4-1-2018

# The Effects of Targeted Intervention on Low-Income Urban Students' Reading Achievement

Raye Wood
jeffandraye@yahoo.com

4-2018

# The Effects of Targeted Intervention on Low-Income Urban Students' Reading Achievement

Raye Wood

Concordia University (Portland)

College of Education

Doctor of Education Program

WE, THE UNDERSIGNED MEMBERS OF THE DISSERTATION COMMITTEE

CERTIFY THAT WE HAVE READ AND APPROVE THE DISSERTATION OF

Raye Lynne Wood

CANDIDATE FOR THE DEGREE OF DOCTOR OF EDUCATION

Brandy Kamm, Ph.D., Faculty Chair Dissertation Committee

Drew Hinds, Ed.D., Content Specialist

Michael Hollis, Ph.D., Content Reader

ACCEPTED BY

Joe Mannion, Ed.D.
Provost, Concordia University, Portland

Sheryl Reinisch, Ed.D.
Dean, College of Education, Concordia University, Portland

Marty Bullis, Ph.D.
Director of Doctoral Studies, Concordia University, Portland

# The Effects of Targeted Intervention on Low-Income Urban Students' Reading Achievement

Raye L. Wood

Concordia University-Portland

College of Education

Dissertation submitted to the Faculty of the College of Education

in partial fulfillment of the requirements for the degree of

Doctor of Education in Teacher Leadership

Brandy Kamm, Ph.D., Faculty Chair Dissertation Committee

Drew Hinds, Ed.D., Content Specialist

Michael Hollis, Ph.D., Content Reader

Concordia University Portland

2018

## Abstract

Today's students are tasked with taking and passing standardized tests each year. Recent tests show that only 36% of the nation's fourth-grade students are reading at or above proficiency level (Nations Report Card, 2017). Self-regulation strategies, strategies that help students monitor, plan, and make adjustments to their learning during a learning cycle, have been shown to increase student learning outcomes. This quasi-experimental study examines whether the implementation of an intervention in self-regulation has an impact on student reading achievement. In this study, an experiential group of students participated in a 13-week intervention that taught strategies for monitoring learning and progress toward goals. Student test scores from the Northwest Evaluation Association (NWEA) were used for the pre- and post-tests to measure reading achievement growth. Findings from this study revealed no statistically significant relationship between participation in the intervention and student achievement. However, students who participated in the intervention did show more growth than their peers and showed more self-monitoring behaviors at the conclusion of the intervention. Further research should be conducted to determine the long-term effects of this type of intervention on low-income students.



*Keywords:* self-regulation, reading achievement, low-income students

**Acknowledgements**

First and foremost, I need to thank God for allowing me to be the tenacious person that I am. My faith in You has grown ten-fold throughout this journey. I have felt You sitting beside me and helping me push through. Thank You for saving me.

I would be remiss without giving huge kudos to Emily, Bree, and Jillian for being the best supports a mom could ask for. Your grace and understanding when school has pulled me away so many times has not gone unnoticed. I hope you realize you can do anything you put your mind to! To my amazing husband, thank you for holding me up and always helping me reach for the stars.

To my DocVox crew, I would not be here today without all your support and encouragement. I am so thankful for all your stories and cheers over the years. They have truly helped me keep going at times.

I want to thank my fabulous Faculty Chair, Dr. Kamm, for her continual support and encouragement, especially in these final weeks. You are a true gem, Dr. Kamm, and I am a better person because of you.

To my committee members, Dr. Hollis and Dr. Hinds, thank you for pushing me and helping me to see the bigger picture. You are truly appreciated.

Finally, a special thank you to Dr. Angela Owusu-Ansah for her support in verifying and analyzing the statistical tests for this study. Your help and well wishes are vastly appreciated.

## Table of Contents


Abstract ..... iii

Acknowledgements ..... iv

List of Tables ..... ix

List of Figures ..... x

Chapter 1: Introduction ..... 11

Background Context: History ..... 11

Statement of the Problem ..... 12

Purpose of the Study ..... 13

Research Questions ..... 13

Relevance and Significance of Study ..... 14

Definition of Terms ..... 15

Assumptions, Delimitations, and Limitations ..... 15

Summary ..... 16

Chapter 2: Literature Review ..... 17

Conceptual Framework ..... 19

Professional Bias ..... 21

Review of Literature ..... 21

Self-Regulated Learning ..... 26

Formative and Summative Assessments ..... 28

Metacognition ..... 31

Student Motivation ..... 32

Self-Efficacy ..... 34

Methodological Issues ..... 34
Surveys. ..... 35
Meta-Analysis. ..... 36
Case Studies and Practitioner Research. ..... 38
Control Groups ..... 39
Synthesis of Research ..... 41
Teacher versus Student Control. ..... 41
Teacher Feedback. ..... 41
Formative Assessment. ..... 42
Academic Risk. ..... 42
Use of Interventions to Increase Academic Achievement. ..... 43
Response to Intervention ..... 43
21st Century Skills. ..... 44
Critique of Previous Research ..... 44
Summary ..... 45
Chapter 3: The Methodology ..... 46
Target Population ..... 46
Purpose of the Study ..... 48
Research Questions and Hypotheses ..... 49
Research Design ..... 50
Target Population, Sampling Method (Power), and Related Procedures ..... 51
Sample ..... 51
Sampling method. ..... 52

Related procedures. ..... 52
Instrumentation ..... 54
Data Collection ..... 54
Operationalization of Variables ..... 55
Data Analysis Procedures ..... 56
Limitations and Delimitations of the Research Design ..... 56
Internal and External Validity ..... 57
Expected Findings ..... 57
Ethical Issues in the Study ..... 58
Chapter 3 Summary ..... 58
Chapter 4: Data Analysis and Results ..... 59
Description of the Sample ..... 60
Summary of the Results ..... 61
Detailed Analysis ..... 62
Chapter 4 Summary ..... 64
Chapter 5: Discussion and Conclusion ..... 66
Summary of the Results ..... 67
Discussion of the Results ..... 69
Discussion of the Results in Relation to the Literature ..... 72
Limitations ..... 75
Implication of the Results for Practice ..... 75
Recommendations for Further Research ..... 77
Conclusion ..... 78

References ..... 80

Appendix: Statement of Original Work ..... 87

## List of Tables

Table 1 Mean and Standard Deviations for the Effects of Self-Regulation and ELL Status on Reading Achievement…….64

## List of Figures

Figure 1 Triadic Reciprocality of Self-Regulation……...20

Figure 2 The Difference in the Average Growth of Reading Scores Between the Comparative and Experiential Groups……63

## Chapter 1: Introduction

In today's educational climate with a focus on student performance and academic success, there is a need for students to be self-aware and to work toward educational goals. Today's students are asked to plan, organize, and monitor their work throughout a project or learning cycle to master skills and objectives. Students who successfully plan, organize, and monitor their learning are said to be strong self-regulators or have strong executive function skills.

### Background Context: History

Within the social cognitive theory, Bandura (1991) noted that "human behavior is extensively motivated and regulated by the ongoing exercise of self-influence" (p. 248). In later research, Bandura (2007) suggested that self-regulators "adopt personal standards and monitor and regulate their actions by self-reactive influence" (p. 9). Over time, self-regulatory processes such as self-monitoring, keeping track of one's progress toward a learning goal, as well as self-reflection, the process of looking back over the processes taken to determine what is working and what is not, have been increasingly necessary to promote achievement in students. Elementary-aged children are influenced by feedback from teachers and parents but may be deficient in self-monitoring skills. The self-monitoring skills are part of what are known as executive functioning processes. Executive function processes include "planning, organizing, accessing working memory, shifting approaches flexibly, and self-checking" (Meltzer, 2010, p. xii). Student planning, organizing, and assessing occur in elementary classrooms through a process of setting and working toward educational goals with support from the teacher.

These executive function processes are at the heart of self-regulation skills. Students need to be aware of the self in a way that allows them to determine if a strategy they are using to

read is not only appropriate but also effective. Students with learning difficulties may experience a higher-than-normal deficiency in the development of these processes. If students are going to have smooth transitions from elementary school through the middle school grades and into high school, they need to be able to monitor their learning behaviors as well as the strategies they are using to solve problems or tackle specific types of reading tasks. The National Assessment of Education Progress (NAEP) test results from the 2015 administration showed 34% of eighth graders were performing at or above the proficient level in the reading test (Nations Report Card, 2017). This data shows that well over half of students are going to their first year of high school without having proficient reading skills.

The need for well-designed instruction in teaching students to monitor their own progress and goals in reading begins at the elementary level. Many states are adopting, or are considering adopting, retention of students who are unable to show proficiency in reading by the end of the third grade (National Conference of State Legislatures, 2017). The trend toward requiring retention makes it vital to determine if the teaching of reading-specific self-regulatory processes (i.e., planning, looking at the long-range outcomes of a learning unit or determining the amount of time needed to complete a task) will aide students in reaching the goal of achieving grade-level reading proficiency.

