinking (Wood, 2015).

While 12 is a time of identity crisis, 13 is an age of dramatic contrasts. It is characteristically common for 13-year olds to digress developmentally and yet still move

forward. It can be like flipping a coin. One day they may seem like a younger 12-year old; another day, they are behaving more maturely than they really are (Wood, 2015).

These tweens are changing more dramatically than just their bodies and emotions. Their intellectual growth is changing and developing too. In middle school, tweens are longing for responsibility and more control over their lives. As learners, they are arriving at school with assorted reading levels and life experiences (Robb, 2010).

### **Boys versus Girls**

The average visitor to a middle school might observe the vast differences between beginning-of-the-year sixth graders (who are eleven-years old) and end-of-the-year eighth graders (who are 14-years old). There is no denying that it is a tremendous period of growth. However, an even bigger factor that plays into development of middle school students is the gender factor. Physical energy is a driving force for 12-year olds. While girls have typically started their growth spurts with puberty prior to 12, they are still experiencing growth. Now boys are starting to hit puberty too. No matter what the gender, kids are requiring more sleep, more exercise, and more food at this drastically changing age of development (Wood, 2015).

Boys and girls have different attitudes concerning school. Boys typically take longer to learn to read than girls. They also read less than girls. Because their reading background varies from that of girls, boys tend to have lower self-esteem concerning their reading abilities. Girls enjoy spending their leisure time reading narratives and expository texts. Boys, on the other hand, tend to read more informational texts or work-related pieces that teach them how to do something, but it is not a preferred pastime. More and more, as boys mature, they consider themselves “nonreaders” (Smith & Wilhelm, 2002).

Boys are at a higher risk of dropping out of school than girls. They are more frequently labeled as learning disabled, emotionally disturbed, or language impaired (Zambo & Brozo, 2009). Because of this classification, they receive remediation or grade-level retention. In addition, they may be identified as having attention deficit hyperactivity disorder. These students have a higher likelihood of receiving Ds and Fs on interim grades and report cards. All of these factors can show a correlation to the lower reading proficiency levels demonstrated by boys (Smith & Wilhelm, 2002).

The Nation's Report Card reported that 33% of fourth-grade boys scored above average on the NAEP (2015) assessment. Since 1992, there has been no significant change in this score. Thirty-nine percent of fourth-grade girls scored above average on NAEP in 2015; and while there is growth for both boys and girls, there is no significant increase in scores for girls either. NAEP reported that 29% of eighth-grade males scored above average, while females scored 39%. Again, males and females in eighth grade are seeing no significant change in scores. In South Carolina, boys in fourth grade averaged a score of 213, which is lower than the average for males across the nation. Girls averaged 10 points higher at 223 than boys in South Carolina and showed no significant difference from the nation's average (NAEP, 2015).

Eighth-grade males in South Carolina averaged 254 in reading on NAEP (2015), whereas the average score for females was 267. Once again, the average score for boys in South Carolina was less than the nation's average, while the girl's average score was not significantly different (NAEP, 2015). Gradual increases in scores are occurring for both genders, but schools do seem to work better for girls than boys. However, with improvements being so slight, both genders are still struggling; and students are too often failing in school. According to the National Endowment for the Arts (2007), adolescent

males displayed greater declines in reading activity than females, which may explain why colleges and universities now admit and graduate a significantly higher number of women than men.

### **Ethnicity and Learners**

In 2015, Black students scored an average 27 points lower than White students on NAEP reading nationally. This was not a significant difference from the 1998 scores. In South Carolina, Black students scored an average of 31 points lower than White students on the 2015 NAEP assessment. This performance gap has not changed significantly since 1998 when the point difference averaged 29 points. NAEP also reported that Hispanic students across the United States scored 21 points lower than White students on average. While no data is available dating back to 1998 for Hispanic students in South Carolina, the average score was 27 points lower than that of White students (NAEP, 2015).

The state of South Carolina tested all students using ACT Aspire during the spring of 2015. There are significant differences between ethnic groups across the middle school grades. Hispanic students in need of support ranged in percentage from 33.8-38.7. Between 41.4-48.8% of black middle school students in South Carolina were identified as in need of support. White students needing support ranged from 20.6-22.4 percent. The last year South Carolina administered SCPASS in the area of English language arts was 2014. The results were similar even though SCPASS and ACT Aspire are drastically different. Hispanic students in middle school needing support ranged from 37.3-37.7%. Black students had a percentage ranging from 48.1-48.7% needing support. White students needing support ranged from 19.1-22.3% (South Carolina Department of Education, 2014). “Black and Hispanic students enter high school with average literacy

skills three years behind those of white and Asian students...these are gaps that no amount of remedial instruction in high school is likely to eliminate” (Reardon et al., 2012, p. 32).

### **Struggling Middle School Readers**

Students struggle in a variety of subject areas. Reading is one notable area. While the definition of a struggling adolescent reader is not clearly defined in studies, a combination of qualities would suggest that they are students who do not qualify for special education services but have gaps in their reading backgrounds. These gaps prevent them from being successful in the secondary language arts classroom which focuses on the concept of reading to learn (Brooks-Yip & Koonce, 2010). Students who were making steady progress in reading in Grades 1-3 begin to have difficulties in Grade 4. Other students who were struggling to learn the mechanics of reading in early grades now have added trials and experience perpetual disappointment with the increase in text difficulty that is no longer isolated to language arts but is found in content areas too (Lesesne, 2006). Experts in adolescent literacy estimate that 70% of adolescents struggle with some form of reading (Biancarosa & Snow, 2006). That amount equates to roughly eight million struggling readers in Grades 4-12 (Alliance for Excellent Education, 2003).

O’Brien, Beach, and Scharber (2007) reported, “by middle school, students who struggle in reading have already experienced years of failure, which has reinforced their low perceptions about ability and loss of agency and contributed to increased disengagement from reading” (p. 52). To help struggling readers, the International Reading Association and the National Middle School Association (IRA and NMSA, 2001) proposed that middle schools provide (1) continuous reading instruction for all young adolescents, (2) reading instruction that is individually appropriate, (3) assessment

that informs instruction, and (4) ample opportunities to read and discuss reading with others. According to Houtveen and Grift (2007), struggling readers not only have a lower level of initial reading skills, they also learn less than the other students do within the same period of time. McCombs and Marsh (2009) stated that “many middle schoolers struggle to develop advanced reading skills such as the ability to analyze and synthesize complex ideas or to comprehend multiple points of view within a text” (p. 501). Reis et al. (2007) cited that children who are most likely to experience reading difficulties throughout their school years are those who attend a low-achieving school, have limited English proficiency, are unfamiliar with standard English dialect, or live in communities of poverty (Allington, 2001; Burns, Griffin, & Snow, 1999).

Middle school students who struggle in reading share common characteristics, but their differences must be a primary consideration in effective literacy instruction (Heilman, Blair, & Rupley, 2002). Ivey (1999) indicated that some important commonalities across struggling middle school readers are (1) struggling middle school readers like to read when they have access to materials that span the gamut of interests and difficulty levels; (2) struggling middle school readers want opportunities to share reading experiences with teachers and classmates; (3) struggling middle school readers need purposes for reading; and (4) struggling middle school readers want to be and can be good readers.

As students progress from elementary school through middle school to high school, they confirm their attitude toward reading; and many of them carry deep negative thoughts about the reading process (Paterson & Elliot, 2006). A major reason why middle school students experience problems comprehending texts is that middle school curriculum typically demands that students read from textbooks to learn content (Bulgren

& Scanlon, 1998). Hough and Hall (2005) stressed that students of all reading abilities are likely to experience some difficulty comprehending their content area textbooks.

“Adolescents who struggle are defined almost exclusively in terms of their competence with a limited range of tasks related to reading print” (O’Brien et al., 2007, p. 52). Szabo (2006) emphasized that “struggling readers at the middle level need help using reading strategies effectively in order to become strategic readers” (p. 57). As the achievement gap in reading widens, a large number of middle school students struggle in all areas of academics (Shipper, Houchins, Steventon, & Sartor, 2005, as cited in Powell 2005). “Reading is a basic communication skill and the primary means of learning and living in society” (Heilman et al., 2002, p. 5).

### **Social Cognitive Theory**

Bandura (1997) presented his theory about social cognition explaining that a person’s need to have control over his/her environment is the source of human behavior. As people are able to gain control over their lives, they are more likely to experience positive results. Bandura hypothesized that individuals are capable of making changes in their situations. He proposed, “people are agentic operators in their life course, not just on-looking hosts of brain mechanisms orchestrated by environmental events” (Bandura, 1997, p. 5).

Bandura (1986) identified several basic human abilities that make people active participants in their own lives. People are able to use symbols and employ forethought to make sense of the world around them. They can set goals. Individuals can take part in vicarious learning, adjusting their behavior based on the responses of others. People can also employ self-regulation and self-reflection. These processes allow people to monitor and assess their behavior so they can make changes concerning future behaviors. The

way humans behave is not just a reaction to the environment but the result of a variety of personal, environmental, and behavioral factors intermingling and influencing each other (Bandura, 1986).

Self-belief influences how people behave and network with their environments. A person's behaviors and surroundings can influence the kinds of self-beliefs that are developed. This interactive process illustrates the idea that individuals are agentic beings, capable of effecting changes in their lives (Bandura, 1986). Fundamental to social cognitive theory is self-efficacy. Bandura (1997) described self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 3). Efficacy beliefs are area and job specific (Zimmerman & Cleary, 2006). Self-efficacy for self-regulated learning refers to student beliefs about their ability to set goals and attain the behaviors necessary for achieving those goals (Zimmerman, Bandura, & Martinez-Pons, 1992).

Schunk (1989) conducted a number of studies in which children with serious academic deficiencies seek self-directed learning in the areas of language and math. The work was structured so success was easily achieved. The experience was supplemented with instructional social influences that aimed to increase the participants' academic efficacy. These influences included goal setting, positive incentives, and modeling of thinking strategies. The study results showed that instructional practices like these, along with the added social factors, built a child's belief in his/her academic capabilities. The higher the perceived efficacy, the better one's cognitive abilities (Bandura, 1993). "Self-efficacy is influenced by acquisition of skills, but it is not merely a reflection of them. Children with the same level of cognitive skill development differ in their intellectual performance depending on the strength of their perceived self-efficacy" (Bandura, 1993,



p. 136).

In social cognitive theory, people must develop skills into regulating the motivational, affective, and social determinants of their intellectual functioning as well as the cognitive aspects (Bandura, 1993). There are three factors of self-efficacy: perceived self-regulatory, academic efficacy, and social efficacy. Those who are good at self-regulating do better academically than poor self-regulators (Zimmerman & Martinez-Pons, 1986). Perceived efficacy supported academic achievement both directly and by elevating individual goals. The relationship between social and emotional behaviors changes as children develop. In older children, social and emotional behaviors are related to all three self-efficacy factors. Students who repeatedly experience academic failure, resulting in negative behaviors from their peers, struggle to retain a positive social orientation. All of these factors work to break down the child's sense of intellectual self-efficacy (Caprara, Pastorelli, & Bandura, 1992). As children mature into adolescence, their peer groups become more diverse and influential. The activities they are engaged in have a higher potential to change their personal development. Adolescents who have misgivings about their social and intellectual efficacies tend to be drawn to other adolescents who have similar academic values and interests. As a result, self-doubt grows in the area of cognitive competencies, diminishing career opportunities, and positive social prospects. Self-beliefs of cognitive self-efficacy can have repercussions beyond academics (Bandura, 1993).

According to Bandura (1993), people's beliefs about their efficacy impact the decisions they make in very substantial ways. Their beliefs particularly influence their levels of motivation and determination in the face of difficulties. Most accomplishments involve persistent effort, so low levels of self-efficacy become self-limiting. To find

success, people need a sense of self-efficacy and resilience in order to meet whatever hurdles they incur (Agile Mind, Inc., n.d.). In order for students to achieve academic success, self-efficacy linked with persistence is crucial. Students who have low self-efficacy are less inclined to put forth effort because they do not believe they will find success. However, students who have a high level of self-efficacy are more likely to continue to persevere. Research in self-efficacy has shown that regardless of previous levels of achievement or capacity, students with elevated levels of self-efficacy will work harder, strive longer, and endure when faced with challenges. They are also more optimistic, less apprehensive, and tend to achieve greater results (Agile Mind, Inc., n.d.).

### **Middle School Reading Research & Instruction**

Meltzer, Smith, and Clark (2001) explained, “Many secondary educators hold the false conception that if literacy is accurately addressed in elementary schools, there will be no need to address literacy in middle and high schools” (p. 8). It is important for educators to consider the nature of adolescents, their learning styles that work best for the age, and the types of learning experiences that will prepare them for college and career when creating both the learning environment and the experiences to which students will be exposed (Robb, 2010). It is our better readers in secondary schools who are most likely to receive high grades, complete more advanced coursework, and eventually enroll in college. Essentially, the top quarter of a class of students is also representative of the top quarter of readers. Readers who are more successful are not the students educators need to worry about. Instead, the other 75% of students who are reading below grade level and struggle deserve more attention (Allington, 2015).

Merriam-Webster (2016) defined comprehension as “the act or action of grasping with the intellect.” Reading comprehension is the whole for three parts of a puzzle: (1)

there has to be a reader who is understanding; (2) there has to be a text to read and understand; and (3) there has to be a task or activity in which understanding is an element (Sweet & Snow, 2003). Guthrie and Humenick (2004) reported that two influences had significant impacts on both reading comprehension and engagement: providing access to interesting reading materials and supplying students with choices in their reading options.

Students arrive at school with different sets of life experiences and prior knowledge. Because learners' literacy experiences are vast, what each student offers in the meaning of reading construction also differs. By differentiating reading instruction and allowing students to read at appropriate instructional levels, educators are acknowledging students' diverse literacy experiences and developing instruction that meets students where they are and helps them progress (Robb, 2010). Brain researchers show that we are creatures with stories. Students bring to school different stories because of their varying backgrounds. This causes students to see patterns and assess generalizations in different ways. In order to improve the reading skills of students and expand their background knowledge, it is critical that they learn by using texts that are level appropriate. This allows students to connect new information to what they already know (Robb, 2010). "Differentiated reading instruction makes brain-compatible instruction accessible for the diverse learners in every classroom" (Robb, 2010, p. 17).

Meeting each student's instructional reading needs forms the core of success, leading to increased levels of learning motivation and building both self-confidence and self-efficacy (Armstrong, 2008; Biancarosa & Snow, 2006). Research suggests that in order to meet students' various needs, differentiation and multiple assessments are needed (Robb, 2010). Biancarosa and Snow's (2006) research found that 70% of secondary students in the United States required differentiated instruction, targeting to

their individual strengths and weaknesses. One way educators can differentiate classroom instruction is through a reading workshop model. Reading workshop engages in reading experiences that closely mimic the experiences successful readers have (Atwell, 1998; Calkins, 1994; Fletcher, 2001). Students read for the same reasons as adults: to research, to learn, to learn about current events, to gain pleasure, and to entertain. The teachers and proficient readers in a reading workshop model the habits of good readers. The extended blocks of time for a reading workshop, running from an hour to an hour and a half, provide teachers with the opportunity to organize a variety of authentic reading experiences.