**Statement of the Problem**

In American educational systems, beginning with the No Child Left Behind Act of 2001, an emphasis was placed upon students in Grades 3 through 8 being able to take and pass standardized tests in reading and math. With the shift to these tests, it has been found that many students have difficulty with processing information they should be learning from expository texts (Mason, 2013). The NAEP test shows only 36% of fourth graders are reading at or above

the proficient level in 2015, and there was no significant change in the fourth-grade scores compared to the 2013 administration of the test (Nations Report Card, 2017). The lack of progress in the national standardized testing coupled with students' inability to make sense of and appropriately transfer learning from expository texts demonstrates a need for a closer look at the self-regulatory and metacognitive processes students are using as they read and process learning concepts.

**Purpose of the Study**

The purpose of the study was to determine whether teaching students how to self-regulate and monitor their learning had a positive impact upon their reading achievement. Bandura (1991) suggested that self-regulation systems are at the center of a system that relies upon past input to determine output. The researcher wanted to ascertain whether elementary-aged students can be taught how to self-regulate through a series of lessons designed to teach executive function skills. If the lessons are embedded within the learning environment in a literacy classroom, students should become better at understanding how they learn and how to use specific strategies and skills to support them in their learning, rather than giving up if they do not understand.

**Research Questions**

The researcher wanted to determine if there is any relationship between teaching self-regulation strategies and students' reading achievement. The overarching question for the study was the following: How does targeted teaching of self-regulation strategies impact the reading achievement of low-income urban students?

1. To what extent, if any, is there a statistically significant difference in reading achievement between students taught with and without an intervention in self-regulation?
2. What are the effects of intervention in self-regulation and students' status as ELL on their reading growth?

$H1_0$ There is no statistically significant difference in reading achievement between students taught with and without an intervention in self-regulation.

$H1_1$ There is a statistically significant difference in reading achievement between students taught with and without an intervention in self-regulation.

$H2_0$ The intervention in self-regulation and students' status as ELL has no effect on their reading growth.

$H2_1$ The intervention in self-regulation and students' status as ELL has an effect on their reading growth.

**Relevance and Significance of Study**

This study is significant because there is a lack of research showing whether elementary students can be explicitly taught to self-monitor and regulate their reading behaviors. Throughout the literature review, the emphasis is on high school or college-level students with little research done with elementary-age students. Students at the higher levels of education are shown to benefit from teachings in self-regulation strategies. Elementary-aged students who learn to self-regulate should be able to carry these behaviors forward to the secondary and tertiary school levels, yet there are few studies conducted with this age group. This study was conducted to serve as a pilot for a short-term intervention of strategies to teach students to better

monitor and plan as they read. The study benefits the research literature by showing whether there is a statistically significant relationship between the intervention and reading achievement.

## Definition of Terms

**Self-regulation**. This term is defined as the ability to plan, monitor, and assess a use of strategies.

**Executive function**. This term is defined as the set of skills that allows a person to plan, organize, be flexible, and self-check.

**Social cognitive theory**. This term is defined as the theory that suggests behaviors are swayed by multiple influences.

## Assumptions, Delimitations, and Limitations

In considering the outcome of an intervention in self-regulation skills, there are several assumptions that were made prior to the implementation of the study. It was assumed that if a teacher was provided with a set of lesson plans in self-regulation strategies, the lessons would be taught with fidelity and reinforced throughout the length of the intervention cycle. It was also assumed that an intervention in self-regulatory or executive function skills would have a positive impact upon the reading achievement of elementary students.

For this quasi-experimental design, only one school was studied for the effects of an intervention in executive functioning skills. Due to the small size of the research population, which is restricted to fifth grade, the study may provide a limited view of whether an intervention in self-regulation skills is effective in promoting growth in reading achievement for students in a Title 1 school.

The scope of the study focused on a low-income urban classroom of fifth graders over the course of a semester of instruction. The focus was upon teaching skills and strategies to students

to aide in their reading to determine if there is any positive influence on their overall achievement. The study was limited to fifth graders because they have shown an ever-widening difference in reading and math achievement over a 5-year period.

**Summary**

The focus of the study was to determine whether low-income urban students could be taught how to take control of their reading progress. This population was selected for this study because these students have historically shown a greater deficit in reading achievement compared to mathematics over the course of a school year. Data from the target school have shown that fifth graders had an increase in the difference between reading and math achievement over a 5-year period. District-wide data have shown this school to have a higher discrepancy overall in reading and math achievement at the elementary level compared to other K-5 schools with similar demographics. Self-regulation theory suggests that people are hard-wired into desiring to be productive and successful. More than half of American children are entering high school without showing proficiency in grade-level reading. This study was conducted to determine whether a group of children can utilize a set of strategies to make them more self-aware and metacognitive during reading and whether the use of those strategies impacts overall reading achievement.

## Chapter 2: Literature Review

This study was conducted to understand the impact of an intervention in self-regulation skills on student achievement in a low-income urban school. Self-regulation refers to a person's ability to analyze what a given task requires him or her to do, develop goals toward the completion of the assigned task, monitor his or her own progress toward that goal, reflect upon what he or she has learned, and plan for a new goal moving forward (Zimmerman, 1989; Hill, 2013; Garrido-Vargas, 2012). It is likely that the students in this low-income urban school were suffering from a lack of skill in self-regulation when it comes to achievement in reading because their growth in math was significantly higher each year over a 5-year period (Grand Rapids Public Schools, 2017). Achievement in reading is defined as making the equivalent of one year's growth from the fall to the spring based upon diagnostic testing data (Northwest Evaluation Association, 2004).

Students in Title 1 schools are classified as "at-risk" if they meet specific criteria (Michigan Department of Education, 2016). Students can be classified as "at-risk" for a variety of reasons, including having a teenage parent, having a family history of school failure (i.e., parents or siblings who have dropped out), having a high absentee rate, qualifying for free or reduced-price meals, or having a first language that is not English. Students in this school are eligible for free or reduced breakfast or lunch, and a large percentage of the students are "at-risk" due to their status as English Language Learners. In a survey conducted with a partnering agency during the 2015–2016 school year, 80% of the parents in the school self-identified as having between a second- and sixth-grade education, which further put the students at risk for academic success with little educational support at home (leadership coach, personal communication, January 2016). Under Title 1 qualifications, students are deemed to be less

likely to succeed in school and are thus considered "at risk for academic success" if they meet multiple criteria on the Title 1 Identification Criteria Chart (Michigan Department of Education, 2016). The target school is classified as a Title 1 school because all students meet two or more criteria on the State of Michigan Title 1 criteria list. This classification suggests the students are more likely to struggle academically, fall behind same-age peers who do not have the same risk factors, and are less likely to self-regulate their behavior.

Students who can self-regulate are able to control their thought processes to plan, organize and execute tasks (Zimmerman, 1989). With respect to mathematical tasks at the elementary level, students may be having an easier time regulating themselves due to the availability of tools to assist with mathematical computations (i.e., ten frames and base-10 blocks). Students do not have access to the same types of tools that support literacy learning in the same way that mathematical tools do. Learning to read and applying reading comprehension strategies require mental work without the support of hands-on items to help students process the work. Mason (2013) noted that "inattention to teaching students how to read and write about expository material has serious implications for low-achieving students" (p. 125). If students are struggling more with reading, it may be because they have not been taught how to think about reading or provided with explicit instruction on how to navigate expository texts (Mason, 2013).

Multiple years of achievement data, as measured by Northwest Evaluation Association's (NWEA) Measures of Academic Progress (MAP) test, showed that fifth-grade students in the target school were not achieving the same growth rates in reading as they were in math. The MAP test is a computerized, adaptive test that measures student growth based on where the student begins the year. As a student tests, the program adapts based on their answers, going to lower grade levels if the student is struggling or higher grade level material if the student is

doing well. The MAP test is administered three times per year to all students in Grades kindergarten through 8 in the target district. The NWEA reports that there are multiple test-retest cycles that occur, which allow the reliability of the test to remain fairly constant with a correlation coefficient of .8 in most grades (Northwest Evaluation Association, 2004). This is a test all students in the district know and are familiar with, having taken it every year since they began school. Almost all grades in the target school showed a large deficit between their yearly growth in reading and their yearly growth in mathematics achievement over the course of a school year. Kindergarten, second grade, and fifth grade had the highest yearly differences in scores between reading and math, with kindergarten and second grade averaging a 7-point difference and fifth grade averaging a difference of 4.5 points.

**Conceptual Framework**

The conceptual framework for this research is grounded in self-regulation theory, which has roots in social cognitive theory. Social cognitive theory suggests that people have a sense of personal awareness that includes self-efficacy and a perception of their behaviors (Garrido-Vargas, 2012). Bandura (2007) noted that social cognitive theory provides an "agentic perspective to self-development" (p. 9). This means that a person willfully sways his or her performance and life situation. Self-regulation theory fits into the social cognitive theory framework because theorists believe that self-regulation is made up of three influences, only one of which is personal. Zimmerman (1989) discussed a concept called triadic reciprocality. This concept assumes "reciprocal causation among three influence processes" (p. 330). The concept of triadic reciprocality focuses on three influences: personal, environmental, and behavioral.

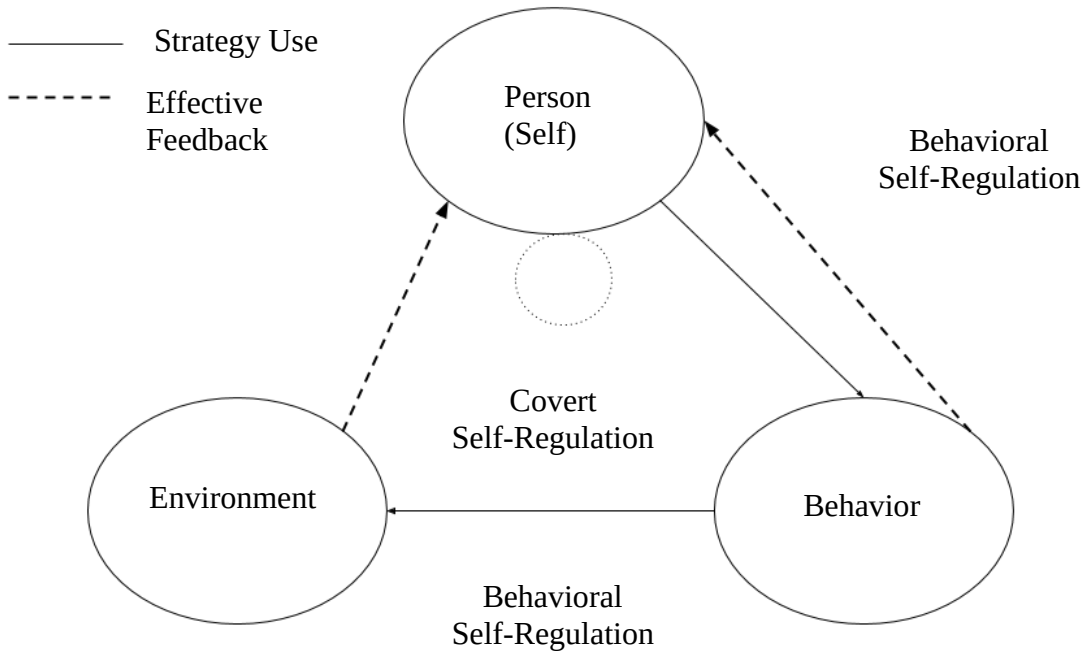


*Figure 1.* Triadic reciprocality of self-regulation. Adapted from Zimmerman, 1989.

These influences are, according to theories of social cognition, essential to understanding how a person can regulate his or her learning behaviors (see Figure 1).

The triadic reciprocality shifts in multiple ways. The environment can influence the person or self, which subsequently influences the behavior exhibited by the person. Behavior can also influence the environment in terms of who else is affected by a specific behavior. Zimmerman (1989) cautioned that this model is not fluid from one influence to another; each triad continually interacts with each other in a back-and-forth pattern that can have a direct impact upon the self-regulation a person exhibits.

Self-regulation in this research study focuses on a student's ability to make plans, analyze the work he or she is assigned, and monitor the progress being made toward a specific goal or learning target. The concept of the triadic reciprocality is important as a foundation to

understand that students are influenced not only by their own motivations but also what is occurring around them (the teaching of strategies for example) and the behaviors they exhibit based upon feedback from peers or teachers.

**Professional Bias**

The conceptual framework for this dissertation is derived from a professional need to see students achieve at their highest potential. Throughout my career in an urban school district, I have noted that students are not always reaching their individual full potential. As an elementary school educator, it is of utmost importance to me that my students know how to regulate and monitor their own success in learning. Most of my students are second-language learners with parents whose first language is Spanish rather than English. There is a personal interest in ensuring that students are achieving at a higher level in reading so they can be successful in future schooling and careers. Many of these students' parents are illiterate in their native language and thus do not know how to best support their students in English literacy learning (learning support coach, personal communication, January 2016). Reading books at home and working together on literacy concepts are not common occurrences that happen in the homes of most of my urban students.

**Review of Literature**

Self-regulation allows individuals to analyze the assignment or job they are being asked to do, develop goals toward completion of the assignment, monitor progress toward the goal, reflect upon their learning, and plan for a new goal moving forward (Zimmerman, 1989; Hill, 2013; Garrido-Vargas, 2012). Fourth- and fifth-grade students were the target of the study completed by Hill (2013), which demonstrated the feasibility of working with upper-elementary students to teach executive functioning, or self-regulatory, skills. The ability to self-regulate is

necessary for students to understand not only the task they are being asked to complete but also to know how to monitor the learning process toward the completion of the task. Students who can self-regulate will ask for help or seek other resources if they are stuck compared to the alternative of just giving up and not completing the task at all. Hill (2013) noted there are three distinct components of self-regulation: competence, relatedness, and autonomy (p. 27). The notion of competence suggests the student is capable of completing the task. Relatedness signifies the feelings of safety and security in the learning environment. If students feel enough trust and safety within a classroom environment to take risks and make mistakes, they are more likely to participate in tasks independently. Autonomy suggests students are in control of themselves. They are given the opportunity to take risks and guide themselves through learning tasks with choices that best suit their learning needs and style rather than a prescribed one-size-fits-all learning platform. Students who possess these traits of self-regulation are more likely to engage with the learning process in a positive way and therefore achieve at a higher rate of growth than a student who does not feel safe or as if he or she has choices in his or her learning. The possession of these traits is extremely important to reading achievement at the elementary level, as students need to be able to make connections between what they do not yet understand and the learning outcomes they have to meet to successfully pass the grade (Hill, 2013).

Garrido-Vargas (2012) noted that there are specific characteristics of self-regulated learners. Students who can self-regulate are able to set goals and evaluate progress toward those goals. Another important piece of self-regulation is using the feedback provided by a teacher to develop a plan to continue to move forward toward achievement of the goal. When students can set goals, speak with a teacher about their progress, and make shifts in their learning path toward meeting the goal, the students are much more likely to begin to monitor themselves without

support. There is a need for focus on specific and actionable feedback from the teacher to the student as the student moves forward in the learning process. Focused and actionable feedback allows students to adjust their path during the learning process to correct errors and misconceptions rather than waiting until the end of the learning cycle when students may learn they have done an entire project or task incorrectly. Students learn to self-regulate and monitor their own learning through the focused feedback from the teacher with action steps to take to correct errors.

Bandura (1991) noted that "most human behavior . . . is regulated by forethought" (p. 248). When humans regulate their behavior, they can motivate themselves and determine their next course of action based upon those regulation strategies. Adams and Forsyth (2013) said that "self-regulated beliefs and behaviors are not fixed traits" (p. 8). It should be noted that people are born with the desire to grow, learn, and be better. Adams and Forsyth (2013) asserted the practices teachers use "have both immediate and long-term consequences for how students monitor and regulate their academic behavior" (p. 8). The moves teachers make can and do have an impact if students are able to regulate themselves academically. When teachers provide actionable feedback throughout the learning cycle, students learn to monitor themselves for consistent mistakes. This self-monitoring is critical for reading achievement because students may inadvertently be using strategies incorrectly or selecting the wrong strategy for the task they are given. If students only receive corrective feedback at the end of the learning cycle, the students will not know how to monitor their own processes throughout the learning cycle and may shut down and feel that there is no point in trying because they will just get it all wrong anyway. By providing the ongoing cycle of learning and feedback in a circular fashion, students will be better able to select appropriate strategies during reading tasks as well as be able to

monitor their use of the strategies to determine if they are actually being effective (Adams & Forsyth, 2013).

Students need to feel a sense of control and interest in their learning. Adams, Forsyth, Dollarhide, Miskell, and Ware (2015) suggested that the way schools are organized can help or hinder students' abilities to do well in an academic setting. The organizational structure of a school may, in fact, be so controlling that students do not self-regulate because someone else is always telling them what they should be doing. This phenomenon results in students not knowing how to monitor their own learning processes or why they should be active in monitoring their learning. Adams et al. (2015) also asserted that when schools control what students can and should be doing, there may be a lack of trust, which "signals a climate where students cannot be counted on to control their behavior without some identified contingency" (p. 4). This focus of control on the teacher's end could actually be stunting the students' ability to determine the next step they need to take in a reading task, putting the focus upon what the teacher wants and expects the student to do rather than allowing students to determine what their next step may be.