Topping and Ferguson (2005) concluded that effective literacy programs are those in which teachers use effective questioning techniques, scaffolding and modeling, and balance individual instruction with small group and whole-class instruction. “Middle level teachers need to both model and teach how to use a variety of reading strategies that will help struggling readers become independent” (Szabo, 2006, p.57). Middle level reading teachers should work to produce students who can use reading strategies to maximize their understanding of text, identify relevant and nonrelevant information, and tolerate less than word-by-word comprehension (Caskey & Reed, 2009). Hall (2008) and Ivey and Broaddus (2000) indicated how some middle school students refuse to engage in reading activities, and those who do participate make little progress. According to the IRA and NMSA (2001), it is a serious mistake to assume that a good start in reading is sufficient for producing confident readers.

“Students who struggle to read, especially those who read below grade level, are increasingly disadvantaged as they progress through the grades when the ability to comprehend becomes more vital to academic success” (Cunningham, 2005, p.89). As

Tovani (2005) indicated, many students become frustrated when reading because they do not know what the teachers consider to be important text. Lounsbury (2009) articulated that varied instructional strategies be introduced to accommodate diverse learning styles, levels of mental maturation, and the range of student prior achievement.

## **READ 180**

Dr. Ted Hasselbring of Vanderbilt University received a partially funded grant in 1985 from the U.S. Department of Education's Office of Special Education programs which led to a breakthrough prototype for software that uses individual student performance data to differentiate reading instruction. From 1994-1996, Dr. Hasselbring teamed with Dr. Janet Allen, professor at the University of Central Florida, and the Orange County public school system in Florida. Together they created the Orange County Literacy Project aimed at helping the lowest performing students. The instructional model for this project would become the foundation of the READ 180 program (HMH, 2015).

In 1997, Scholastic joined the Vanderbilt team to create a published program. In the same year, READ 180 adopted the Lexile Framework for Reading which was developed by Dr. Jack Stenner of MetaMetrics, Inc. This program was used as the leveling system and provided a common metric for measuring the difficulty of the test and the student's reading level. Between 1998 and 1999, Scholastic published the READ 180 program. In 2006, Biancarosa and Snow published a report in which the READ 180 program aligned with all 15 of the structural and instructional recommendations. The READ 180 team continued work on the program, adding Dr. Kevin Feldman and Dr. Kate Kinsella to the collaborative team, and launched an updated version: READ 180 Enterprise Edition in 2005. The Enterprise Edition added a variety of language options to

the already available English and Spanish versions. The Scholastic Achievement Manager (SAM) was also introduced at this time. In 2011, Scholastic launched READ 180 Next Generation (Scholastic, Inc., 2014). Most recently, HMH purchased Scholastic's Educational Technology division. This 2015 acquisition included the rights to READ 180. The newest version of READ 180 was published in February 2016 and is called READ 180 Universal (HMH, 2015).

Lembke and Stormont (2005) pointed out the fact that “teachers in general education classrooms do not have a lot of extra time to implement interventions that have not been empirically tested, especially when considering the other time demands they face each day (i.e., meetings, planning, and management)” (p. 762). As cited by Scholastic, Inc. (2008), “READ 180 is built on more than a decade of scientifically based research and the collaboration of reading experts. Developed in clinical and classroom settings, the program is uniquely positioned to address the needs of struggling readers” (p. 4). It is indicated by the Scholastic Research and Evaluation Department (2008) that READ 180 is grounded in current research about the most effective adolescent literacy practices and is strongly aligned with findings from the Center on Instruction report. A number of researchers sponsored by Scholastic, Inc. are available on the Scholastic website.

The program is currently used in more than 6,000 classrooms and is one of the most thoroughly researched and documented reading intervention programs (Scholastic, Inc., 2008). The program helps students in Grades 3 and above make high gains in reading achievement. It provides three stages of instruction and support based on student individual reading levels. READ 180 is proven effective for (a) delayed failing readers, (b) students with learning disabilities, (c) special education students, and (d) English-

language learners (Scholastic, Inc., 2008; Scholastic Research and Evaluation Department, 2008). Papalewis (2004) reported that the READ 180 program provides a simple way to organize instruction and classroom activities. The READ 180 strategies for students include (a) background information to build mental models for texts; (b) text captioning to allow students to read along with fluency modeled; (c) phonological and morphological structure of English language, literature and expository materials reflect cultural diversity, decoding tips with modeled practice; and (d) opportunities for reading of connected text (Papalewis, 2002, cited in Papalewis, 2004). Scholastic Research and Evaluation Department (2008) discussed the following six components of success for the READ 180 program: (1) scientific research base, (2) proven results, (3) comprehension instruction, (4) purposeful assessment, (5) data-driven instruction, and (6) professional development.

Scholastic, Inc. (2014) indicated the following are elements of the program: (a) 90-minute daily class periods, (b) reduced class size of 15 students per class, (c) students engaged in daily instructional reading using READ 180 software, (d) students receive daily modeled or independent reading practice, (e) students participate daily in modeled or independent reading practice, (f) distinct classroom areas are designated for each type of instructional activity, (g) a computer area with five computers for the READ 180 instructional software, (h) a comfortable reading area with paperback books and compact disc players and headphones for listening to the READ 180 audiobooks, and (i) a worktable for teacher directed small-group instruction. Through this reading workshop style program, READ 180 breaks the cycle of failure, accelerates instruction, and allows the struggling reader to experience success through differentiated instruction (Scholastic, Inc., 2008). Reports conducted by the Scholastic Research and Evaluation Department

(2008) and a study conducted by Papalewis (2004) provided evidence that struggling readers participating in the READ 180 program show progress in learning to read. In 2012, the National Center on Intensive Intervention concluded that READ 180 is an effective RTI model (Scholastic, Inc., 2014).

### **Summary**

Becoming a competent reader provides a sense of victory for students, which in turn assists students in developing confidence in their abilities as learners (U.S. Department of Education, Office of the Deputy Secretary, 2004). The educational system in the United States has worked to provide students with a background that will prepare them for college and beyond (CTDB, 2015). In what was once a labor market for unskilled workers, the United States now needs employees who are educated with literacy skills at a level of proficiency (Reardon et al., 2012). With trends showing little growth in student reading achievement (CTDB, 2015), research suggests that struggling readers will need more than intervention for comprehension skills to succeed at becoming college and career ready. In the following chapter, the researcher introduces the study design and methodology for evaluating whether student achievement through HMH's Reading 180 program has an impact on student reading self-efficacy levels.



## **Chapter 3: Methodology**

### **Introduction**

“In modern society, the ability to read well is the cornerstone of a child’s education. In a modern economy, literacy is a prerequisite for a successful life” (National Assessment Governing Board, 2008, p. vii). In contrast to this, struggling readers might be at risk for academic, behavioral, and emotional problems. Students who have difficulty developing reading skills often report less engagement in school, poor self-esteem, and lower motivation (Grimm, 2008; Joseph & Schisler, 2006). In this study, the researcher sought to gain insight into how seventh-grade READ 180 students’ reading self-efficacy was influenced by their reading achievement. This chapter explains how the researcher, through quantitative methodologies using HMH’s RI, STAR Reading–Enterprise, and the Reader Self-Perception Scale 2 (RSPS2; Appendix A) instruments, was able to determine the significance of this impact.

### **Participants**

Participants in this study were students from three middle schools in a district in upstate South Carolina. The schools being sampled were a combination of urban, suburban, and rural populations. Permission was granted from the district superintendent (Appendix B). According to the 2014 South Carolina School Report Card for the district, the urban school had a population of 794 students, the suburban school had a population of 857 students, and the rural school had a population of 802 students. There were three seventh-grade READ 180 teachers throughout the district. Depending on the need during the 2015-2016 school year, each of these teachers had two to three classes of students with no more than 18 students per class. The sample population of seventh graders was estimated at 1,126 students. These students ranged in age from 12 to 14. The total

population for the study included boys and girls as well as students from all ethnic groups participating in the READ 180 classes.

Data were collected on every seventh-grade READ 180 student. Parents were notified and had the option of completing an opt-out letter (Appendix C) for their child from the study. Seventh-grade teachers administered and collected the RSPS2 surveys. Once collected, they were returned to the researcher. School personnel collected data from the SRI and STAR Reading assessments on every seventh-grade READ 180 student. These data were shared with the researcher. Once the researcher had all of the data from the three administrations, the researcher randomly assigned teachers an identification letter represented by T-A, T-B, T-C. Next, student participants were assigned random participant numbers represented by A-1, A-2, A-3; with the first letter symbolizing the teacher and the second letter the student. Since there were three schools participating in the study, each school received a randomly assigned letter represented by S-1, S-2, and S-3. The results of this study were presented based on the participant numbers, not by identifying factors such as name, gender, ethnicity, teacher, or school.

There were three teachers whose classes participated in this study. Each teacher represented a different middle school. With combined years of experience at 65 years, the teacher with the least amount of classroom experience had been teaching 17 years with at least 6 years of experience teaching seventh grade and a minimum of 10 years of experience teaching English/language arts. The seventh-grade READ 180 teachers have at least their Plus 18 hours with certifications in the following areas: English/Secondary, Middle/English Language Arts, Elementary, Special Education: Emotionally Handicapped, Special Educations: Learning Disabled, Education of the Deaf/Hard of Hearing, Gifted and Talented, English Speakers of Other Languages, and Read to

Succeed. All three teachers began teaching READ 180 when it was introduced to the district 4 years ago. All were initially trained by the READ 180 trainer and have received multiple trainings through Scholastic University Professional Development, the READ 180 community, and additional time spent studying the material during the past 4 years.

Of the 110 seventh-grade students participating in the READ 180 classes, 82 students completed all of the data points for the 2015-2016 school year in READ 180. Seventy-three of the students participated in the program during sixth grade. Only one student transferred into the district and was then enrolled in a READ 180 class. Twenty students were served in READ 180 and a special education class for English language arts. Eighteen of the students who were included in this study were also enrolled in the English Speakers of Other Languages (ESOL) program.

### **Instruments**

One instrument used during this study was the SRI test. This was an unbiased, research-based assessment of comprehensive reading skills (Scholastic, Inc., 2008). SRI measured student reading levels, tracked their reading growth over time, and assisted in guiding instruction for student needs (Scholastic, Inc., 2014). SRI was originally developed in 1998 and 1999 as a print-based assessment of reading comprehension. In the fall and winter of 1998, a computer-based version of SRI was piloted, with an initial product launch of Version 1 in the fall of 1999. Updated versions of the product were rolled out between 1999 and 2006, with the Enterprise Edition (Version 4.0) launched in late 2006.

The SRI College and Career version was developed in 2013. Rolled out in 2014, this version consists of two subtests. The first subtest is the Foundational Reading Assessment. It is used for Grades K-2 to assess early literacy skill development. The

second subtest is the Reading Comprehension Assessment. It is used to assess reading comprehension development in Grades 1-12 in order to match students with texts to create successful independent reading experiences. It is also used to provide students with challenging reading experiences in order to create appropriate scaffolding which aligns with college and career readiness skills (Scholastic, Inc., 2014). In 2015, Scholastic's educational technology division was purchased by HMH, changing the name of the product to The Reading Inventory (HMH, 2015).

This computer-adaptive reading assessment measures students through the Lexile Framework for Reading created by MetaMetrics. The Reading Comprehension Assessment uses Lexile Theory to convert the student's raw score from the assessment into the Lexile metric. The same equation that is used to calibrate the SRI College and Career test items is also used to measure texts. Since the same metric is used for both readers and texts, it allows for the possibility of a direct comparison (Scholastic, Inc., 2014).

When reader and text measures match, the Lexile Framework forecasts 75% comprehension. The operational definition of 75% comprehension is that given 100 items written to assess comprehension of a text, the reader will be able to correctly answer 75. When a text has a Lexile measure 250L higher than the reader's measure, the Lexile Framework forecasts 50% comprehension. When the reader measure exceeds the text measure by 250L, the forecasted comprehension is 90%. (Scholastic, Inc., 2014, p. 12)

The students participating in this study only participated in the Reading Comprehension Assessment portion of the SRI College and Career. The Reading Comprehension Assessment contains a bank of more than 5,000 multiple choice items,

exposing students to authentic fiction and nonfiction passages. Students read a comprehension passage. Then they selected the option that best completed the statement. In order to respond correctly, the questions require students to recall a fact, determine the main idea, draw an inference, or make a connection. This assessment typically took students 20-30 minutes to complete; however, the assessment was not timed. The program increases or decreases the rigor of the questions based on the learner's ability to correctly answer questions. Students were presented 15-25 items depending upon how they responded to the items. Upon completion of the Reading Comprehension Assessment, the results were reported as a scale score using a Lexile measure between Beginning Reader (0L) and above 1600L (Scholastic, Inc., 2014). Table 1 provides the cut scores for both fall and spring testing on the RI for seventh-grade students. These scores were based on a norming study in order to define a baseline score for growth (Scholastic, Inc., 2014).

Table 1

*RI: Fall and Spring Norm Table for Seventh Grade*

| Percentile | Fall Score | Spring Score |
|------------|------------|--------------|
| 1          | 210        | 240          |
| 5          | 510        | 545          |
| 10         | 590        | 625          |
| 25         | 760        | 780          |
| 35         | 825        | 860          |
| 50         | 910        | 955          |
| 65         | 985        | 1040         |
| 75         | 1050       | 1095         |
| 90         | 1160       | 1210         |
| 95         | 1245       | 1270         |

*Note.* Scholastic, Inc., 2014, pp. 136-137.

Scholastic, Inc. addressed both reliability and validity in the development of SRI. SRI is a computer-adaptive assessment which makes the standard error of measurement unique for every student because each student takes a unique test. MetaMetrics, Inc. reported that the initial uncertainty for a Reading Comprehension Assessment score is 225L. When a student retests, the uncertainty of the score is the uncertainty that resulted from the initial administration adjusted for the time elapsed between administrations.

Table 2

*Mean SEM on the Reading Comprehension Assessment by Extent of Prior Knowledge*

| Number of Items | SEM               | SEM                           |
|-----------------|-------------------|-------------------------------|
|                 | Grade Level Known | Grade and Reading Level Known |
| 15              | 104L              | 58L                           |
| 16              | 102L              | 57L                           |
| 17              | 99L               | 57L                           |
| 18              | 96L               | 57L                           |
| 19              | 93L               | 57L                           |
| 20              | 91L               | 56L                           |
| 21              | 89L               | 56L                           |
| 22              | 87L               | 55L                           |
| 23              | 86L               | 54L                           |
| 24              | 84L               | 54L                           |

*Note.* Scholastic, Inc., 2014, p. 90.