Self-regulation theory is founded upon the notion that people can take control of their own behavior and monitor their own learning. Bandura (1991) noted that "people possess self-reflective and self-reactive capabilities that enable them to exercise some control over their thoughts, feelings, motivation, and actions" (p. 249). In other words, people are born with the desire to take care of themselves and be independent. If teachers and school systems mandate every move students make, the students will have no reason to self-regulate. Le and Wolfe (2013) claimed that the schools that are best serving low-income students who are having difficulty in school are paying "explicit attention to developing their ability to self-regulate" (p.

34). The schools they studied use targeted and explicit instruction in strategies to help students in many areas including academics, behavior, and attendance. Those schools recognize that the structure of the learning environment needs to support helping students learn to self-regulate rather than having teachers dictate what students should be doing at all times.

Gonzalez-DeHass and Willems (2016) claimed "students of all ages . . . can acquire strategic competence and self-regulation strategies" (p. 295). Teachers cannot assume that students will automatically know how to regulate their own learning without specific and strategic instruction in these strategies. If teachers are going to teach strategies to their students in the hope that students use the strategies effectively, the teachers need to also be highly educated in the strategy's use. Gonzalez-DeHass and Willems (2016) asserted that "effective teacher-led instruction is undoubtedly a critical component to helping students master learning strategy usage" (p. 297). While Adams and Forsyth (2013) made the point that people are born wanting to grow and become better, the ability to know how to learn and grow is not innate. Teaching students how to be effective at self-regulating is something that many schools are likely not doing and students are therefore falling through the cracks and not achieving their highest potential.

Heller and Marchant (2015) noted that students who are now showing high academic potential and do not possess strong learning skills are at a much higher risk of failure (p. 809). I see this phenomenon with the elementary students I serve. These children are bright and have incredible potential, but they are not achieving this potential. More than likely, they are not achieving this potential because they are overly supported by teachers who may not realize they are hindering students' abilities to self-regulate because they do everything for the students. There is a need to focus on teaching these students how to self-regulate and what that means to

determine if their potential can be attained through specific strategies that will help them to monitor their own learning processes.

Self-regulation theory suggests that people can control their own thoughts and behaviors regarding personal management (Bandura, 1991). Self-regulation theory is at the heart of self-regulated learning (SRL); the theory is grounded in social cognition. Bandura (1991) posited that there are three sub-functions to self-regulation: self-monitoring, self-diagnostic, and self-motivating functions. To create change, people must be able to self-monitor. Bandura (1991) asserted that specific aspects of functioning are monitored based upon personal beliefs in oneself as well as thinking structures that already exist for each individual. As people learn how to monitor themselves, by setting goals and reflecting upon the progress toward those goals, they may be able to notice patterns of their behavior. As people notice trends in their behaviors and thoughts, they can "gain understanding of how their thinking affects their emotional states, level of motivation, and performance" (Bandura, 1991, p. 251). Diagnostic understandings lead to the self-motivation functions of setting goals and monitoring progress toward those goals. These functions of goals setting and progress monitoring are important components of self-regulation theory that lead to SRL.

**Self-Regulated Learning**

A significant part of self-regulation theory is the concept of Self-Regulated Learning (SRL. Self-regulated learning can be defined as "the combination of knowledge, motivation, and autonomy to accomplish goals" (Garrido-Vargas, 2012, p. 13). Griffith, Steelman, Wildman, LeNoble, and Zhou (2016) defined self-regulation as "the inhibition or activation of affective, behavioural and cognitive processes" which "allows the learner to focus attention, reflect and achieve goals" (p. 2). Jarvenoja, Jarvela, and Malmberg (2015) identified self-regulation as

being necessary to complete tasks on time, multi-task, or even control or monitor feelings, such as being frustrated. Self-regulated-learning falls under the control theory of self-regulation (Beeftink, van Eerde, Rutte, & Bertrand, 2012). Under this control theory, the researchers found that "task pursuit requires keeping track of task progress through repeated cycles of feedback loops" (p. 72). These feedback loops provide constant monitoring, evaluation, revisiting and reflecting upon the task while also getting suggestions or support as necessary to continue to move the learning task forward. In addition, SRL involves students determining how long to work on a task, if they will rework a task, or providing students the choice of what to work on (Khaled, Gulikers, Biemans, & Mulder, 2016). It is, however, through consistent feedback, that students learn how to monitor and track their own progress toward mastery of their current task. Beeftink et al. (2012) noted that "managing and controlling the execution process can be managed" through feedback cycles, which allow students to adjust as they are actively engaged in the learning cycle (p. 73). Feedback cycles are a series of events where students complete work, receive feedback from a teacher, make corrections to, as well as add to their previous work, and then resubmit to obtain more feedback. In a similar manner, self-regulation tasks include the actions "a learner engages in to control, direct, or adjust their activities and thoughts" (Jarvenoja et al., 2015, p. 206). McCardle, Webster, Haffey, and Hadwin (2016) identified four phases of the self-regulated learning process: perception, goal setting and planning, task enactment, and adaptation (p. 2). Through these phases, students first generate their own understanding of the task and then set a goal and a plan for accomplishing the task. Once the goal has been set, the plan is put into action, and the student begins working on the task. The final phase of adaptation occurs as the student works and receives feedback from a teacher, a

peer, or even through struggling with the task to the effect that the learner realizes the task is not going as originally planned.

Bandura (1991) suggested that there were three sub-functions of self-regulation: self-monitoring, self-diagnostic, and self-motivating. Garrido-Vargas (2012) noted that self-regulation components include monitoring, self-observation, self-efficacy, and self-evaluation. While the components have different names in some cases, they are essentially the same. For students to be successful with self-regulation, they need to be able to monitor their learning, effectively and accurately diagnose or evaluate where they are in a learning cycle, and have enough motivation and efficacy to believe they can be successful in the process of completion of the task. Mason (2013) emphasized that students need to be taught how to think and that this can be accomplished through explicit teaching of self-regulation strategies alongside reading strategies (p. 126). Onemli and Yondem (2012) reported that students who are not successful academically use less learning strategies than their peers and noted that research has shown that teaching students how to self-regulate has had a positive effect upon student achievement (p. 67).

To ensure that students can self-regulate and monitor their learning, many teachers are beginning to use assessments for this purpose. Teachers may also utilize self-assessments (Cassidy, 2007; Bourke, 2016), in which students assess their own progress. Both formative and summative assessments can be used to help teach students how to self-regulate, although the former is utilized more often for this purpose (Chueachot, Srisa-ard, & Srihamongkol, 2013).

**Formative and Summative Assessments**

Assessment is a key part of many classrooms. Assessment helps teachers make adjustments to instruction based upon how students are doing. Assessment can also aid students in monitoring their own progress toward learning goals. Formative assessments are assessments

*for* learning (Hall, 2012) and may be used throughout the learning cycle. These assessments help teachers to know throughout the current learning cycle if students are grasping the material that is being taught. Formative assessments are completed in the classroom with a classroom teacher. These could be exit slips, reflection journals, or short exercises that provide students with an opportunity to demonstrate learning. Teachers use these formative assessments to adjust instruction or make learning groups to ensure that all students are making progress toward the overall learning goal or target. Summative assessments are assessments *of* learning (Hameister, 2013) that are often utilized at the end of a learning unit or cycle. These assessments are used to determine if students have mastered the standards that were taught during the unit. Summative assessments may be in the form of a unit or chapter test. State-standardized testing is also considered a summative assessment, as it is used to demonstrate if students are showing mastery of the yearly learning goals (Hameister, 2013).

Formative assessments are especially important for helping students learn to self-regulate. McMillan and Turner (2014) noted that students need to have a "mastery goal orientation" (p. 3) to gain any positive learning experience from a formative assessment. Mastery goal orientation refers to the idea that students know what they need to learn and have a plan to work toward that goal. In other words, students know what the intended learning outcome is and have the ability to navigate whatever path works for their learning style toward reaching mastery of that learning goal or standard. It is important to distinguish that for students to obtain and utilize this mastery goal orientation, teachers must be willing to give up some of the control they may want to have over how, when, and why students perform certain learning tasks that aide in mastering a concept.

The feedback provided by the teacher is vital toward helping the student to learn, but the student must be open to that feedback. Chueachot et al. (2013) noted that assessment for learning (formative assessment) is a self-regulation strategy that lets the "student define the goal they'll need to work their way to achieve" (p. 120). Considering formative assessment to be part of self-regulation is important because students need to have a variety of opportunities to demonstrate their learning. Students can demonstrate their learning using exit tickets at the end of class, writing a reflection of their learning for teachers to review, or taking a short quiz to demonstrate their ability to apply what is being taught. For example, a teacher may have students write a reflection about that day's learning or have students apply what they learned that class period to another problem or scenario of a similar type to what they did together in class. These short exercises help teachers continually monitor students' understanding of the content being taught, which, in turn, provides the teacher with opportunities for re-teaching and review throughout a unit of study based upon how well students are understanding the information they are learning (Chueachot et al., 2013). Formative assessment, by its very nature, provides students with various ways to demonstrate their mastery of content. McMillan and Turner (2014) also noted that many students perceive their mission to be to achieve a passing grade, not necessarily to have solid knowledge of the concept.

Punhagui and de Souza (2013) suggested that focusing on teaching students to self-assess would support their ability to self-regulate. Students need to specifically be aware of their metacognitive processes while reading, such as being able to name the strategy they should use and why it is appropriate and being able to review their progress toward the learning goal (Meltzer, 2010). Another important consideration is if students have any voice in how they are assessed. Student voice and choice can help students to better regulate their own learning by

understanding where they are having trouble and knowing when to ask for support from a peer or a teacher. Students who have a say in how they can demonstrate their learning can also develop better relationships with their teachers when assessment focuses upon helping students take control over their learning (Bourke, 2016). When using formative assessments in this way, students will not only know how to monitor their own learning, but in the process, they will discover "their own strengths and weaknesses when tasks are performed" (Punhagui & de Souza, 2013, p. 48). This process is especially important so students will discover ways to prevail over their weaknesses. By teaching students to self-assess, teachers will not only help students learn to self-regulate but also have an increased likelihood of helping students develop metacognitive abilities.

**Metacognition**

Assessments can be utilized to help boost students' metacognitive abilities. Tzohar-Rozen and Kramarski (2014) asserted that "metacognition enables learners to plan and allocate learning resources, monitor their own knowledge and skill levels, and evaluate their own learning levels" (p. 77). Metacognition allows students to think about their thought processes and make a change in the learning design they are taking to accomplish a learning goal. Baas, Castelijns, Vermeulen, Martens, and Segers (2015) noted that self-regulation "involves the use of motivational strategies, cognitive strategies and metacognitive strategies" (p. 34). Students can learn to use their metacognitive strategies when they are reflecting upon the feedback they have received from a teacher. Utilizing formative assessments and ensuring feedback is provided to students in a timely and constructive way can provide students many opportunities to increase their metacognitive skills. Griffith, et al. (2016) noted that when students are mindful, a subset of metacognition, they have "a mental focus . . . that enable [*sic*] individuals to swiftly toggle

between experiences and specific details" (p. 4) without losing focus on the larger goals of their task. Students will have to think about the feedback given and determine the next steps to move themselves along in their learning. Being able to mentally consider the feedback they received while simultaneously focusing on moving the task forward to completion is a vital skill.

Basaraba, Zannou, Woods, and Ketterlin-Geller (2013) claimed that metacognitive skills are especially important during the planning stages of a task. Students must be able to plan and execute the task that required the planning. Self-regulated learning "refers to the executive aspects of metacognition" (Khaled et al., 2016, p. 102). This claim asserts that students must be able to own their learning and have control over the planning and execution of a task. To plan, one must be able to "analyze a given task, retrieve relevant domain-specific knowledge . . . and sequence problem-solving strategies needed to complete the task" (Basaraba et al., 2013, p. 1). Self-assessments help students to develop metacognitive skills, but feedback from teachers on assessments also supports the development of these skills. As students learn to think about how and why they are making the choices they are making, they will be closer to knowing how to regulate their learning. Students who have these skills are also more likely to be motivated to continue working, trying, and learning, even if they are making mistakes.

**Student Motivation**

Ocak and Yamac (2013) noted how students' motivational beliefs are important to self-regulation. The suggestion was made that students may experience different levels of motivation depending upon the lesson, their grade level, or the learning task at hand. They found that when motivation was factored in, the level of goal orientation was a predictor of the metacognitive strategies the students were using (p. 384). Cao (2012) suggested that students who lack motivation may be active procrastinators who wait until the last minute to begin work. These

behaviors of procrastination do little to help motivate students when they get overwhelmed and then do not know how or where to begin because they are now under pressure to complete the task. This concept is important for teachers of young students to know and understand. Students who do not get started right away on tasks may not be procrastinating on purpose but rather may be experiencing a deficit in their ability to self-regulate (Cao, 2012).

Young children can still feel motivated to do well, despite the challenges they may be having. Younger students can also experience motivational orientations as related to self-regulation. Meltzer (2010) noted that students who have learning or attention problems can have extreme difficulty with self-regulatory practices because they do not know how to monitor their own progress or thinking as they work. Students can use strategy checkpoints, feedback conferences, and reflection sheets to help them learn to be better monitors of their reading progress; this is especially helpful when explicitly teaching students how to decide if a particular strategy is appropriate for the standard or assignment the student is currently working on. Perry, VandeKamp, Mercer, and Nordby (2002) found that the young children they studied "demonstrated motivational vulnerabilities that have implications for SRL" (p. 6). Students who are academically gifted but are underperforming may be experiencing a lack of motivation as well. Obergriesser and Stoeger (2015) found that negative emotions (such as anxiety) have negative correlations with intrinsic motivation, which means that "students' emotions influence their self-regulated learning" (p. 171). Arguedas, Daradoumis, and Xhafa (2016) similarly found that motivation levels in students were much higher when the students experienced positive emotions, while students lost motivation when they felt more negative emotions such as sadness or anxiety (p. 100).

While many teachers may want to blame students' lack of motivation on laziness or not caring, students may be experiencing little motivation due to an emotional need that is not being met. It is surprising, however, that some studies suggest motivation and engagement are entirely distinct (Wang & Degol, 2014).

**Self-Efficacy**

Buldur and Tatar (2011) identified self-efficacy as "the sum of a person's belief that he/she can achieve something" (p. 487). Believing in one's ability to accomplish a task or goal can be a large factor in if students feel motivated to try a task. Van Dinther, Dochy, Segers, and Braeken (2014) noted self-efficacy to be "a significant variable because it affects student learning and performance" (p. 330). Students who are low in self-efficacy are also likely to lack self-regulation skills because they may not feel as if they can complete the task. Collins (2012) noted that people with high self-efficacy tend to notice an increase in motivation. Students who are more motivated are also more likely to engage in learning and keep working even if they come across challenges. Schunk (1996) also claimed that students with high self-efficacy "participate more readily, work harder, persist longer when they encounter difficulties, and achieve at a higher level" (p. 5). Van Dinther et al. (2014) asserted that providing students with the opportunity to find genuine success in a difficult task will lead students toward a stronger sense of self-efficacy (p. 332). If students are going to learn to regulate themselves, they have to believe that they can complete the task(s) set before them.

**Methodological Issues**

In the review of literature, multiple methodologies have been utilized to study self-regulation and assessment, including surveys, meta-analysis, control groups, quasi-experimental, case studies, and more traditional quantitative or qualitative methods.

**Surveys.** Adams and Forsyth (2013) used the surveys to measure the level of trust faculty had in their clients. They hypothesized that the ability for students to self-regulate would determine the level of trust felt by school staff as well as determine the level of achievement in urban elementary schools. The authors noted that they "measured the metacognitive dimension of self-regulated learning" (p. 9) with a seven-question 4-point Likert scale survey. The authors ultimately asserted that the difference in achievement levels based upon student background characteristics was an "unresolved social problem" (p. 15) but stated that both of their hypotheses, regarding level of trust and student achievement, respectively, were confirmed through the data analysis. The surveys used measured if student perception of trust made a difference in the overall math and reading achievement scores for the students. While the study was focused on urban elementary students, the study did not examine if student achievement could be influenced by strategies that teach students how to monitor and regulate their own behaviors.

Adams et al. (2015) conducted survey research to explore whether the climate of the school impacts the differences in how students self-regulate. They used the Omnibus Trust Scale, the Student Trust in Teachers Scale, the Academic Emphasis Scale, and the Self-Efficacy for Self-Regulated Learning Scale to collect data. The data was analyzed using multiple quantitative measures. Their conclusion was that an environment that was more aligned with self-regulation led to students learning to monitor their progress and adapt their learning strategies to help them be more successful. Overall, the idea is that students who are expected to self-regulate will then be able to track and monitor their own progress. If every teacher and every student knows what the expectations are regarding students being in charge of their learning outcomes, the climate of self-regulation may be higher. Students will be more familiar

with what self-regulation is and the processes that are required by them to participate in these sorts of monitoring behaviors. The implications of this study suggest that schools that implement self-regulation strategies with fidelity may in turn develop a culture of self-regulation and see an increase in student achievement.

Cao (2012) looked at students at the university level to determine whether active versus passive procrastination influenced student performance. The students were selected based upon enrollment in a specific course and were provided with a survey packet that included a self-efficacy inventory, a procrastination scale inventory (focused on two different types of procrastination), an achievement questionnaire, and a strategies questionnaire. The students' test performance was also used as a factor. Cao (2012) focused on whether procrastination impacts motivation and subsequently, academic achievement. The study examined students' perception and if they could self-regulate and plan their actions. The hypothesis was that even when the students engaged in procrastination behaviors, they might still achieve adequate marks in a course. The study did not find a significant difference in the achievement levels of those who were actively procrastinating and those who were passively procrastinating. Since this study focused on the behaviors of adult students, the responses to the surveys would be on a more mature scale than they would be for elementary-age students who may not have as much experience monitoring their own learning.