Based on Table 2, when the test is well targeted for the student's grade level and the student's previous reading level is known, the student can respond to a few test questions and not increase the standard error of measurement. If the grade level is the only known factor for the test administration, the more items the student answers, there will be less error in the score (Scholastic, Inc., 2014).

There are three sources the standard error of measurement takes into account when determining the reliability of the Reading Comprehension Assessment: text, item

writers, and reader (Scholastic, Inc., 2014). MetaMetrics, Inc. constructed the Lexile Analyzer which divides a text file into as many as 125-word segments as possible, evaluates each set of slices, and then calibrates each slice in terms of the logic metric. The calibrations are then processed to establish the Lexile measure that matches a 75% comprehension rate. The Lexile Analyzer uses the slices of calibrations as test item calibrations, solving for the measure corresponding to a raw score of 75%. An additional source of error that increases the uncertainty about where a text is located on the Lexile Framework map is the difficulty of individual text slices. In order to test the reliability of this issue, 200 items that were previously calibrated and were identified as fitting the model were retested through a sample of 3,026 students ranging from Grades 2-12 (Scholastic, Inc., 2014). “The correlation between the observed and theoretical calibrations for the 200 items was .92, and the root mean square error was 178L. Therefore, for an individual slice of text the measurement error is 178L” (Scholastic, Inc., 2014, p. 92).

Another source of uncertainty was item writers. While test writers are trained to develop items according to a set of procedures, they are still individuals who exhibit differences in behavior. Stenner and Burdick (1997) stated that measures are generally objective if they are independent of the instrument used which the Reading Comprehension Assessment claims to do (Scholastic, Inc., 2014). The last source of uncertainty deals with the reader. Each time a reader participates in RI, they are reading a completely different set of items, making each administration unique. Since the items are interchangeable, it is suggested that there is no *a priori* basis for believing that one particular method-moment combination will yield a higher or lower measure than any other. This variance in itself is an error (Scholastic, Inc., 2014).

Scholastic conducted studies to establish the validity of the Reading Comprehension Assessment portion of SRI College and Career in three ways: content, criterion-related, and construct. Content validity was built into the Reading Comprehension Assessment during creation. All authentic texts used as samples for this assessment are developmentally appropriate. For secondary students reading below grade level, a division of items from the main item pool are classified as Hi-Lo, meaning high interest, low readability ensuring that students read developmentally appropriate content (Scholastic, Inc., 2014).

Criterion-related validity indicates the Reading Comprehension Assessment's effectiveness in predicting an individual's behavior in a specific situation. A number of convergent validity studies are referenced in the SRI College and Career Technical Guide (Scholastic, Inc., 2014), examining situations where test scores are expected to be influenced by behaviors. Eight of the 11 studies mentioned in the criterion-related validity section include middle school populations with results showing a positive relationship between Reading Comprehension Assessment scores and enrollment in a reading intervention program (Scholastic, Inc., 2014).

In addition to the convergent validity identified in these studies, some studies identified results for discriminate validity which looks at the relationship between test scores and variables that should not be related such as gender and ethnicity. One study from Fairfax, Virginia examined gains for a variety of subgroups and observed that "no statistically significant differences in the magnitude of pretest-posttest changes in reading ability were found to be associated with other characteristics of READ 180 participants . . . during 2002-2003" (Pearson & White, 2004, p. 13). However, another study from a large urban school district collected information with regard to ethnicity/ethnicity,



gender, and limited English proficiency (LEP) classification. From this study, which was conducted during the 2004-2005 school year, the contrasts are significant for the category of ethnicity/ethnicity, showing that Whites score significantly higher than all other groups (Scholastic, Inc., 2014).

Two techniques are appropriate for examining the construct validity of the Reading Comprehension Assessment. One technique examines the developmental changes in test scores for traits that are expected to increase with age. Two studies were mentioned in the SRI College and Career Technical Guide (Scholastic, Inc., 2014). One of the studies involved a middle school in Pasco County, Florida. Seven hundred twenty-one students in Grades 6-8 participated in this year-long study which found that the typical growth, 73.65L (Scholastic, Inc., 2014), was consistent with prior research stating that the typical growth for middle school students in a calendar year is approximately 75L (Williamson, Thompson, & Baker, 2006).

The second technique validating the construct refers to the correlations found between SRI and other similar tests, especially other tests reported in the same metric. Four studies specifically mentioned using this technique. One of the studies took place in the Kirkwood School District in Missouri. This study evaluated students in Grades 4-8 enrolled in READ 180. These students took both the Reading Comprehension Assessment and STAR (Scholastic, Inc., 2014). Thomas (2003) found that “there is nearly an exact correlation between the two measures in terms of ranking students and distinguishing between regular and Special Education students’ performance” (p. 6).

Another instrument used was the STAR Reading Enterprise Assessment, a product of Renaissance Learning. This is a computer-adaptive, progress monitoring assessment that every student in the district takes three times a year in order to evaluate

independent reading comprehension growth and to provide teachers with individualized feedback for students. It is designed to provide accurate, reliable, and valid data instantly to teachers and administrators. “STAR Reading gives teachers specific benchmarking, screening, and progress-monitoring information to help tailor instruction, monitor reading growth, and improve reading achievement for all students” (Renaissance Learning, Inc., 2010a, p. 10).

STAR Reading was originally developed by Judi Paul in 1984 as a way to motivate her reluctant reader son. This initial step to help her son grew to include her other children and neighborhood kids. A local school heard about Paul’s success, which turned into a business called Accelerated Reader. In 1992, Paul’s husband joined the company and helped develop STAR Reading in 1996, followed by STAR Math in 1998, and STAR Early Literacy in 2001 (Renaissance Learning, Inc., 2010a).

STAR Reading assesses reading comprehension. The two types of items, short comprehension and extended comprehension, strongly focus on vocabulary knowledge. The short comprehension statements have one complete contextual sentence with a closely controlled vocabulary omitting a single word. The longer extended comprehension statements contain multiple sentences and a single-word omission. The reading levels of the items range from kindergarten through post high school and adjust in difficulty based on the student’s responses (Renaissance Learning, Inc., 2010a). STAR Reading assessment automates benchmarking, cut scores, progress-monitoring goals, and instructional recommendations through a variety of reports including the Screening Report, Growth Report, and Student Progress Monitoring Report (Renaissance Learning, Inc., 2010a).

STAR Reading’s reliability was estimated using three different methods when the

assessment was first normed in the spring of 1999. The sample included 30,000 students from 269 schools in 47 states. Schools and districts participating in the first norm were chosen based on their geographic location, per-grade district enrollment, and socioeconomic status (Renaissance Learning, Inc., 2010a). “The reliability estimates were very high for a test composed of only 25 items and compared favorably with the reliability estimates provided for other published reading tests” (Renaissance Learning, Inc., 2010a, p. 14). The reliability of STAR Reading was established through three reliability tests for Grades 1-12: test-retest ( $n=2,095$ ), alternate forms ( $n=4,551$ ), and generic reliability ( $n=29,169$ ). The test-retest method of reliability showed a correlation coefficient ranging from 0.79 to .091 with an average of 0.85. This method estimated a correlation coefficient of 0.94 over all 12 grades (Renaissance Learning, Inc., 2007). The alternate forms method of reliability coefficient ranged from 0.82 to 0.89, with an average of 0.85. The sample size for the alternate forms methods ranged from 63 to 772, with the majority of samples measuring more than 200. The overall coefficient for this sample of 4,551 was 0.95 (Renaissance Learning, Inc., 2007). The generic method of reliability used all the data in the norming study ( $n=29,169$ ) to estimate a correlation coefficient between 0.89 and 0.92, with little difference between grade levels (Renaissance Learning, Inc., 2007).

With the updated version of STAR Reading Enterprise, the assessment changed from 24 items to 34 items. New reliability tests were run with results displayed in Table 3.

Table 3

*Reliability of the Performance Level Score for STAR Reading*

| Type of Reliability | Grade | N (range)    | Coefficient Range | Median | SEM              |
|---------------------|-------|--------------|-------------------|--------|------------------|
| Generic             | 1-5   | 7,523-10,476 | .89-.91           | 0.90   | 36-62 Median: 48 |
| Split Half          | 1-5   | 7,523-10,476 | .88-.89           | 0.89   | NA               |
| Retest              | 1-5   | 296-300      | .82-.89           | 0.83   | NA               |
| Generic             | 6-12  | 1,153-6,462  | .90-.93           | 0.92   | 71-83 Median: 81 |
| Split Half          | 6-12  | 1,153-6,462  | .89-.91           | 0.90   | NA               |
| Retest              | 6-12  | 209-295      | .80-.90           | 0.81   | NA               |

*Note.* Renaissance Learning, Inc., 2015, pp. 58-59.

With the adaptation of the STAR Reading Assessment to the STAR Reading Enterprise, Renaissance Learning conducted another reliability norming study in the spring of 2014, which is evidenced in Table 4.

Table 4

*Reliability Estimates from the STAR Reading Enterprise Norming Study: Spring 2014*

| Reliability Estimates |           |      |             |      |                                 |
|-----------------------|-----------|------|-------------|------|---------------------------------|
| Generic               |           |      | Test-Retest |      |                                 |
| Grade                 | N         | pxx  | N           | pxx  | Average Days<br>between Testing |
| 1                     | 100,000   | 0.95 | 8,000       | 0.8  | 92                              |
| 2                     | 100,000   | 0.94 | 8,000       | 0.85 | 97                              |
| 3                     | 100,000   | 0.93 | 8,000       | 0.85 | 98                              |
| 4                     | 100,000   | 0.93 | 8,000       | 0.85 | 99                              |
| 5                     | 100,000   | 0.93 | 8,000       | 0.86 | 99                              |
| 6                     | 100,000   | 0.93 | 8,000       | 0.87 | 104                             |
| 7                     | 100,000   | 0.93 | 8,000       | 0.87 | 107                             |
| 8                     | 100,000   | 0.94 | 8,000       | 0.87 | 106                             |
| 9                     | 100,000   | 0.94 | 8,000       | 0.87 | 114                             |
| 10                    | 100,000   | 0.94 | 8,000       | 0.87 | 116                             |
| 11                    | 100,000   | 0.95 | 8,000       | 0.86 | 117                             |
| 12                    | 100,000   | 0.95 | 8,000       | 0.85 | 112                             |
| Overall               | 1,200,000 | 0.97 | 96,000      | 0.93 | 105                             |

*Note.* Renaissance Learning, Inc., 2015, p. 56.

In order for STAR Reading to measure reading achievement, the scores need to correlate highly with other measures of reading achievement. While undergoing the norming process, schools submitted their STAR Reading results along with data on how their students performed on a wide variety of other popular standardized tests. More than 10,000 students submitted usable scores. In order to remain valid, STAR Reading continues to collect and report additional data that supports the validity of the assessment. In 2008, STAR Reading was normed again. This norming experience drew from a national sample of students who took the assessment during a routine administration; 69,738 students in Grades 1-12 participated in the 2008 norming study, which

represented 2,709 schools in 48 of the United States including the District of Columbia (Renaissance Learning, Inc., 2010b).

The STAR Reading Enterprise test was validated through three domains: content, construct, and criterion. Content validity measures the relevance of the test items to the attributes the test measures reading comprehension. In order to ensure content validity, vocabulary-in-context questions are used to measure reading comprehension in the STAR Reading test. In order to maintain the best selection of items for the assessment, the vocabulary-in-context items must qualify under six specifications.

Construct validity investigates the extent to which a test measures the construct that it claims to assess. In order to establish construct validity, the test had to demonstrate the ability to accurately predict a student's reading comprehension level and achievement level (Renaissance Learning, Inc., 2015). In the STAR Reading Technical Manual (Renaissance Learning, Inc., 2015), Tables 24-27 depict the correlation coefficients between the scores on the STAR Reading 2.0 test and the other tests where data were received. In these four tables, the criterion validity is divided into two groups: predictive validity and concurrent validity. Tables 24 and 25 explain the data concerning concurrent validity between STAR Reading test scores and additional tests that were administered within a 2-month time period between the spring of 1999 and the spring of 2013. Predictive validity provides an estimate of the extent to which scores on the STAR Reading test predicted scores on criterion measures given a period of time that exceeds 2 months between the different tests and provides an estimate of the linear relationship between STAR Reading scores and scores on similar academic tests. Tables 26 and 27 in the STAR Reading Technical Manual (Renaissance Learning, Inc., 2015) present predictive validity coefficients.

Table 5 is a summary of STAR Reading validity studies that summarizes the results of more than 400 predictive and concurrent studies involving more than one million participants. The average correlations recognized in these studies ranged from 0.60 to 0.87, which is deemed strong (Renaissance Learning, Inc., 2014). As of the publication of the Research Foundation for STAR Assessments (Renaissance Learning, Inc., 2014), 49 tests had been statistically linked to the STAR Reading test. It is noted that statistical linking studies continue with the regular release of results (Renaissance Learning, Inc., 2014).

Table 5

*Summary of STAR Reading Validity Studies*

| Grade | Predictive |          |                     | Concurrent and Other External Validity |          |                     |
|-------|------------|----------|---------------------|--|----------|---------------------|
|       | Studies    | Students | Average Correlation | Studies                                | Students | Average Correlation |
| 1     | 6          | 74,770   | 0.68                | 15                                     | 1,135    | 0.77                |
| 2     | 10         | 184,434  | 0.78                | 32                                     | 4,142    | 0.72                |
| 3     | 30         | 200,929  | 0.80                | 44                                     | 4,051    | 0.75                |
| 4     | 25         | 185,528  | 0.82                | 41                                     | 5,409    | 0.75                |
| 5     | 29         | 126,029  | 0.82                | 40                                     | 3,588    | 0.75                |
| 6     | 23         | 82,189   | 0.82                | 37                                     | 2,728    | 0.71                |
| 7     | 23         | 64,978   | 0.81                | 33                                     | 3,294    | 0.70                |
| 8     | 25         | 34,764   | 0.81                | 29                                     | 2,148    | 0.72                |
| 9     | 8          | 9,567    | 0.83                | 15                                     | 949      | 0.72                |
| 10    | 9          | 7,021    | 0.85                | 11                                     | 566      | 0.61                |
| 11    | 6          | 6,653    | 0.86                | 6                                      | 324      | 0.70                |
| 12    | 2          | 3,107    | 0.86                | 4                                      | 165      | 0.74                |

*Note.* Renaissance Learning, Inc., 2014, p. 23.

Additional studies were conducted during the development of STAR Reading Enterprise to identify correlations between the STAR Reading Classic version and STAR Reading Services version. These correlations are displayed in Table 6.