**Meta-analysis.** Several research teams reviewed multiple studies to analyze and discover common themes. Gonzalez-DeHass and Willems (2016) looked at how students can utilize self-regulation and other student-directed learning strategies to increase achievement. They asserted that there needs to be more emphasis on how teachers can effectively teach students to become "effective learners" (p. 296). At the conclusion of their analysis, they

suggested that there is a large gap between the research that outlines the benefits of teaching students strategies and how that instruction is translated into the classroom. With respect to teaching students how to self-regulate and therefore better understand their own journey as a learner, this study points to a need for a deeper understanding in how students are transferring strategies being taught.

Mason (2013) determined that students need explicit strategy instruction alongside self-regulation strategies to see higher achievement in reading. She analyzed several measures to determine whether the direct instruction impacted student achievement. Mason (2013) noted that students found greater success when they received explicit instruction in reading combined with instruction that centered around teaching students how to monitor and plan their learning path. She suggested that when teachers make instructional changes, it can have a direct correlation to if students show improvement. She summarized her findings by indicating that more research should be performed to determine if a targeted intervention system would boost student achievement. It was also noted that there is a distinct "lack of explicit instruction in expository text comprehension" (p. 125) along with a majority of educators "teach[ing] around reading materials and avoid[ing] writing assignments" (p. 125). Actively avoiding the teaching of these strategies may be part of the reason why many students do not know how to monitor their own progress.

Reardon, Valentino, and Shores (2012) took a different approach and analyzed the overall reading achievement levels of students in the United States. Their analysis included comparing scores from nationally normed tests, such as the Programme for International Student Assessment and the Progress in International Reading Literacy Study. These "normed tests" are compared to other students of the same age or grade level to determine the percentile rank. A

person scoring in the 49th percentile would be said to have performed better than 49 out of 100 peers. The authors' conclusion noted that most students can "read" by the end of third grade, "if reading is defined as being proficient in basic procedural word-reading skills" (p. 31). While the analysis of multiple measures of reading achievement is important, there is no emphasis or discussion on whether student achievement would be impacted by having intervention or specific teaching to help students monitor their progress and thus retain the information being taught better than they currently are.

**Case studies and practitioner research.** Arguedas et al. (2016) and Collins (2012) completed case studies about self-regulation or self-assessment with students. Hill (2013) employed an alternative approach and studied self-regulation with a methodology of practitioner research. Arguedas et al. (2016) completed a study with high school students to determine if being aware of one's emotional state can have implications on success in school. By focusing on one group of students, analysis can be more in depth, but it may not necessarily demonstrate if results could be replicated for other groups or schools. Within their study, the authors found that students who were aware of their emotional state benefitted from instruction that taught them how to use their emotions more effectively as they worked. They learned to regulate their emotions to continue with their work and showed academic improvements. The question remains whether these results would be similar for elementary students if they were able to acknowledge emotions and use that information to help them self-regulate.

Collins (2012) utilized a case study methodology in which she used interviews, a focus group, observations, and a review of documents to collect data. The achievement data was analyzed with an ANCOVA (a tool to determine whether a significant difference exists between two measures) while the qualitative data was analyzed using analytic procedures. This study

focused on whether formative assessments, or assessments used to determine learning progress throughout the learning cycle, made an impact on student achievement. One science teacher was used for both the control and the experimental groups, since the teacher taught the same content to both classes. The only difference between the two courses was that the experimental group class included formative assessments throughout the learning unit while the control group class relied only on summative assessments at the end of the learning units. Summative assessments are used only to show mastery at the end of a learning cycle with little to no feedback given during the learning cycle. The author found that ultimately, the use of formative assessments and descriptive feedback did not have a significant impact on the students' achievement. The study was conducted over a 3-week period. If the study had been conducted over the course of a marking period (i.e., 8–10 weeks), there may have been a significant difference in achievement with the experimental group.

Hill (2013) completed a practitioner research study in which she implemented the intervention with her own students in an attempt to see if changing her practice would impact student learning. This is an approach that was not seen outside of this particular study in the review of literature. Hill found that, over time, students were transferring the strategies from intervention to their regular classroom setting, which resulted in better achievement. The researcher was a pull-out intervention teacher of the students. Would similar results be found with a classroom teacher implementing intervention cycles to teach students how to regulate their learning and behaviors?

**Control groups.** The use of control groups was found to be a popular research method where one group received some kind of treatment and the other group did not. Onemli and Yondem (2012), Stoeger, Fleischmann, and Obergriesser (2015), and Rojas-Drummond, Mazon,

Littleton, and Velez (2014) all used pre-and post-tests with an experimental and control group to study self-regulation. These studies aimed to show how self-regulation affects motivation and achievement among gifted children and written communication.

Onemli and Yondem (2012) used the control group method to identify whether self-regulation affects student motivation. The experimental group received training in psychoeducation and had an interview prior to the experiment to inform them of the purpose of the training. The training itself consisted of instruction in self-regulation and metacognition. All the data was analyzed with SPSS 16 program (p. 69). The study found that the high school students who participated had higher motivation and achievement scores as a result of their involvement in the experimental group. Stoeger et al. (2015) used intervention modules to compare the difference in student achievement among gifted learners. The authors hypothesized that teaching student-specific learning strategies in an explicit learning context would improve the rate of transfer into the students' own work. This study was focused upon academically gifted students who were not reaching their academic potential. The authors determined, based on the pre-and post-test results, that the modules were effective in achieving what they set out to achieve. The conclusion of their study was that teaching self-regulation strategies to gifted but underachieving students was effective.

In a similar manner, Rojas-Drummond et al. (2014) completed an experimental study using control groups between two schools. One school was the control school, and the other was the experimental or treatment school. This study examined changes in students' written communication skills after implementation of a program called Learning Together, which emphasized students collaborating during their learning. The results of the experimental group were more favorable than the control group. The results from the control group were poor across

the entire academic year as compared to the experimental group who benefitted from extra instruction and collaboration with peers through the Learning Together program. The results appear to advocate for more targeted and explicit teaching to help students monitor their learning progress and thus gain more academically.

## Synthesis of Research

Self-regulation skills allow learners to make and track goals, monitor progress, and make changes in their learning path if they find they are struggling (Zimmerman, 1989). Self-regulation skills also include being able to plan and manage time. To ensure that students are effective self-regulators, there is a need to explicitly teach these skills to the most at-risk students. Students must feel safe, comfortable, and have trust in the classroom to be academically successful (Adams & Forsyth, 2013).

**Teacher versus student control.** The effects of a teacher-controlled classroom can be far reaching. Adams et al. (2015) asserted that classrooms that relied disproportionately upon teacher control may threaten students' motivation to take risks and try new things. Bourke (2016) also noted that when teachers have control, students are less likely to develop relationships with their teachers. The lack of relationship between students and teachers can also erode motivation and interest in learning. Timely and effective feedback fosters trust between students and teachers (Stiggins, Griswold, & Green, 1987).

**Teacher feedback.** Arguedas et al. (2016) noted that the feedback provided by a teacher is an incredibly important component to a student's learning process. A key outcome of teacher feedback is students' abilities to self-assess their work and determine if they are meeting learning standards. As teachers provide feedback to students, students begin to learn what to look for in their own work. Using rubrics or written feedback accompanied by a conversation with a

teacher, students begin to notice consistency in their own mistakes and can use metacognitive and self-regulation skills to help them correct their own errors as they move forward with a unit of learning (Punhagui & de Souza, 2013).

**Formative assessment.** Giron (2012) noted that significant emphasis has been given to the use of formative assessment as a "form of instruction and assessment" (p. 1) since a meta-analysis was conducted that demonstrated a major impact on student achievement. Collins (2012) noted that at the high school level, many teachers are making the shift to using homework as a formative, rather than a summative, assessment. The practice is often misunderstood, and teachers may not be using the assessment form correctly as far as using it to determine if students are mastering content and then offering re-teaching of material. Homework has traditionally been utilized to demonstrate mastery of learning. Hall (2012) posited that at the college level, there may also be faculty who are not utilizing formative assessments correctly, if at all, to determine if students are mastering content throughout the course rather than relying on one final summative exam at the end of a semester. The use of formative feedback throughout an individual learning cycle is critical at all levels to ensure students can regulate their own progress toward a learning goal.

**Academic risk.** Students who are at risk for academic failure are in absolute need of self-regulation skills. Heller and Marchant (2015) noted that students who achieve at an academically lower rate than their peers, who also do not possess the skills necessary for learning, are at a disproportionate disadvantage for school failure. In addition, Hill (2013) stated that many students who are struggling academically not only lack self-regulation skills, but they also show a remarkable lack of metacognitive thinking skills. These students often do not even realize that they do not fully understand the concept(s) being taught and thus practice incorrectly

and learn the wrong ways to perform certain types of tasks because they do not know they are doing tasks incorrectly. These students need explicit teaching with self-regulation and metacognitive skills to decrease their risk for academic failure.