Table 6

*Correlations of STAR Reading Classic and Reading Service Tests*

| Grade               | STAR Reading Classic Versions |      | STAR Reading Service Versions |      |
|---------------------|-------------------------------|------|-------------------------------|------|
|                     | N                             | r    | N                             | r    |
| 1                   | 810                           | 0.73 | 539                           | 0.87 |
| 2                   | 1,762                         | 0.81 | 910                           | 0.85 |
| 3                   | 2,830                         | 0.81 | 1,140                         | 0.83 |
| 4                   | 2,681                         | 0.81 | 1,175                         | 0.82 |
| 5                   | 2,326                         | 0.80 | 919                           | 0.82 |
| 6                   | 1,341                         | 0.85 | 704                           | 0.84 |
| 7                   | 933                           | 0.76 | 349                           | 0.81 |
| 8                   | 811                           | 0.80 | 156                           | 0.85 |
| 9                   | 141                           | 0.76 | 27                            | 0.75 |
| 10                  | 107                           | 0.79 | 20                            | 0.84 |
| 11                  | 84                            | 0.87 | 6                             | 0.94 |
| 12                  | 74                            | 0.78 | 5                             | 0.64 |
| All Grades Combined | 13,979                        | 0.87 | 5,994                         | 0.88 |

*Note.* Renaissance Learning, Inc., 2015, p. 88.

The STAR Reading Assessment bank has more than 2,400 items, of which students complete 34. Students in Grades 1-2 complete 25 short comprehension items. Students in Grades 3-12 complete 20 short comprehension items and five extended comprehension items. The assessment takes students approximately 20-25 minutes to complete (Renaissance Learning, Inc., 2010a).

RSPS2 (Henk, Marinak, & Melnick, 2012) is used to measure student perceptions of reading self-efficacy at the beginning of the school year, at the end of first semester, and again at the end of the year. Henk and Melnick (1995) originally created the Reading Self-Perception Scale to reflect the four basic factors students in Grades 4-6 take into



account when estimating their capabilities as readers.

Gable and Wolf (1993) described instrument developments for measuring attitudes and values in business and educational settings. This process was used as a guide in the development of the Reader Self-Perception Scale (RSPS) and RSPS2. The steps involved in this process included detecting the constructs and conceptual definitions, developing operational meanings and creating the prospective item pool, conducting a judgmental review of items, preparing a draft and final instrument, gathering and analyzing pilot data from appropriate samples, revising the instrument, administering a final pilot study, producing the final instrument, conducting additional validity and reliability analyses, and preparing documentations for the instrument (Henk et al., 2012).

Three thousand thirty-one students in Grades 7-10 participated in the first pilot of the study. Following the initial pilot, 56 graduate students from two universities participated in a content review of the study. Each student was given a list of 66 items. They were asked to sort the items into five categories: progress, observational comparison, social feedback, physiological states, and other. Following the sort, they were asked to rate the items using a confidence scale of 1 to 3. Items receiving a rank of 2.5 or more in 85% of respondents were retained. During this process, five items did not make the cut. After the pilot process, 14 additional items were eliminated (Henk et al., 2012).

In measuring the reliability of RSPS2, the sample population participating in the final pilot included 485 (15.5%) students from urban districts, 146 (4.7%) students from rural districts, and 2,501 (79.9%) students from suburban districts. Of the 3,132 students in this sample, 49.8% (1,559) were male and 50.2% (1,573) were female (Henk et al.,

2012).

A principal components analysis was used to determine the most significant reasons for the variance detected. The results of this analysis revealed four meaningful factors. These factors are progress, observational comparisons, social feedback, and physiological status. These four factors parallel the *a priori* scales in which the development of the instrument was intended. Each factor resulting from the principal component analysis was then subjected to an analysis of the internal consistency reliabilities (Henk et al., 2012). “Alpha reliabilities for affective measures should be at least .70 or higher” (Melnick, Henk, & Marinak, 2009, p. 12). The alpha reliabilities for the four factors are noted in Table 7.

Table 7

*Number of Items and Internal Consistency Reliabilities for Each Scale*

| Scale of Items                | Number of Items | Alpha |
|-------------------------------|-----------------|-------|
| Progress (PR)                 | 16              | .95   |
| Observational Comparison (OC) | 9               | .92   |
| Social Feedback (SF)          | 9               | .88   |
| Physiological Status (PS)     | 12              | .94   |

\*Forty-six of 47 items are included in this table. One general item is omitted.

*Note.* Melnick et al., 2009, p. 12.

The four factors described in both RSPS and RSPS2, found in Table 8, are rooted in Bandura’s self-efficacy theory (Bandura, 1977, 1982; Melnick et al., 2009; Schunk, 1984).

Table 8

*The Reader Self-Perception Scale Descriptions*

| Factors                       | Descriptions  |
|-------------------------------|---|
| Progress (PR)                 | “How students’ current reading performance compares with past performance.”                       |
| Observational Comparison (OC) | “How students’ reading performance compares with that of their classmates.”                       |
| Social Feedback (SF)          | “Verbal and non-verbal input from teachers, classmates, and parents about their reading ability.” |
| Physiological Status (PS)     | “How students feel inside when they engage in reading.”   |

*Note.* Melnick et al., 2009, p. 6

RSPS2 has 47 items. One item is a general opinion statement asking students to respond to, “I think I am a good reader.” The other 46 items relate to the four previously mentioned factors. These items integrate elements of reading that include word recognition, word analysis, fluency, and reading comprehension. Sixteen items fall under the category of progress. Nine items make up the category of observational comparison. Nine items are categorized as the factor of social feedback. Twelve items are identified in the category of physiological states (Henk et al., 2012).

### **Procedures**

SRI assessments were administered to the READ 180 classes four times throughout the course of the year: August, December, March, and May. For the purpose of this study, the results from the testing dates in August, December, and May were used. Some of the students in this study participated in the READ 180 program in sixth grade. STAR Reading assessments were administered three times during the school year

(September, December, and May), and the results from all three administrations were used. All students in the district participated in STAR Reading testing while in the sixth grade.

RSPS2, used to measure self-efficacy, was administered in August, December, and May by the classroom teacher. RSPS2 took students approximately 20 to 25 minutes to complete. The teacher explained the purpose of the survey to the students. She then worked through an example to ensure student understanding (Henk & Melnick, 1995). The teacher directed the students to read each statement and rate that statement by how much they agreed or disagreed. Students ranked each of the items on a five-degree Likert scale of 1=strongly agree, 2=agree, 3=undecided, 4=disagree, and 5=strongly disagree (Henk et al., 2012).

Teachers collected the surveys and returned them to a member of the faculty who coded the surveys using the RSPS2 Scoring Sheet (Appendix D). Teachers forwarded the coded surveys to the researcher for analysis. The assistant principals in charge of data provided the data for the three administrations of the RI assessment and the STAR Reading assessment. Once the researcher received the data from the three different assessments, the data were analyzed through quantitative statistical tests. SRI results were organized by the factors of gender, ethnicity, and time through an organized table. The researcher analyzed the SRI results identifying changes from the beginning of the year to December through an analysis of variance (ANOVA). After this initial analysis, the researcher ran a post hoc test to determine the differences between each group (ethnicity, gender, time). The researcher organized the results from the STAR Reading assessments by gender, ethnicity, and time in a table. The STAR Reading assessment results identifying changes from the beginning of the year to mid-year and end of year

were run through an ANOVA. After this initial analysis, an additional post hoc test was used to determine the differences between each factor (gender, ethnicity, time). The RSPS2 assessment was organized by the factors of gender, ethnicity, and time through a table. The researcher used the RSPS2 assessment results to identify changes from the beginning of the year to mid-year and end of year through an ANOVA. After this initial analysis, the researcher ran a post hoc test to determine the differences between each factor (gender, ethnicity, time). In order to correlate the results from the RI and STAR Reading assessments to the RSPS2 results, the researcher ran a multiple analysis of variance (MANOVA). Once the results from the MANOVA were collected, the researcher ran an additional post hoc test to provide the differences in changes from the beginning of the year to mid-year and end of year.

### **Limitations and Delimitations**

There were several possible limitations to this study. First, READ 180 was determined valid and reliable based on a 90-minute block of teaching time. Two of the three middle schools participating in this study recently changed their blocks of teaching time to 65 minutes. It now takes a block and a half of time for students to work through a program cycle. Second, the students who participated in this study were in middle school. The results from the RSPS2, RI test, and STAR Reading test may not be accurate. An expectation of all students was that they put their best effort in each time they participated in any type of assessment or evaluation; however, students may have had a rough day or been noncompliant. Another factor possibly influencing the results of RSPS2 was student understanding of the study. RSPS2 was designed for seventh through twelfth graders. The vocabulary of the study could have influenced student responses. The human element was a limitation factor. Third, teachers played a role in the

limitations of this study. The human element is not isolated to students. Teacher attitude toward reading or the students may have played a role in how students felt about their reading ability or the amount of growth students experienced.

There were two delimitations noted for this study. First, the sample size was limited to the seventh-grade READ 180 classes in three middle schools in a single district. The maximum number of students who could possibly participate in this study was 162; however, only 82 students had complete data. A second factor of delimitation may have been the amount of time used to conduct the study. One school year was the amount of time used for the study. This limited amount of time for the study showed changes for a 9-month period. To gain a more accurate picture of student achievement and reading self-efficacy, the study should extend over several years.

### **Summary**

The focus for Chapter 3 was to apply the principles of quantitative research methodology in order to provide an understanding of the steps the researcher took in conducting this study. The instruments used to gather data for this study were HMH's RI, STAR Reading–Enterprise, and RSPS2. In the following chapter, the researcher explains the statistical outcomes and analyzes and interprets those results within the context and findings of this methodology.

## **Chapter 4: Results**

### **Introduction**

“With the growing complexity of the world and the increasing demands of the 21<sup>st</sup>-century workforce, there is little question that all students should graduate from high school fully prepared for college and careers” (College and Career Readiness, 2012). However, 2015 NAEP scores indicated that 24% of eighth graders scored below basic in reading which was a gain of 2% from 2013. Twenty-eight percent of twelfth graders participating in the 2015 NAEP administration scored below basic which was an increase of 3% from 2013 and the highest percentage of below basic since the collection of NAEP data began in 1992 (The Condition of Education - Elementary and Secondary Education - Assessments–Reading Performance, 2016). READ 180 aims to meet the needs of these struggling readers so they can achieve college and career success (Scholastic, Inc., 2013).

The purpose of this quantitative study was to determine if there was a correlation between reading achievement, measured by RI and STAR Reading assessments, and reading self-efficacy, measured by RSPS2, for seventh-grade students enrolled in HMH’s READ 180 program. Additionally, student data were analyzed to determine if correlations existed within gender, ethnicity, and time served in the program. Three research questions guided this study.

1. Is there a significant difference in student reading achievement as a function of gender, ethnicity, and time served in READ 180?
2. Is there a significant difference in student reading self-efficacy as a function of gender, ethnicity, and time served in READ 180?
3. Is there a correlation between reading achievement and reading self-efficacy?

The following data were collected and analyzed to determine if correlations were present

between reading achievement and reading self-efficacy for the participants in this study. The findings are organized by research question.

## **Findings**

**Demographics of the findings.** Throughout the findings, each research question addressed whether there was a correlation between reading achievement and the factors of gender, ethnicity, and time. In order to provide a clear perspective of this data, the following tables identify the total number of students who took part in the seventh-grade READ 180 classes throughout the year and the number of students whose data were actually used for the purpose of this study. Several factors account for the elimination of students from the study. Among these factors were students who moved after the start of the school year, students who entered the program later in the semester, and students whose data were incomplete.

Table 9 shows the breakdown of the number of students by gender from each school who were enrolled in the seventh-grade READ 180 program at some point during the course of the year versus the number of students whose data were complete in order to participate in this study.



Table 9

*Student Participants per School based on Gender*

|          | Gender     |               |            |               |
|----------|------------|---------------|------------|---------------|
|          | Females    |               | Males      |               |
|          | Qualifying | Participating | Qualifying | Participating |
| School 1 | 15         | 15            | 17         | 15            |
| School 2 | 18         | 12            | 16         | 14            |
| School 3 | 19         | 14            | 24         | 12            |
| Sum      | 52         | 41            | 57         | 41            |

Of the 109 total students participating in the seventh-grade READ 180 program throughout the district, 78.8% of female students' data were usable for this study, while 71.9% of male students' data were able to be used for this study. The total data used came from 75% of the students in the program.

Table 10 identifies the different ethnic groups of students participating in the seventh-grade READ 180 program based on school. This table classifies the total number of students who were enrolled in READ 180 over the course of the 2015-2016 school year and the total number of students whose data were included in the research for this study.

Table 10

*Ethnic Breakdown of Participants Based on School*

|       | Ethnicity |          |       |          |       |          |          |          |          |          |                 |          |
|-------|-----------|----------|-------|----------|-------|----------|----------|----------|----------|----------|-----------------|----------|
|       | Asian     |          | Black |          | White |          | Biracial |          | Hispanic |          | American Indian |          |
|       | Total     | In Study | Total | In Study | Total | In Study | Total    | In Study | Total    | In Study | Total           | In Study |
| S-1   | 0         | 0        | 23    | 23       | 7     | 5        | 0        | 0        | 2        | 2        | 0               | 0        |
| S-2   | 0         | 0        | 9     | 6        | 22    | 18       | 1        | 1        | 2        | 1        | 0               | 0        |
| S-3   | 1         | 1        | 10    | 6        | 6     | 4        | 1        | 1        | 24       | 14       | 1               | 0        |
| Total | 1         | 1        | 42    | 35       | 35    | 27       | 2        | 2        | 28       | 17       | 1               | 0        |

Each school varied in ethnic population. S-1 had the largest Black population participating in the seventh-grade READ 180 program. S-2 had the greatest number of White participants in their READ 180 population. S-3 had the greatest number of Hispanic participants in their READ 180 population

The amount of time students spent daily in the READ 180 classes was the third function that was analyzed in order to determine if there was a correlation between reading achievement and reading self-efficacy. S-1 spent 90 minutes per day instructing students in the READ 180 program, while S-2 and S-3 spent 65 minutes per day on instruction.

**Research Question 1. Is there a statistically significant difference in student reading achievement as a function of gender, ethnicity, and time served in READ 180?** To address this question, the following data were compiled and analyzed.

Table 11 provides a breakdown of the mean RI score for seventh-grade students at each of the three middle schools in this study based on the beginning-, middle-, and end-of-year test administrations.

Table 11

*Breakdown of RI Mean Scores per School*

|     | Beginning | Middle | Last |
|-----|-----------|--------|------|
| S-1 | 689       | 698    | 733  |
| S-2 | 679       | 736    | 793  |
| S-3 | 681       | 710    | 760  |

Table 11 identifies the average RI score per school for the three test administration dates used in this study. S-2 saw the greatest change from the first administration to the middle with a growth of 57 points. S-3 followed with a growth of 29 points, and S-1 saw a growth of 9 points. From the mid-year administration to the end-of-the-year administration, S-2 again saw a 57-point growth. S-3 students averaged a growth of 50 points followed by a 35-point growth for S-1. Over the course of the 2015-2016 school year, S-2 saw an average growth of 114 points, followed by S-3 with a 79 point growth and S-1 with a 44 point growth.

Table 12 provides a summary of the descriptive statistics from the RI administrations for all seventh-grade students in the READ 180 program. In the table, the first, middle, and last test administrations are listed along with the number of students participating in that administration, the measure of location in mean, and the measure of dispersion in standard deviation.

Table 12

*Descriptive Statistics on the RI (All Schools)*

| Level | N  | Mean  | Standard Deviation |
|-------|----|-------|--------------------|
| First | 82 | 683.3 | 171.8              |
| Mid   | 82 | 714.0 | 164.1              |
| Last  | 82 | 760.7 | 177.4              |

The mean score for the first administration identifies the participants as ranking between the 10th and 25th percentiles for all seventh graders on the RI Norm Table, which is found in Table 1. The difference in mean score from the beginning of the year to the final test administration saw a growth of 77.4 points. The ending mean score for the study placed the participants below the 25th percentile for all seventh graders on the RI Norm Table.

Table 13 shows the results of a one-way ANOVA computed to determine the level of significance between mean scores of the test administrations from the RI found in Table 12.

Table 13

*One-way ANOVA on RI*

| Sources of Variation | Df  | Sum of Square | Mean Square | F Value | p Value |
|----------------------|-----|---------------|-------------|---------|---------|
| Factor               | 2   | 249119        | 124119      | 4.25    | 0.015   |
| Error                | 243 | 7121872       | 29308       |         |         |
| Total                | 245 | 7370992       |             |         |         |

*Note.* p value is  $0.015 < 5\%$ , Significant.

The results of the ANOVA in Table 13 indicate a statistically significant difference in RI scores at  $\alpha=.05$  among administrations from the beginning of the year to the middle of the year and end of the year:  $F_{(2,243)}=4.25$ ,  $p=.015$ . Because there was a statistically significant difference in scores, a post hoc test was necessary to check among the test administrations to determine where the significance lies between groups.

A Post Hoc Tukey-Kramer Multiple Comparisons Test was included in the analysis at the  $\alpha=.05$  level to compare the means and identify where the differences were among the administrations, as shown in Table 14.

Table 14

*Tukey-Kramer Multiple Comparisons Test of RI*

| Mean Comparison | Difference | Q     | p Value  | Decision        |
|-----------------|------------|-------|----------|-----------------|
| First vs Mid    | -30.720    | 1.625 | $P>0.05$ | Not significant |
| First vs Last   | -77.402    | 4.094 | $P<0.05$ | Significant     |
| Mid vs Last     | -46.863    | 2.469 | $P>0.05$ | Not significant |

*Note.* If the value of q is greater than 3.342 then the p value is less than 0.05.

From Table 12, the results obtained show that the last administration had the highest mean of 760.7 in the RI of the three administrations and the highest variation of 177.4. From Table 13, the p value was  $0.015<0.05$  level of significance, thus considered significant. There was a statistically significant difference in the means of the RI (FIRST, MID, and LAST) which was significantly greater than expected by chance. From Table 14, the mean comparison between the first and last RI administrations was statistically significantly different with a difference of 77.402, while the mean of the first and mid levels and the mid and last levels were not significantly different.

Table 15 provides a breakdown of the mean STAR Reading: Grade Equivalent

(GE) score for seventh-grade students at each of the three middle schools in this study based on the beginning-, middle-, and end-of-year test administrations.

Table 15

*Breakdown of Mean STAR Reading: GE Scores per School*

|     | Beginning | Middle | Last |
|-----|-----------|--------|------|
| S-1 | 4.1       | 4.7    | 5    |
| S-2 | 4.3       | 5.1    | 5.4  |
| S-3 | 4.7       | 5      | 5.3  |

Table 15 identifies the average STAR Reading: GE score per school for the three test administration dates used in this study. S-2 saw the greatest change from the first administration to the middle with a growth of 0.8. S-1 followed with a growth of .06, and S-3 saw a growth of 0.3. From the mid-year administration to the end-of-the-year administration, all three schools saw a growth of 0.3. Over the course of the 2015-2016 school year, S-2 saw an average growth of 1.1, followed by S-1 with a 0.9 growth, and S-1 with a 0.6 growth.

Table 16 consists of the summary of the descriptive statistics from the STAR Reading assessments given at the beginning, middle, and end of the year based on the GE scores. The table includes the sample size, the measure of location in mean, and the measure of dispersion in standard deviation.

Table 16

*Descriptive Statistics on the STAR Reading: GE*

| Level    | N  | Mean  | Standard Deviation |
|----------|----|-------|--------------------|
| GE First | 82 | 4.365 | 1.056              |
| GE Mid   | 82 | 4.913 | 1.143              |
| GE Last  | 82 | 5.215 | 1.075              |

The data indicate that the mean GE score at the beginning of the school year for students participating in this study was 4.365. On average, participant reading grade-level scores grew. By the final administration of the school year, the mean score of 5.215 shows almost a full year's growth in reading.

Table 17 shows the results of a one-way ANOVA computed to determine the level of significance between mean scores of the test administrations from the STAR Reading test's GE scores found in Table 16.

Table 17

*One-way ANOVA on STAR Reading: GE*

| Sources of Variation | Df  | Sum of Square | Mean Square | F Value | p Value |
|----------------------|-----|---------------|-------------|---------|---------|
| Factor               | 2   | 30.46         | 15.23       | 12.77   | 0.000   |
| Error                | 243 | 289.81        | 1.19        |         |         |
| Total                | 245 | 320.27        |             |         |         |

*Note.* p value is  $0.000 < 5\%$ , Significant.

The results of the ANOVA in Table 17 indicate a statistically significant difference in STAR Reading: GE scores at  $\alpha=.05$  among administrations from the beginning of the year to the middle of the year and end of the year:  $F_{(2,243)}=12.77$ ,  $p=.000$ .

Because there was a statistically significant difference in scores, a post hoc test was necessary to check among the test administrations to determine where the significance lies between groups.

A Post Hoc Tukey-Kramer Multiple Comparisons Test was included in the analysis at the  $\alpha=.05$  level to compare the means and identify where the differences were among the administrations, as shown in Table 18.

Table 18

*Tukey-Kramer Multiple Comparisons Test for STAR Reading: GE*

| Mean Comparison     | Difference | Q     | p Value  | Decision        |
|---------------------|------------|-------|----------|-----------------|
| GE-First vs GE-Mid  | -0.5488    | 4.550 | $P<0.05$ | Significant     |
| GE-First vs GE-Last | -0.8500    | 7.048 | $P<0.05$ | Significant     |
| GE-Mid vs GE-Last   | -0.3012    | 2.498 | $P>0.05$ | Not significant |

*Note.* If the value of q is greater than 3.342 then the p value is less than 0.05.

From Table 16, the results obtained show that the last administration had the highest mean of 5.215 on the STAR Reading: GE of the three administrations and had a variation of 1.075. In Table 17, the p value  $0.000<0.05$  confirms the level of significance. The conclusion could be drawn that there was a statistically significant difference in the means of the STAR Reading (GE-first, GE-mid, and GE-last) that is significantly greater than expected by chance. From Table 18, the mean comparison between the GE-first and GE-mid STAR Reading administration and GE-first and GE-last STAR Reading administrations were statistically significantly different with a difference of 0.5488 and 0.8500 respectively, while the mean of the GE-mid and GE-last STAR Reading levels was not significantly different.



Table 19 provides a breakdown of the mean STAR Reading: Lexile score for seventh-grade students at each of the three middle schools in this study based on the beginning-, middle-, and end-of-year test administrations.

Table 19

*Breakdown of Mean STAR Reading: Lexile Scores per School*

|     | Beginning | Middle | Last |
|-----|-----------|--------|------|
| S-1 | 556       | 682    | 721  |
| S-2 | 597       | 736    | 789  |
| S-3 | 680       | 728    | 793  |

Table 19 identifies the average STAR Reading: Lexile score per school for the three test administration dates used in this study. S-2 saw the greatest change from the first administration to the middle with a growth of 139 points. S-1 followed with a growth of 126 points, and S-3 saw a growth of 48 points. From the mid-year administration to the end-of-the-year administration, S-3 saw a growth of 65 points, followed by S-2 with a growth of 53 points, and S-1 saw a growth of 39 points. Over the course of the 2015-2016 school year, S-2 saw a total average growth of 192 points, followed by S-1 with a growth of 165, and S-3 with a 113-point growth.

Table 20 consists of the summary of the descriptive statistics from the STAR Reading assessments given at the beginning, middle, and end of the year based on the Lexile scores. The table includes the sampling size, the measure of location in mean, and the measure of dispersion in standard deviation.

Table 20

*Descriptive statistics on STAR Reading: Lexile*

| Level    | N  | Mean   | Standard Deviation |
|----------|----|--------|--------------------|
| LE First | 82 | 609.57 | 23.093             |
| LE Mid   | 82 | 713.93 | 22.657             |
| LE Last  | 82 | 765.35 | 21.666             |

The mean score for seventh-grade READ 180 students participating in this study at the beginning of the school year was 609.57. On average, growth was recognized throughout the year. From the first administration to the mid-year administration, students averaged a growth of 104.36 points. From the mid-year administration to the end-of-the-year administration, students averaged a growth of 51.42 additional points, making the total mean growth from the beginning-of-the-year administration to the end-of-the-year administration 155.78 Lexile points.

Table 21 shows the results of a one-way ANOVA computed to determine the level of significance between mean scores of the test administrations from the STAR Reading test's Lexile scores found in Table 20.

Table 21

*One-way ANOVA on STAR Reading: Lexile*

| Sources of Variation | Df  | Sum of Square | Mean Square | F Value | p Value |
|----------------------|-----|---------------|-------------|---------|---------|
| Factor               | 2   | 1033254       | 516627      | 12.468  | 0.000   |
| Error                | 243 | 1.006E+07     | 41437       |         |         |
| Total                | 245 | 1.110E+07     |             |         |         |

*Note.*  $p$  value is  $0.000 < 5\%$ , Significant.

The results of the ANOVA in Table 21 indicate a significant difference in STAR Reading: Lexile scores at  $\alpha=.05$  among administrations from the beginning of the year to the middle of the year and end of the year:  $F_{(2,243)}=12.468$ ,  $p=.000$ . Because there was a significant difference in scores, a post hoc test was necessary to check among the test administrations to determine where the significance lies between groups.

A Post Hoc Tukey-Kramer Multiple Comparisons Test was included in the analysis at the  $\alpha=.05$  level to compare the means and identify where the differences were among the administrations, as shown in Table 22.

Table 22

*Tukey-Kramer Multiple Comparisons Test for STAR Reading: Lexile*

| Mean Comparison     | Difference | Q     | p Value  | Decision        |
|---------------------|------------|-------|----------|-----------------|
| LE-First vs LE-Mid  | -104.35    | 4.642 | $P<0.05$ | Significant     |
| LE-First vs LE-Last | -155.78    | 6.930 | $P<0.05$ | Significant     |
| LE-Mid vs LE-Last   | -51.427    | 2.288 | $P>0.05$ | Not significant |

*Note.* If the value of q is greater than 3.342, then the p value is less than 0.05.

From Table 20, the results obtained show that the Lexile level of the last administration of the STAR Reading: Lexile had the highest mean of 765.35 of the three administrations. It also had the least variation at 21.666. From Table 21, the p value was  $0.000<0.05$  level of significance, which was considered significant. There was a statistically significant difference in the means of the STAR Reading (LE-first, LE-mid, and LE-last). That is significantly greater than expected by chance. From Table 22, the mean comparison between the Lexile-first and Lexile-mid STAR Reading administrations and Lexile -first and Lexile -last STAR Reading levels are statistically significantly different with differences of 104.35 and 155.78 respectively, while the mean

of the Lexile–mid and Lexile-last STAR Reading levels was not significantly different.

Table 23 shows the results of a MANOVA computed to determine the effect of the independent variables of RI, STAR Reading: GE, and STAR Reading: Lexile on the dependent variables of gender, ethnicity, and time served during the program.

Table 23

*MANOVA to Determine the Effect of the Independent Variables on the Dependent Variables*

| Tests of Between-Subjects Effects |                    |                         |    |             |        |       |                     |                    |                             |
|-----------------------------------|--------------------|-------------------------|----|-------------|--------|-------|---------------------|--------------------|-----------------------------|
| Source                            | Dependent Variable | Type III Sum of Squares | df | Mean Square | F      | Sig.  | Partial Eta Squared | Noncent. Parameter | Observed Power <sup>b</sup> |
| Model                             | Gender             | 22.292 <sup>a</sup>     | 7  | 3.185*      | 12.766 | 0.000 | 0.544               | 89.364             | 1.000                       |
|                                   | Ethnic             | 412.244 <sup>c</sup>    | 7  | 58.892      | 98.688 | 0.000 | 0.902               | 690.817            | 1.000                       |
|                                   | Time               | 155.067 <sup>d</sup>    | 7  | 22.152      | 98.119 | 0.000 | 0.902               | 686.836            | 1.000                       |
| RI                                | Gender             | 0.056                   | 1  | 0.056       | 0.226  | 0.636 | 0.003               | 0.226              | 0.076                       |
|                                   | Ethnic             | 0.598                   | 1  | 0.598       | 1.002  | 0.320 | 0.013               | 1.002              | 0.167                       |
|                                   | Time               | 0.108                   | 1  | 0.108       | 0.479  | 0.491 | 0.006               | 0.479              | 0.105                       |
| GE (STAR)                         | Gender             | 0.054                   | 1  | 0.054       | 0.217  | 0.642 | 0.003               | 0.217              | 0.075                       |
|                                   | Ethnic             | 4.392                   | 1  | 4.392       | 7.360  | 0.008 | 0.089               | 7.360              | 0.764                       |
|                                   | Time               | 0.359                   | 1  | 0.359       | 1.589  | 0.211 | 0.021               | 1.589              | 0.238                       |
| Lexile (STAR)                     | Gender             | 0.117                   | 1  | 0.117       | 0.469  | 0.496 | 0.006               | 0.469              | 0.104                       |
|                                   | Ethnic             | 1.916                   | 1  | 1.916       | 3.210  | 0.077 | 0.041               | 3.210              | 0.424                       |
|                                   | Time               | 0.757                   | 1  | 0.757       | 3.352  | 0.071 | 0.043               | 3.352              | 0.439                       |
| Error                             | Gender             | 18.708                  | 75 | 0.249       |        |       |                     |                    |                             |
|                                   | Ethnic             | 44.756                  | 75 | 0.597       |        |       |                     |                    |                             |
|                                   | Time               | 16.933                  | 75 | 0.226       |        |       |                     |                    |                             |
| Total                             | Gender             | 41.000                  | 82 |             |        |       |                     |                    |                             |
|                                   | Ethnic             | 457.000                 | 82 |             |        |       |                     |                    |                             |
|                                   | Time               | 172.000                 | 82 |             |        |       |                     |                    |                             |

a. R Squared=.544 (Adjusted R Squared=.501)

b. Computed using alpha=.05

c. R Squared=.902 (Adjusted R Squared=.893)

d. R Squared=.902 (Adjusted R Squared=.892)

From the result of the MANOVA obtained in Table 23, it was observed that RI has no significant effect on the dependent variables, since the p values (sig.) were not less than 0.05 level of significance. GE (STAR Reading) had a significant effect on the factor

of ethnicity, since its  $p$  value =  $0.008 < 0.05$ , which is statistically considered very significant. It was also observed that at 0.10 level of significance, Lexile (STAR Reading) affects the factors of ethnicity and time significantly. This was evident from the  $p$  values 0.077 and 0.071, which were less than 0.10 but greater than 0.05 level of significance, therefore considered not quite significant.