**Use of interventions to increase academic achievement.** Heller and Marchant (2015), Hill (2013), and Mason (2013) demonstrated how the use of interventions can help boost academic achievement for students. Heller and Marchant (2015) found that students at the college level who were provided with traditional course content in addition to support in learning effective strategies that support academic success had significant gains by the end of the course compared to a control class who did not receive the strategies lessons. Hill (2013) provided students with intervention in reading instruction through cycles of forethought, performance, and self-reflection. An increase in student achievement was noted to the effect that these at-risk learners began to independently apply the skills and strategies they had learned to focus areas outside of the intervention. Mason (2013) found that students who received specific intervention instruction in reading comprehension and vocabulary skills also had larger gains than students who did not receive the intervention. Explicit and targeted teaching is necessary to ensure the academic success of students who are at risk.

**Response to intervention.** Response to intervention (RtI) is a framework that was designed to assist with academic and behavioral needs of all children on a tiered basis (RTI Action Network, 2017). The RTI framework was not considered in this literature review because the intention of RtI is to ensure all students are provided with "high quality, scientifically based classroom instruction" (para 2). While it is vital that all students are provided with sound instruction throughout the curriculum, this study aims to determine whether students are

experiencing deficits in executive function or self-regulation skills that are contributing to a smaller growth rate in reading as compared to math.

**21st century skills.** The jobs of the future require that students can self-regulate, plan, monitor their progress and make shifts in the path of their learning without someone else intervening to guide them. Jarvenoja et al. (2015) asserted that being able to monitor and regulate oneself is a skill that cannot be dismissed in the 21st century. During the 20th century, learning was teacher driven and teacher focused because students were being taught to join the industrial age (Hill, 2013). Those skills, in large part, no longer apply for the jobs currently available and those that will be available in the future. Students need to know how to monitor themselves effectively to succeed not only in school but also in future jobs.

## Critique of Previous Research

Throughout the literature review, there was a large emphasis on older students (high school or college level). While students at those levels were shown to benefit from teachings in self-regulation strategies, there is a definitive lack of research with younger learners. Students at the elementary level who learn to self-regulate may be able to carry these time management and planning behaviors into secondary and tertiary school levels, yet there have not been many studies conducted with younger elementary students.

Surveys and experimental studies were common practices for studying if students could learn to be more effective self-regulators. Only one study, Hill (2013), showed the researcher as an active member of the study being conducted. The focus was more on studying what other people were doing in their classrooms with their students rather than looking at one's own teaching to help students regulate their own behaviors within a learning cycle. Use of an explicit, targeted intervention in which low-income urban students are taught self-regulatory

behaviors was not seen throughout the literature review. The studies were focused more upon older students or students who were gifted but not meeting their potential. There was a lack of research showing whether low-income, at-risk students could benefit from programs that teach students to monitor, plan, and execute their own learning paths.

**Summary**

Self-regulation theory has been studied widely in the past several years. Teachers and researchers appear to be genuinely interested in if students can be taught how to self-monitor, plan, and execute a path toward deeper and more meaningful learning. Surveys (Adams & Forsyth, 2013; Adams et al., 2015; Cao, 2012), experimental research (Onemli & Yondem, 2012; Stoeger et al., 2015; Rojas-Drummond et al., 2014), and case studies (Arguedas et al., 2016; Collins, 2012) appear to be the most popular method of studying self-regulation. Only one study (Hill, 2013) focused on the teacher as a direct influence upon the intervention being provided to students in a more action-research style of study. It appears that more research needs to be done with direct influence on the part of the classroom teacher to determine if the explicit teaching of self-regulation strategies will have an impact upon student achievement.

## Chapter 3: Methodology

This chapter provides information about how the study was conducted. The purpose of the study was to determine whether teaching low-income students how to self-regulate their learning behaviors had a positive impact upon their reading achievement. The research method was quasi-experimental with a comparative and experiential group utilizing a pre- and post-test to measure the impact of an intervention in self-regulation skills. The overall research question was whether a targeted teaching of self-regulation strategies impacts the reading achievement levels of low-income urban students.

### Target Population

The target research site was an urban elementary school with enrollment of 390 students in Grades pre-kindergarten through 5, with four classrooms that serve students with autism and a classroom for early childhood special education students. Ninety-seven percent of the students in the school qualified for free or reduced-price lunch since their family income was below the poverty line. Eighty-five percent of the students at the target research school were minority students (approximately 60% Hispanic, 15% African American, 10% multi-racial, and 15% Caucasian). Students at the target research site had shown a trend to have higher overall achievement and growth with respect to mathematics as compared to reading. This phenomenon occurred for multiple years despite a concerted district focus on improving reading scores. From the 2012–2013 school year through the 2016–2017 school year, the yearly growth rate in math was over four points higher than in reading for kindergarten through fifth grade students. Fifth-grade scores showed a yearly increase in the difference between the reading and math scores between the 2012–2013 school year and the 2016–2017 school year (Grand Rapids Public Schools, 2017). The difference between the reading and math scores was 2.4 points in the 2012–

2013 school year and had increased to a difference of 6.8 points between the reading and math scores by the conclusion of the 2016–2017 school year. Students may have shown less growth in reading due to deficits in self-regulation skills.

Self-regulation, the set of skills that allows students to plan, execute, monitor, and make changes during a learning cycle, has been widely studied in the past few years (Adams et al., 2015; Beeftink et al., 2012; Cao, 2012; Garrido-Vargas, 2012; Gonzalez-DeHass & Willems, 2016). Students who can regulate their own learning are said to have strong executive function skills. Executive function skills, also known as self-regulation skills, are processes that allow students to regulate their own learning (Meltzer, 2010). Students with high executive function skills will be able to complete tasks on time, adjust their learning when they feel they are not making the progress they want to be making, and have more ownership over the final results of a learning cycle (Garrido-Vargas, 2012; Jarvenoja et al., 2015).

Zimmerman (1989) credited Bandura as being a pioneer of understanding self-regulation theory and the processes involved with a person's ability to monitor his or her own behaviors. Zimmerman also noted that students who self-regulate "are metacognitively, motivationally and behaviorally active participants in their own learning process" (p. 329). Having the ability to think about one's progress and actively seek to engage with the process of learning are vital components that embody a person's ability to self-regulate. Bandura (1991) suggested that basic human functioning is "regulated by an interplay of self-generated and external sources of influence" (p. 249). This statement suggests that humans are designed to grow and learn through a combination of feedback from outside sources (teachers or parents, for example) as well as from actively thinking about and engaging with the personal or academic tasks they face.

## Purpose of the Study

The purpose of this study was to determine whether explicit teaching of self-regulation strategies would have a positive influence on low-income inner-city students' reading achievement. Explicit teaching refers to specifically naming strategies that are being taught and providing students with appropriate situations in which the strategy is useful (Mason, 2013). This research was important because students at the school site exhibited much higher yearly growth in mathematics than in reading. This trend, with few exceptions, occurred across the school from kindergarten to fifth grade for multiple years (Grand Rapids Pubic Schools, 2017). The average difference across the school between all grades from kindergarten through fifth grade was 4.41 points. Fifth-grade achievement scores showed an ever-widening gap between growth in reading and math over a 5-year period. This data demonstrated there was a need to determine if student deficits in executive functioning skills were a cause for the large differences in academic achievement between reading and math.

Through his research with self-regulation theory, Bandura (1991) emphasized that "self-regulatory systems lie at the very heart of causal processes" (p. 248). This research suggested that if students engage with self-regulatory processes of planning, organizing, and self-monitoring, there would be some positive growth in the area being studied. It is also noted that when students engage with their self-regulatory processes, in other words, when they are actively utilizing their executive functioning skills, students are cognitively present and "conceived future events are converted into current motivators and regulators of behavior" (p. 248). If students are presently engaged and utilizing the executive function skills to consider future outcomes of their efforts, those behaviors may, in turn, provide more motivation and a higher degree of self-efficacy that will lead to higher student achievement.

In this quasi-experimental study, the influence of a targeted intervention in self-regulation skills was monitored. Over several school years, the NWEA MAP test for students in the target school had shown significant discrepancies between students' math and reading growth over the course of a school year (from September to May). Students did not appear to transfer the learning from small group teaching to working independently in reading. The concept of this study was to determine if students could be taught how to be better self-monitors and self-regulators so their reading achievement would see the same level of growth as the math achievement between September and January test administrations. One classroom of fifth graders served as a comparative group, and one classroom of fifth graders served as the experiential group who received intervention specific to executive function skills. The researcher wanted to see if the students who received the intervention showed a statistically significant higher rate of growth in reading than in the comparative group.