For the factor gender, the coefficient of determination R-squared (a) = 0.544 indicates that there was a 54.4% variation in gender which was explained by the predictor variables considered in this study. The coefficient of determination R-squared (c) = 0.902 indicated that there was a 90.2% variation in the ethnicity which was explained by the predictor variables. Also, the coefficient of determination R-squared (d) = 0.902 also showed that the 90.2% variation in time was explained by the predictor variables considered. Finally, the decision was made by means of the level of significance ( $\alpha$ ) = 0.05.

**Research Question 2. Is there a statistically significant difference in student reading self-efficacy as a function of gender, ethnicity, and time served in READ 180?** To address this question, the following data were compiled and analyzed.

Table 24 provides a breakdown of the mean RSPS2 Progress score for seventh-grade students at each of the three middle schools in this study based on the beginning-, middle-, and end-of-year survey administrations.

Table 24

*Breakdown of Mean RSPS2 Progress Scores per School*

|     | Beginning | Middle | Last |
|-----|-----------|--------|------|
| S-1 | 60        | 68     | 69   |
| S-2 | 62        | 64     | 66   |
| S-3 | 62        | 64     | 63   |

Table 24 identifies the average RSPS2 Progress score per school for the three survey administration dates used in this study. S-1 saw the greatest change from the first administration to the middle with an average growth of 8 points. Both S-2 and S-3 followed with a growth of 2 points each. From the mid-year administration to the end-of-the-year administration, S-2 saw a growth of 2 points, followed by S-1 with a growth of 1 point, and S-3 saw a decline of 1 point. Over the course of the 2015-2016 school year, S-1 saw a total average growth of 9 points, followed by S-2 with a growth of 4 points, and S-3 with a 1-point growth.

Table 25 consists of the summary of the descriptive statistics from the Progress category of RSPS2 given at the beginning, middle, and end of the year. The table includes the sample size, the measure of location in mean, and the measure of dispersion in standard deviation. The mean for Progress was based on a limit of 80.

Table 25

*Descriptive Statistics on the Progress*

| Level | N  | Mean   | Standard Deviation |
|-------|----|--------|--------------------|
| First | 82 | 61.329 | 10.327             |
| Mid   | 82 | 65.537 | 28.668             |
| Last  | 82 | 65.915 | 8.691              |

The mean score in the category of Progress at the initial administration of RSPS2 was 61.329. At the mid-year administration of RSPS2, the mean score grew to 65.537, a growth of 4.208 points. From mid-year to the final administration, student responses in the category of Progress averaged 65.915, a growth of 0.378 points. Overall, the average growth in the category of Progress grew 4.586 points.

Table 26 presents the ANOVA results of the Progress category of the RSPS2 administrations based on the descriptive statistics found in Table 25.

Table 26

*One-way ANOVA on Progress*

| Sources of Variation | Df  | Sum of Square | Mean Square | F Value | p Value |
|----------------------|-----|---------------|-------------|---------|---------|
| Factor               | 2   | 1062.4        | 531.22      | 6.193   | 0.0024  |
| Error                | 243 | 20843         | 85.77       |         |         |
| Total                | 245 | 21905         |             |         |         |

Note. p value is 0.0024<5%, Significant.

The results of the ANOVA in Table 26 indicate a significant difference in the category of Progress on the RSPS2 scores at  $\alpha=.05$  among administrations from the beginning of the year to the middle of the year and end of the year:  $F_{(2,243)}=6.193$ ,

$p=.0024$ . Because there was a significant difference in scores, a post hoc test was necessary to check among the test administrations to determine where the significance lies between groups.

Table 27 provides the post hoc results based on the data analysis of the ANOVA in Table 26.

Table 27

*Tukey-Kramer Multiple Comparisons Test for Progress*

| Mean Comparison | Difference | Q     | p Value  | Decision        |
|-----------------|------------|-------|----------|-----------------|
| First vs Mid    | -4.207     | 4.114 | $P<0.05$ | Significant     |
| First vs Last   | -4.585     | 4.483 | $P<0.01$ | Significant     |
| Mid vs Last     | -0.378     | 0.370 | $P>0.05$ | Not significant |

*Note.* If the value of  $q$  is greater than 3.342 then the  $P$  value is less than 0.05.

From Table 26, the results obtained showed that the last administration of RSPS2: Progress category had the highest mean of 65.915 of the three administrations. It also had the lesser variation of 8.691. From Table 27, the  $p$  value 0.0024 was less than 0.05 level of significance, thus considered very significant. There was a statistically significant difference in the means of the Progress. That was significantly greater than expected by chance. From Table 28, the mean comparison between the first and mid progress levels and first and last progress levels were statistically significantly different with difference of 4.207 and 4.585 respectively, while the mean of the mid and last progress levels was not significantly different.

Table 28 provides a breakdown of the mean RSPS2 Observational Comparison score for seventh-grade students at each of the three middle schools in this study based on the beginning-, middle-, and end-of-year test administrations.



Table 28

*Breakdown of Mean Observational Comparison Scores per School*

|     | Beginning | Middle | Last |
|-----|-----------|--------|------|
| S-1 | 29        | 33     | 34   |
| S-2 | 29        | 33     | 34   |
| S-3 | 29        | 30     | 31   |

Table 29 identifies the average RSPS2 Observational Comparison category score per school for the three test administration dates used in this study. S-1 and S-2 saw the same change from the first administration to the middle with a growth of 4 points. S-3 followed with a growth of 1 point. From the mid-year administration to the end-of-the-year administration, all three schools saw a growth of 1 point. Over the course of the 2015-2016 school year, S-1 and S-2 saw a total average growth of 5 points, followed by S-3 with a growth of 2 points.

Table 29 consists of the summary of the descriptive statistics from the Observational Comparison category of RSPS2 given at the beginning, middle, and end of the year. The table included the sample size, the measure of location in mean, and the measure of dispersion in standard deviation. The mean for Observational Comparison was based on a limit of 45.

Table 29

*Descriptive Statistics on the Observational Comparison*

| Level | N  | Mean   | Standard Deviation |
|-------|----|--------|--------------------|
| First | 82 | 28.841 | 6.986              |
| Mid   | 82 | 31.829 | 6.275              |
| Last  | 82 | 32.951 | 6.661              |

The mean score in the category of Observational Comparison at the initial administration of RSPS2 was 28.841. At the mid-year administration, the mean score grew to 31.829, which is a growth of 2.988 points. The final administration revealed a mean score of 32.951, which was a growth of 1.125 points from the middle-of-the-year to the end-of-the-year administration. Overall growth from the beginning of the year to the end of the year was an average of 4.11 points.

Table 30 shows the results from the ANOVA based on the descriptive statistics category of Observational Comparison from the RSPS2 administrations.

Table 30

*One-way ANOVA on Observational Comparison*

| Sources of Variation | Df  | Sum of Square | Mean Square | F Value | p Value |
|----------------------|-----|---------------|-------------|---------|---------|
| Factor               | 2   | 740.07        | 370.04      | 8.375   | 0.0003  |
| Error                | 243 | 10736         | 44.183      |         |         |
| Total                | 245 | 11476         |             |         |         |

Note. p value is 0.0003<5%, Significant

The results of the ANOVA in Table 31 indicate a significant difference in RSPS2: Observational Comparison scores at  $\alpha=.05$  among administrations from the beginning of

the year to the middle of the year and end of the year:  $F_{(2,243)}=8.375$ ,  $p=.0003$ . Because there was a significant difference in scores, a post hoc test was necessary to check among the test administrations to determine where the significance lies between groups.

Table 32 provides the post hoc results based on the data analysis of the ANOVA in Table 31.

Table 31

*Tukey-Kramer Multiple Comparisons Test Observational Comparison*

| Mean Comparison | Difference | Q     | p Value   | Decision        |
|-----------------|------------|-------|-----------|-----------------|
| First vs Mid    | -2.988     | 4.070 | $P<0.05$  | Significant     |
| First vs Last   | -4.110     | 5.599 | $P<0.001$ | Significant     |
| Mid vs Last     | -1.122     | 1.528 | $P>0.05$  | Not significant |

*Note.* If the value of q is greater than 3.342 then the P value is less than 0.05.

From Table 29, the results obtained show that Observational Comparison of the last level has highest mean of 32.951 than the first and mid-level and has a variation of 6.661. From Table 30, the p value  $0.0003<0.05$  level of significance, thus considered extremely significant. There was a statistically significant difference in the means of the Observational Comparison of the three levels. That was significantly greater than expected by chance. From Table 31, the mean comparison between the first and mid observational levels and first and last progress levels were statistically significant with differences of 2.988 and 4.110 respectively, while the mean of the mid and last progress levels was not significantly different.

Table 32 provides a breakdown of the mean RSPS2 Social Feedback score for seventh-grade students at each of the three middle schools in this study based on the beginning-, middle-, and end-of-year test administrations.

Table 32

*Breakdown of Mean RSPS2 Social Feedback Scores per School*

|     | Beginning | Middle | Last |
|-----|-----------|--------|------|
| S-1 | 30        | 32     | 33   |
| S-2 | 31        | 33     | 34   |
| S-3 | 30        | 31     | 29   |

Table 32 identifies the average RSPS2 Social Feedback score per school for the three test administration dates used in this study. S-1 and S-2 saw the same change from the first administration to the middle with a growth of 2 points. S-3 followed with a growth of 1 point. From the mid-year administration to the end-of-the-year administration, S-1 and S-2 saw a growth of 1 point, followed by S-3 with a decline of 2 points. Over the course of the 2015-2016 school year, S-1 and S-2 saw a total average growth of 3 points, followed by S-3 with a decline of 1 point.

Table 33 consists of the summary of the descriptive statistics from the Social Feedback category of RSPS2 given at the beginning, middle, and end of the year. The table includes the sample size, the measure of location in mean, and the measure of dispersion in standard deviation. The mean for Social Feedback was based on a limit of 80.

Table 33

*Descriptive Statistics on the Social Feedback*

| Level | N  | Mean   | Standard Deviation |
|-------|----|--------|--------------------|
| First | 82 | 30.220 | 6.346              |
| Mid   | 82 | 32.000 | 5.564              |
| Last  | 82 | 31.854 | 5.540              |

The mean score in the category of Social Feedback at the initial administration of RSPS2 was 30.220. At the mid-year administration, the mean score grew to 32.000, which was a growth of 1.78 points. The final administration revealed a mean score of 31.854, which was a decline of 0.146 points from the middle-of-the-year to the end-of-the-year administration. Overall growth from the beginning of the year to the end of the year was an average of 1.634 points.

Table 34 shows the results from the ANOVA in Table 33 based on the descriptive statistics category of Social Feedback from the RSPS2 administrations.

Table 34

*One-way ANOVA on Social Feedback*

| Sources of Variation | Df  | Sum of Square | Mean Square | F Value | p Value |
|----------------------|-----|---------------|-------------|---------|---------|
| Factor               | 2   | 160.23        | 80.114      | 2.358   | 0.0968  |
| Error                | 243 | 8256.3        | 33.977      |         |         |
| Total                | 245 | 8416.5        |             |         |         |

From Table 33, the results obtained showed that Social Feedback of the mid-level had the highest mean of 32.00 than the first and mid-level and had a variation of 5.564.

From Table 34, the p value  $0.0968 > 0.05$  level of significance, thus considered not quite significant. It was concluded that there was no statistical significant difference in the means of the social feedback of the three levels. That is, it was not significantly greater than expected by chance. The post hoc test was not computed because all comparison p values were greater than 0.05, hence the comparisons were all not significant.

Table 35 provides a breakdown of the mean RSPS2 Physiological Status score for seventh-grade students at each of the three middle schools in this study based on the beginning-, middle-, and end-of-year test administrations.

Table 35

*Breakdown of Mean RSPS2 Physiological Status Scores per School*

|     | Beginning | Middle | Last |
|-----|-----------|--------|------|
| S-1 | 41        | 47     | 46   |
| S-2 | 42        | 44     | 46   |
| S-3 | 43        | 45     | 43   |

Table 35 identifies the average RSPS2 score per school for the three test administration dates used in this study. S-1 saw the greatest change from the first administration to the middle with a growth of 6 points. S-2 and S-3 followed with a growth of 2 points. From the mid-year administration to the end-of-the-year administration, S-2 and S-3 saw a growth of 2 points, followed by S-1 with a decline of 1 point. Over the course of the 2015-2016 school year, S-1 saw a total average growth of 5 points, followed by S-2 with a growth of 4 points. S-3 saw no growth from the beginning to the end of the school year.

Table 36 consists of the summary of the descriptive statistics from the

Physiological Status category of RSPS2 given at the beginning, middle, and end of the year. The table includes the sample size, the measure of location in mean, and the measure of dispersion in standard deviation. The mean for Physiological Status was based on a limit of 60.

Table 36

*Descriptive Statistics on the Physiological Status*

| Level | N  | Mean   | Standard Deviation |
|-------|----|--------|--------------------|
| First | 82 | 41.720 | 10.619             |
| Mid   | 82 | 45.390 | 8.678              |
| Last  | 82 | 45.098 | 8.220              |

The mean score in the category of Physiological Status at the initial administration of RSPS2 was 41.720. At the mid-year administration, the mean score grew to 45.390, which was a growth of 3.67 points. The final administration revealed a mean score of 45.098, which was a decline of 0.292 points from the middle-of-the-year to the end-of-the-year administration. Overall growth from the beginning of the year to the end of the year was an average of 3.378 points.

Table 37 shows the results from the ANOVA in Table 36 based on the descriptive statistics category of Physiological Status from the RSPS2 administrations.

Table 37

*One-way ANOVA on Physiological Status*

| Sources of Variation | Df  | Sum of Square | Mean Square | F Value | p Value |
|----------------------|-----|---------------|-------------|---------|---------|
| Factor               | 2   | 682.54        | 341.27      | 4.005   | 0.0194  |
| Error                | 243 | 20707         | 85.215      |         |         |
| Total                | 245 | 21390         |             |         |         |

*Note.* p value is 0.0194<5%, Significant.

The results of the ANOVA in Table 37 indicate a significant difference in RSPS2: Physiological Status scores at  $\alpha=.05$  among administrations from the beginning of the year to the middle of the year and the end of the year:  $F_{(2,243)}=4.005$ ,  $p=.0194$ . Because there was a significant difference in scores, a post hoc test was necessary to check among the test administrations to determine where the significance lies between groups.

Table 38 provides the post hoc results based on the data analysis of the ANOVA in Table 37.

Table 38

*Tukey-Kramer Multiple Comparisons Test Physiological Status*

| Mean Comparison | Difference | Q     | p Value  | Decision        |
|-----------------|------------|-------|----------|-----------------|
| First vs Mid    | -3.671     | 3.601 | $P<0.05$ | Significant     |
| First vs Last   | -3.378     | 3.314 | $P>0.05$ | Not Significant |
| Mid vs Last     | 0.293      | 0.287 | $P>0.05$ | Not significant |

*Note.* If the value of q is greater than 3.342 then the P value is less than 0.05.

From Table 36, the results obtained show that Physiological Status of the mid-level has the highest mean of 45.390 than the first and mid-level and has a variation of



8.220. From Table 37, the p value  $0.0194 < 0.05$  level of significance, thus considered significant. There was a statistically significant difference in the means of the Physiological Status of the three levels. That was significantly greater than expected by chance. From Table 38, only the mean comparison between the first and mid Physiological Status levels was statistically significantly different with a difference of 3.671, while the mean of the first and last Physiological Status levels and mid and last Physiological Status levels were not significantly different.

Table 39 shows the results of the MANOVA computed to determine the effect of the independent variables on the dependent variables.

Table 39

*MANOVA to Determine the Effect of the Independent Variables on the Dependent Variables*

| Tests of Between-Subjects Effects |                    |                         |    |             |        |       |                     |                    |                             |
|-----------------------------------|--------------------|-------------------------|----|-------------|--------|-------|---------------------|--------------------|-----------------------------|
| Source                            | Dependent Variable | Type III Sum of Squares | df | Mean Square | F      | Sig.  | Partial Eta Squared | Noncent. Parameter | Observed Power <sup>b</sup> |
| Model                             | Gender             | 22.292 <sup>a</sup>     | 7  | 3.185       | 12.766 | 0.000 | 0.544               | 89.364             | 1.000                       |
|                                   | Ethnic             | 412.244 <sup>c</sup>    | 7  | 58.892      | 98.688 | 0.000 | 0.902               | 690.817            | 1.000                       |
|                                   | Time               | 155.067 <sup>d</sup>    | 7  | 22.152      | 98.119 | 0.000 | 0.902               | 686.836            | 1.000                       |
| Progress                          | Gender             | 0.326                   | 1  | 0.326       | 1.309  | 0.256 | 0.017               | 1.309              | 0.204                       |
|                                   | Ethnic             | 0.026                   | 1  | 0.026       | 0.044  | 0.835 | 0.001               | 0.044              | 0.055                       |
|                                   | Time               | 1.939                   | 1  | 1.939       | 8.589  | 0.004 | 0.103               | 8.589              | 0.825                       |
| Observe compare                   | Gender             | 0.495                   | 1  | 0.495       | 1.985  | 0.163 | 0.026               | 1.985              | 0.285                       |
|                                   | Ethnic             | 0.011                   | 1  | 0.011       | 0.019  | 0.892 | 0.000               | 0.019              | 0.052                       |
|                                   | Time               | 0.018                   | 1  | 0.018       | 0.078  | 0.781 | 0.001               | 0.078              | 0.059                       |
| Social feedback                   | Gender             | 0.509                   | 1  | 0.509       | 2.040  | 0.157 | 0.026               | 2.040              | 0.292                       |
|                                   | Ethnic             | 3.519                   | 1  | 3.519       | 5.897  | 0.018 | 0.073               | 5.897              | 0.669                       |
|                                   | Time               | 0.219                   | 1  | 0.219       | 0.970  | 0.328 | 0.013               | 0.970              | 0.163                       |
| Physio-logical status             | Gender             | 0.053                   | 1  | 0.053       | 0.212  | 0.647 | 0.003               | 0.212              | 0.074                       |
|                                   | Ethnic             | 3.704                   | 1  | 3.704       | 6.206  | 0.015 | 0.076               | 6.206              | 0.691                       |
|                                   | Time               | 0.084                   | 1  | 0.084       | 0.371  | 0.544 | 0.005               | 0.371              | 0.092                       |
| Error                             | Gender             | 18.708                  | 75 | 0.249       |        |       |                     |                    |                             |
|                                   | Ethnic             | 44.756                  | 75 | 0.597       |        |       |                     |                    |                             |
|                                   | Time               | 16.933                  | 75 | 0.226       |        |       |                     |                    |                             |
| Total                             | Gender             | 41.000                  | 82 |             |        |       |                     |                    |                             |
|                                   | Ethnic             | 457.000                 | 82 |             |        |       |                     |                    |                             |
|                                   | Time               | 172.000                 | 82 |             |        |       |                     |                    |                             |

a. R Squared=.544 (Adjusted R Squared=.501)

b. Computed using alpha=.05

c. R Squared=.902 (Adjusted R Squared=.893)

d. R Squared=.902 (Adjusted R Squared=.892)

From the result of the MANOVA obtained in Table 39, it was observed that the category of Progress in RSPS2 had a statistically significant effect on time, since the p value  $0.004 < 0.05$  level of significance which was considered extremely significant than expected by chance. Observational Comparison had no significant effect on any of the

three dependent variables, since all the p values were more than 0.05 level of significance. The social feedback had statistical significance on only the factor of ethnicity because p value  $0.018 < 0.05$ ; hence, it was considered very significant. Physiological status also affects ethnicity significantly, since the p value  $0.015 < 0.05$ .

For the model gender, the coefficient of determination R-squared (a)=0.544 indicates that there was a 54.4% variation in gender which was explained by the predictor variables considered in this study. The coefficient of determination R-squared (c)=0.902 indicates that 90.2% variation in the ethnicity was explained by the predictor variables. Also, the coefficient of determination R-squared (d)=0.902 also showed that there was a 90.2% variation in time which was explained by the predictor variables considered. Finally, the decision was made by means of the level of significance (alpha)=0.05.

**Research Question 3. Is there a correlation between reading achievement and reading self-efficacy? To address this question, the following data were compiled and analyzed.**

Table 40 shows the correlations between the independent variables of gender, ethnicity, and time.

Table 40

*Correlations between the Independent Variables*

|                             |                 | RI                      | GE<br>(STAR)            | LEXILE<br>(STAR)        | Progress                | Observ.<br>comparison   | Social<br>feedback      | Physiologic.<br>Status |
|-----------------------------|-----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|------------------------|
| RI                          | PC<br>Sig.<br>N | 1<br>0.000<br>82        |                         |                         |                         |                         |                         |                        |
| GE (STAR)                   | PC<br>Sig.<br>N | 0.782***<br>0.000<br>82 | 1<br><br>82             |                         |                         |                         |                         |                        |
| LEXILE<br>(STAR)            | PC<br>Sig.<br>N | 0.800***<br>0.000<br>82 | 0.992***<br>0.000<br>82 | 1<br><br>82             |                         |                         |                         |                        |
| Progress                    | PC<br>Sig.<br>N | 0.502***<br>0.000<br>82 | 0.396***<br>0.000<br>82 | 0.400**<br>0.000<br>82  | 1<br><br>82             |                         |                         |                        |
| Observational<br>comparison | PC<br>Sig.<br>N | 0.333***<br>0.002<br>82 | 0.347***<br>0.001<br>82 | 0.336***<br>0.002<br>82 | 0.695***<br>0.000<br>82 | 1<br><br>82             |                         |                        |
| Social<br>feedback          | PC<br>Sig.<br>N | 0.120<br>0.282<br>82    | 0.003<br>0.977<br>82    | -0.009<br>0.938<br>82   | 0.631***<br>0.000<br>82 | 0.647***<br>0.000<br>82 | 1<br><br>82             |                        |
| Physiological<br>status     | PC<br>Sig.<br>N | 0.198*<br>0.075<br>82   | 0.105<br>0.347<br>82    | 0.106<br>0.341<br>82    | 0.678***<br>0.000<br>82 | 0.501***<br>0.000<br>82 | 0.730***<br>0.000<br>82 | 1<br><br>82            |

*Note.* \*, \*\*, \*\*\* corresponds to significance at 10%, 5% and 1% respectively.

*Note.* PC=Pearson Correlation, Sig.=Sig. 2-tailed)

From Table 40, the correlation matrix reveals that the relationship between the RI and GE (STAR Reading) is a strong positive and statistically significant relationship, indicating that as RI increases, GE (STAR Reading) also increases. Also, most of the variables exhibit strong relationships among one another except for Social Feedback that is not related with RI, GE (STAR Reading), or Lexile (STAR Reading) as they all result with p values greater than 5%. The same can also be reported of Physiological status

which has no significant correlation with respect to GE (STAR Reading) or Lexile (STAR Reading).

### **Summary**

In this study, the researcher sought to answer the following three questions.

1. Is there a statistically significant difference in student reading achievement as a function of gender, ethnicity, and time served in READ 180?
2. Is there a statistically significant difference in student reading self-efficacy as a function of gender, ethnicity, and time served in READ 180?
3. Is there a correlation between reading achievement and reading self-efficacy?

To contextualize this study and to triangulate the data, the researcher analyzed three information sources: RI, STAR Reading, and RSPS2.

When looking at the results of this study, the data analysis suggests that RI and both the STAR Reading: GE scores and the STAR Reading: Lexile scores were statistically significant when investigating reading achievement. Concerning the research question addressing reader self-efficacy, of the four categories examined on RSPS2, the category of Social Feedback was not statistically significant. The categories of progress and Observational Comparison were both statistically significant from the first test administration to the mid-year administration and from the first administration to the end-of-the-year administration. The category of Physiological Status showed a limited amount of significance from only the beginning of the year to the mid-year administrations. Finally, the third research question sought to discover if there was a correlation between reading achievement and reading self-efficacy. The data analysis revealed a strong correlation between the three reading achievement measures used in this study. There were also strong relationships with the two variables of Progress and

Observational Comparison from RSPS2. In the following chapter, the researcher discusses the implications of the findings, limitations and delimitations of this study, and conclusions for future research.

## Chapter 5: Discussion

### Introduction

The South Carolina Chamber of Commerce and the South Carolina Association of School Administrators (SCASA) Superintendent's Roundtable created a profile of the South Carolina graduate, which identified three categories of importance of high school graduates: world-class knowledge, world-class skills, and life and career characteristics. The requirements of the profile feature rigorous standards in language arts, critical thinking skills, and the importance of knowing how to learn (Profile of the South Carolina Graduate, n.d.). However, some middle school students have not mastered basic reading skills from elementary school to be able to rise to these rigorous standards. This study focused on determining whether improving student achievement impacted student reading self-efficacy. Additionally, the researcher sought to discover whether the factors of gender, ethnicity, and time were statistically significant to student achievement and reading self-efficacy. The implications of findings were organized by research question.

### Implication of Findings.

**Research Question 1. Is there a statistically significant difference in student reading achievement as a function of gender, ethnicity, and time served in READ 180?** This study sought to determine whether the RI administrations and STAR administrations were statistically significant towards reading achievement. This study evaluated the effectiveness of three different test administration dates: the beginning of the year, mid-year, and the end of the year. RI was the first assessment analyzed. As shown in Table 14, the data analysis found no statistical significance from the beginning-of-the-year to the mid-year administrations and likewise from the mid-year administration to the end-of-the-year administration. There was, however, statistical

significance found from the beginning-of-the-year to the end-of-the-year administration.

The STAR assessment provided two scores that were evaluated to determine statistical significance. The first was the GE score. The data analysis in Table 18 revealed statistical significance from the beginning-of-the-year administration to the mid-year administration as well as the beginning-of-the-year administration to the end-of-the-year administration. No statistical significance was found from the mid-year administration to the end-of-the-year administration. The second score evaluated was the Lexile score. The data analysis in Table 22 revealed statistical significance from the beginning-of-the-year administration to the mid-year administration as well as the beginning-of-the-year administration to the end-of-the-year administration. No statistical significance was found from the mid-year administration to the end-of-the-year administration due to the  $Q=2.288$ , making the p value less than 0.05.

A MANOVA was run to determine the effect of RI, STAR: GE, and STAR: Lexile on the variables of gender, ethnicity, and time. As shown in Table 23, the data analysis revealed no statistical significance for any of the assessments concerning gender or time. The only statistical significance that was revealed was that of ethnicity and the STAR: GE scores with a significance level of  $0.008 < .05$ .

Diversity was key when comparing the three middle school settings in this study. One school was a rural population of primarily White students. One school was an urban population of predominantly African-American students. Another school was a suburban population with a majority of Hispanic students. Two of the three schools function on a 65-minute block of time, whereas the other is a 90-minute block of time. While growth was recognized across the board for all three schools as the year progressed, the time period differences were not important to the students' achievement levels. Additionally,



both boys and girls were successful with this program. The assessments did not reveal an advantage to one gender. The only statistical significance for any of the specific factors was that of ethnicity and only on the GE portion of the STAR assessment scores.

**Research Question 2. Is there a statistically significant difference in student reading self-efficacy as a function of gender, ethnicity, and time served in READ**

**180?** This study sought to determine whether the administrations of RSPS2 were statistically significant towards reading self-efficacy. This study evaluated the effectiveness of three different test administration dates: the beginning of the year, mid-year, and the end of the year. The data analysis for the RSPS2 administrations were examined based on the four categories of the study: Progress, Observational Comparison, Social Feedback, and Physiological Status.

As shown in Table 29, the area of Progress was deemed statistically significant from the beginning-of-the-year to mid-year administration as well as the beginning-of-the-year to the end-of-the-year administration. The mean comparison of the mid-year administration to the end-of-the-year administration was not found statistically significant with a Q value of 0.370 less than 3.342, when the p value is greater than 0.05. The category of Observational Comparison saw similar results to that of Progress. The test administrations of Observational Comparison were identified as statistically significant in Table 33. The mean comparison of the beginning-of-the-year administration to the mid-year administration and the beginning-of-the-year administration were found statistically significant with the Q of 4.070 and 5.599 respectively being greater than 3.342. The category of Physiological Status identified the mean comparison from the beginning-of-the-year administration to the mid-year as being statistically significant in Table 40 with the Q of 3.601 being greater than 3.342, making the p value less than 0.05. The one-way

ANOVA on Social Feedback identified the p value of 0.0968 in Table 36 as greater than 0.05 level of significance. This made the category of Social Feedback statistically insignificant.

A MANOVA was run to determine the effects of RSPS2 on the variables of gender, ethnicity, and time for reading self-efficacy. As shown in Table 40, the data analysis revealed no statistical significance for any of the assessments concerning gender. The only statistical significance revealed for the dependent variable of Time was in the category of Progress with a statistical significance level of 0.004 which is less than 0.05. The dependent variable of Ethnicity was found statistically significant in both the areas of Social Feedback with a p value of 0.018 and Physiological Status with a p value of 0.015.

**Research Question 3. Is there a correlation between reading achievement and reading self-efficacy?** This study sought to determine if changes in student reading achievement levels associated with how students felt about themselves as readers. The Pearson Correlation revealed statistically significant relationships for RI and STAR variables to the areas of Progress, Observational Comparison, and Physiological Status. The strongest correlations were between RI and Progress and STAR: Lexile and Progress when the p value was greater than 5%. There was no relationship between social feedback and any of the student achievement variables.

### **Recommendations**

The data presented in this study did show a statistical significance in the RI assessment and STAR assessment in terms of student achievement. The data also showed that RSPS2 was statistically significant in specific categories towards reading self-efficacy. Ultimately, there was some correlation between student achievement and reading self-efficacy. The factor of time was only found to be statistically significant

with regard to the progress section of RSPS2. Overall, ethnicity had a statistically limited role in significance, and gender had no significance.

On both the RI and STAR Reading Tukey-Kramer Multiple Comparisons Tests (Tables 14, 18, 22) no significance was found between the mid-year administrations and end-of-year administrations. It is recommended that student scores from sixth grade be analyzed to determine if the same pattern was true. If the findings prove to be similar, it might be valuable to determine if previous READ 180 students experienced the same lack of significance involving the mid-year administration.

While there were correlations found throughout this study, no specific factor could be labeled as a cause for the results because that was not factored into the study. “Correlation does not imply causation” (Bleske-Rechek, Morrison, & Heidtke, 2015, p. 49). Moving forward, the methodology for this study would need to be altered in order to address the factors of causation. In this study, the researcher sought to determine if there was a correlation to the factors of gender, ethnicity, and time. In order to accurately determine causation, only one treatment unit can be assigned at a time (Reiter, 2000). In the case of this study, if causation were to be determined for gender, males or females would need to be the focus. The same would be true for time. If the researcher wanted to prove that 90-minute language arts blocks were the cause for the correlation, that would have to be the focus. However, in studying for individual factors, other limitations and delimitations may influence the results.

This study was conducted over the period of 1 school year. Students are growing and maturing at rapid rates during the middle school years (Wood, 2015). Knowing this, further study is recommended to gather data over a longer period of time, possibly from the beginning of middle school through the end of middle school. Additionally, the

number of participants was limited. It was recommended to include a larger population.

This study focused its attention on the students in three teachers' classrooms. This was strictly a quantitative study, but a mixed-methods study might help to gain a better picture of the students, their reading habits, and their opinions about reading. Personal interviews with the students might help the researcher to gain a better insight into the responses given on the RSPS2 administrations. Additionally, personal interviews with the teachers might help to understand the classroom dynamics, the students, teacher styles, and teacher beliefs in order to develop a comprehensive picture. Teacher interviews would also help to gain insight to anomalies in the data.

One final recommendation would be the inclusion of the ACT Aspire scores. Making sure that students are college and career ready when leaving high school is a focus not only of the district in this study but also the state and country. RI and STAR do not directly determine if a student is college and career ready, but ACT Aspire does provide analysis of how students are progressing towards this goal.

### **Final Conclusions**

The purpose of this study was to determine if improving student achievement in reading through HMH's READ 180 program impacted student reading self-efficacy with an emphasis placed on gender, ethnicity, and the length of time students were exposed to the program. RI and STAR were found to be statistically significant towards reading achievement. Specific factors of RSPS2 were also found to be statistically significant towards reading self-efficacy; however, there was limited correlation identified between reading achievement and reading self-efficacy.

The data from this study reflected positive growth for students in the area of reading achievement, suggesting that READ 180 was beneficial for the participants in

this study. Further examination of data from a longer time period is needed to determine the overall effects on reading achievement. Exposure time showed no statistical significance on reading achievement (Table 23) and was statistically significant only in the area of progress in RSPS2. Of the three schools, only one in this study serves students in the READ 180 program with the validation time set forth by the program. Due to the fact that time was not found to be statistically significant for the participants in this study and students still significantly improved their student achievement levels in reading, the time differences worked for this set of schools and students.

Reading achievement and reading self-efficacy were considered statistically insignificant for gender in all areas (Table 39). Ethnicity was found to be a statistically significant factor in reading achievement with regard to both areas of the STAR Reading assessment (Table 23) as well as the areas of social feedback and physiological status (Table 39). Further study to determine which ethnic groups showed statistical significance might assist teachers in helping students achieve more in reading and feel better about themselves as readers. While these factors were determined statistically significant, there was no correlation with regard to reading achievement and reading self-efficacy for the factor of ethnicity.

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## Appendix A

### Reader Self-Perception Scale 2 (RSPS2)

## The Reader Self-Perception Scale 2

Listed below are statements about reading. Please read each statement carefully. Then circle the letters that show how much you agree or disagree with the statement. Use the following key.

SA=Strongly Agree  
A=Agree  
U=Undecided  
D=Disagree  
SD=Strongly Disagree

Example: **I think pizza with pepperoni is the best kind.**

If you are *really positive* that pepperoni pizza is the best, circle SA (Strongly Agree).

If you *think* that it's good, but maybe not best, circle A (Agree).

If you *can't decide* whether or not it's best, circle U (Undecided).

If you *think* that pepperoni pizza is not all that good, circle D (Disagree).

If you are *really positive* that pepperoni pizza is not very good, circle SD (Strongly Disagree).

---

|    |   |    |   |   |   |    |
|----|---|----|---|---|---|----|
| 1  | Reading is a pleasant activity for me.                                  | SA | A | U | D | SD |
| 2  | I read better now than I could before.                                  | SA | A | U | D | SD |
| 3  | I can handle more challenging reading materials than I could before.    | SA | A | U | D | SD |
| 4  | Other students think I'm a good reader.                                 | SA | A | U | D | SD |
| 5  | I need less help than other students when I read.                       | SA | A | U | D | SD |
| 6  | I feel comfortable when I read.   | SA | A | U | D | SD |
| 7  | When I read, I don't have to try as hard to understand as I used to do. | SA | A | U | D | SD |
| 8  | My classmates like to listen to the way that I read.                    | SA | A | U | D | SD |
| 9  | I am getting better at reading.   | SA | A | U | D | SD |
| 10 | When I read, I can figure out words better than other students.         | SA | A | U | D | SD |
| 11 | My teachers think I am a good reader.                                   | SA | A | U | D | SD |
| 12 | I read better than other students in my classes.                        | SA | A | U | D | SD |
| 13 | My reading comprehension level is higher than other students.           | SA | A | U | D | SD |
| 14 | I feel calm when I read.  | SA | A | U | D | SD |
| 15 | I read faster than other students.                                      | SA | A | U | D | SD |
| 16 | My teachers think that I try my best when I read.                       | SA | A | U | D | SD |



|    |  |    |   |   |   |    |
|----|--|----|---|---|---|----|
| 17 | Reading tends to make me feel calm.  | SA | A | U | D | SD |
| 18 | I understand what I read better than I could before.                                       | SA | A | U | D | SD |
| 19 | I can understand difficult reading materials better than before.                           | SA | A | U | D | SD |
| 20 | When I read, I can handle difficult ideas better than my classmates.                       | SA | A | U | D | SD |
| 21 | When I read, I recognize more words than before.   | SA | A | U | D | SD |
| 22 | I enjoy how I feel when I read.  | SA | A | U | D | SD |
| 23 | I feel proud inside when I think about how well I read.                                    | SA | A | U | D | SD |
| 24 | I have improved on assignments and tests that involve reading.                             | SA | A | U | D | SD |
| 25 | I think that I'm a good reader.  | SA | A | U | D | SD |
| 26 | I feel good inside when I read.  | SA | A | U | D | SD |
| 27 | When I read, my understanding of important vocabulary words is better than other students. | SA | A | U | D | SD |
| 28 | People in my family like to listen to me read.   | SA | A | U | D | SD |
| 29 | My classmates think that I read pretty well.   | SA | A | U | D | SD |
| 30 | Reading makes me feel good.  | SA | A | U | D | SD |
| 31 | I can figure out hard words better than I could before.                                    | SA | A | U | D | SD |
| 32 | I think reading can be relaxing.   | SA | A | U | D | SD |
| 33 | I can concentrate more when I read than I could before.                                    | SA | A | U | D | SD |
| 34 | Reading makes me feel happy inside.  | SA | A | U | D | SD |
| 35 | When I read, I need less help than I used to.  | SA | A | U | D | SD |
| 36 | I can tell that my teachers like to listen to me read.                                     | SA | A | U | D | SD |
| 37 | I seem to know the meanings of more words than other students when I read.                 | SA | A | U | D | SD |
| 38 | I read faster than I could before.   | SA | A | U | D | SD |
| 39 | Reading is easier for me than it used to be.   | SA | A | U | D | SD |
| 40 | My teachers think that I do a good job of interpreting what I read.                        | SA | A | U | D | SD |
| 41 | My understanding of difficult reading materials has improved.                              | SA | A | U | D | SD |
| 42 | I feel good about my ability to read.  | SA | A | U | D | SD |
| 43 | I am more confident in my reading than other students.                                     | SA | A | U | D | SD |
| 44 | Deep down, I like to read.   | SA | A | U | D | SD |
| 45 | I can analyze what I read better than before.  | SA | A | U | D | SD |
| 46 | My teachers think that my reading is fine.   | SA | A | U | D | SD |
| 47 | Vocabulary words are easier for me to understand when I read now.                          | SA | A | U | D | SD |

Appendix B  
District Consent

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SUPERINTENDENT

TELEPHONE  
FAX

May 13, 2016

Ms. Amanda Cox

Dear Ms. Cox,

I have received your request to use student testing information in your research as you complete your dissertation for your doctorate degree through Gardner Webb University. You have my permission to use this information with the understanding that confidentiality will be maintained throughout your study. The names or identifying information of the students, school and school district must remain anonymous.

Best of luck as you complete your dissertation and doctorate degree!

Sincerely,

Superintendent

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## Appendix C

### Parental Opt-Out Letter

Dear Parents of a Read 180 Student,

My name is Amanda Cox. I have been a school librarian in [REDACTED] for 4 years. Prior to moving to [REDACTED], I was a school librarian in another [REDACTED] district for 3 years, where I also served as a classroom teacher for 8 years, making my time as an educator 15 years. I am a doctoral candidate in the College of Education at Gardner-Webb University in Boiling Springs, North Carolina. I am conducting my research on 7<sup>th</sup> grade middle school students participating in the Read 180 program. As a parent of a student enrolled in the Read 180 program, your child is eligible to participate in my study. I would like to use your child's SRI test and STAR READING test results as well as the results from a self-efficacy survey (a survey about how your child feels about his/her reading abilities).

All of the information I obtain concerning your child will be kept confidential. Your child's name will not be used on any of the reports obtained from tests or surveys. The middle school your child attends will never be associated with your child's name or mentioned by name. Nothing will be mentioned about [REDACTED] by name. No information specifically identifying your child will be included in this study. I will have no direct interaction with your child concerning this study.

The information collected from this study will be used in my dissertation which will be in a professional publication so that other educators may learn more about Read 180's impact on student achievement and reading self-efficacy. Once again, individual student information, teacher information, school information, and district information will remain anonymous.

The Superintendent of [REDACTED], Dr. [REDACTED], and the Assistant Superintendent of Instruction for [REDACTED], Dr. [REDACTED], have approved my study. Dr. [REDACTED] will read over my final dissertation to assure that no student, teacher, school, or district names were used in my study.

Please allow your child's data to be used in this important research concerning reading achievement and reading self-efficacy. If you have any questions or concern about the research, please feel free to contact me by email at [REDACTED] or by phone at [REDACTED].

If you do not wish for your child's data to be used in this study, please return the attached form.

Thank you,

Amanda M. Cox

[REDACTED]  
Doctoral Candidate

## Parental Out-Out Form

I have reviewed the letter concerning the use of my child's data for this READ 180 study.  
I do not give permission for my child's data to be used in this study.

---

Name of Student

---

Date

---

Printed Name of Parent

---

Signature of Parent

If this form is not returned to [REDACTED] by Tuesday, June 7, 2016,  
your child's data will be included in the study.

## Appendix D

### Reader Self-Perception Scale 2 (RSPS2) Scoring Sheet

## The Reader Self-Perception Scale 2 Scoring Sheet

Student Name: \_\_\_\_\_

Teacher: \_\_\_\_\_

Grade: \_\_\_\_\_ Date: \_\_\_\_\_

### Scoring Key:

5=Strongly Agree (SA)

4=Agree (A)

3=Undecided (U)

2=Disagree (D)

1=Strongly Disagree (DS)

| Progress  | Observational<br>Comparison | Social Feedback | Physiological<br>Status |
|-----------|-----------------------------|-----------------|-------------------------|
| 2. _____  | 5. _____                    | 4. _____        | 1. _____                |
| 3. _____  | 10. _____                   | 8. _____        | 6. _____                |
| 7. _____  | 12. _____                   | 11. _____       | 14. _____               |
| 9. _____  | 13. _____                   | 16. _____       | 17. _____               |
| 18. _____ | 15. _____                   | 28. _____       | 22. _____               |
| 19. _____ | 20. _____                   | 29. _____       | 23. _____               |
| 21. _____ | 27. _____                   | 36. _____       | 26. _____               |
| 24. _____ | 37. _____                   | 40. _____       | 30. _____               |
| 31. _____ | 43. _____                   | 46. _____       | 32. _____               |
| 33. _____ |                             |                 | 34. _____               |
| 35. _____ |                             |                 | 42. _____               |
| 38. _____ |                             |                 | 44. _____               |
| 39. _____ |                             |                 |                         |
| 41. _____ |                             |                 |                         |
| 45. _____ |                             |                 |                         |
| 47. _____ |                             |                 |                         |

Raw Score: \_\_\_\_\_ of 80    \_\_\_\_\_ of 45    \_\_\_\_\_ of 45    \_\_\_\_\_ of 60

Percentile \_\_\_\_\_

High      74+              39+              35+              50+

Above

Average    66-73              34-38              31-34              44-49

Average    60-65              28-33              28-30              35-43

Low          48-              28-              27-              34