**Research Questions and Hypotheses**

The purpose of this study was to determine whether a targeted intervention that teaches self-regulatory behaviors had a positive impact upon student achievement in reading. Below are the research questions and hypotheses that guided this research study.

How does targeted teaching of self-regulation strategies impact the reading achievement levels of low-income urban students?

1. To what extent, if any, is there a statistically significant difference in reading achievement between students taught with and without an intervention in self-regulation?
2. What are the effects of intervention in self-regulation and students' status as ELL on their reading growth?

$H1_0$ There is no statistically significant difference in reading achievement between students taught with and without an intervention in self-regulation.

$H1_1$ There is a statistically significant difference in reading achievement between students taught with and without an intervention in self-regulation.

$H2_0$ The intervention in self-regulation and students' status as ELL have no effect on their reading growth.

$H2_1$ The intervention in self-regulation and students' status as ELL have an effect on their reading growth.

The second research question was included in the study because there was a large population of second-language learners in the target school. It was of interest to the school to determine if there was a positive correlation between the intervention and a student's status as an ELL.

**Research Design**

The research design was a quantitative quasi-experimental design using pre- and post-tests. In experimental research designs, "experimenters manipulate certain stimuli, treatments, or environmental conditions and observe how the condition or behavior of the subject is affected or changed" (Best & Khan, 2006, p. 164). Experimental designs are intended to test a hypothesis to confirm or deny that the manipulated stimulus had an impact upon the outcome of the study. Best and Khan (2006) noted that quasi-experimental designs "provide control of when and to whom the measurement is applied" while also noting that "this design is often used in classroom experiments when experimental and control groups are such naturally assembled groups as intact classes" (p. 183). The process through which students were placed into their classrooms in the target school made the use of a quasi-experimental design ideal for this study. Students were

grouped based upon need and characteristics, such as status as an ELL or a student who receives special education services. Since it was not possible to randomly select students for inclusion into the classroom that would receive the targeted intervention, the use of the quasi-experimental design was necessary.

The target school utilized the MAP test three times per year to measure student growth in reading and math for all grade levels. The beginning of the year score (September) was utilized as the pre-test. The intervention was provided to the experiential group from mid-September to mid-January with the winter testing window (mid-late January) serving as the post-test for the intervention. The mean scores between the two groups were compared using a *t*-test to interpret the impact of the self-regulation skills intervention to answer the first hypothesis. The second hypothesis used a two-way 2X2 analysis of variance (ANOVA) to evaluate the effects of the intervention in self-regulation and students' ELL status on reading achievement.

**Target Population, Sampling Method (Power), and Related Procedures**

**Sample.** The sample consisted of fifth graders at the target school site, which was in a large urban district in Michigan. The sample consisted of 47 students, split almost equally between boys and girls (23 boys, 24 girls). The comparative classroom had nine boys and 15 girls, with nine of those students identified as ELLs. The experiential classroom had 14 boys and nine girls, with 11 of those students identified as ELLs. Most of the students in the school (approximately 85%) were identified as belonging to a minority subgroup, with Hispanic students being the largest percentage at about 60%. Over a period of five years, fifth graders had shown an average of more than four points in difference between their reading and math achievement as measured by the MAP test. The students were all eligible for free and reduced-price lunch and were eligible for Title 1 services within the school. It was necessary to conduct a

study with elementary-aged students since there were so few studies done with self-regulation intervention at this level. Fifth graders were an ideal population as they are finishing elementary school and beginning to transition to middle school, where they will be expected to show strong executive function skills.

**Sampling method.** The sampling method was convenience sampling. Best and Khan (2006) noted that a convenience sample "consists of those persons available for the study" (p. 18). Students were placed into their respective classrooms prior to the start of the intervention with no way for the researcher to randomly select students for inclusion in the experiential classroom, which made the convenience sample necessary. The total population was 47 students enrolled in the fifth grade at the target school. All students were included in the sample since some were enrolled in the comparative classroom, and the rest were enrolled in the experiential classroom.

**Related procedures.** Prior to the initiation of the study, Institutional Review Board (IRB) approval was requested and granted. Parents were notified of the intent of the self-regulation intervention at the beginning of the school year after the IRB approval was granted. As the researcher wanted to determine the overall impact upon student growth as a class rather than individually, parents were assured that their student would not be able to be identified in any way through the research process. Parental consent forms were sent home with every fifth grader at the beginning of the year (regardless of which classroom their child was enrolled in), as data was collected from both classrooms via the computerized test scores. Parents who wished to opt their child out of the intervention could have their child excused from the classroom during the intervention portion of the class each day. There was a notation upon the form for parents to be able to meet with the principal researcher or classroom teacher to obtain more

information regarding the intervention to ensure as close to 100% participation as possible in the research study.

To answer the research questions, an intervention in executive functioning skills was used in the experiential class. The intervention was developed by Meltzer (2010) for use within general education classrooms and could be used by general education classroom teachers without written permission from the author or publisher. The intervention was modified to fit into the time frame for the study. The principal of the target school and the classroom teacher who hosted the experiential classroom both provided consent for the intervention instrument to be used with this fifth-grade class. This intervention was selected due to the ease of implementation. The content was embedded into the regular instructional cycle in reading since it consisted of strategies that students could use immediately as they read. The intervention consisted of 13 lessons. Each lesson was between 30 and 45 minutes in length and were designed so the teacher could read directly from the lesson to ensure the lessons were taught with fidelity. There were four main strands for the intervention: foundational, memory, organizing, and self-monitoring. The first strand contained four lessons that focused on building the foundation for self-regulatory behaviors in the students. The remaining strands all contained lessons that focused on specific strategies students would be able to utilize to complete specific learning tasks. There were four lessons focused on developing memory, two lessons focused on organizational skills, and three lessons focused on helping students learn to self-monitor. Each of these lessons named and taught specific strategies that students could reference back to during reading tasks as they began to develop self-regulation skills.

Throughout the intervention cycle, the experiential classroom teacher had access to the principal researcher via email and monthly in-person meetings. These meetings provided

guidance toward the implementation of the intervention with fidelity. The classroom teacher could review upcoming lessons with the researcher to ask questions and receive suggestions for proper implementation as needed. Once per month, the classroom teacher and the principal researcher met to discuss progress of the intervention and any problems that may have occurred with the intervention timeline. While these meetings were not documented as part of any data collection, they were necessary to enable the classroom teacher to implement the intervention with fidelity to ensure the results received were as valid as possible.

**Instrumentation**

The main instrument used in the study was the pre- and post-test scores from the MAP test since all students in the target school took this test and it was nationally normed. The NWEA reported the reliability of the instrument to be at least .80 (as measured by a Pearson *r*) over multiple years. The validity of the instrument has been measured as concurrent validity with a Pearson correlation coefficient, with most coefficients being just below or just above the .80 threshold (Northwest Evaluation Association, 2004).

**Data Collection**

The MAP test provided a classroom summary document that shows the number of students with test growth scores, the mean score, the median score, and the standard deviation. The summary document also provided a norm grade-level mean score, which indicated where students should be scoring at that time of year (this score varies based upon fall, winter, or spring test administration). The summary document was the main source of data collection, as it provided information on the classroom with no student names, just an overview of the classroom. The summary document was used to compare the pre- and post-test scores of the experimental and control classrooms using a *t*-test to interpret the impact of the self-regulation assessment.

The first administration of the MAP test occurred during the second week of the school year. Results of the baseline assessment were available within 24 hours of test completion. Classroom-level scores were available for both fifth grade classes within 3 weeks of the start of the semester, but scores were not accessible to the researcher until final IRB approval was provided. The scores, classified as categorical data, were documented as baseline scores for both the comparative and experiential groups prior to the implementation of the intervention. The second administration of the MAP test occurred at the end of the first semester with results of the fifth-grade classrooms available within 2 weeks of test administration. The second test scores were considered the post-test. The mean scores were compared with an independent-samples *t*-test to determine if the intervention had an impact upon student achievement in reading. A *t*-test is "the test of the significance of the difference between two means" (Best & Khan, 2006, p. 407). The *t*-test was the most appropriate data analysis for this quasi-experimental design because it helped to eliminate the possibility that a higher score by one group over the other was a result of sampling error or chance (p. 407).

Utilizing the school district's data warehouse, housed at OurSchoolData.org, the test scores were analyzed by sub group to determine the difference in growth scores for students who are identified as ELLs. The data warehouse report provided an overview document that generated the mean scores and number of valid student growth scores that only included students in the selected subgroup.

**Operationalization of Variables**

The independent variable in this study was the status of participation in the self-regulation skills intervention. A secondary independent variable was the student status as an ELL. This variable was selected due to the high population of students in the target school

whose first language was not English. The dependent variable was the growth in the reading scores of the students.

**Data Analysis Procedures**

Best and Khan (2006) noted that a *t*-test was an appropriate analysis tool for quasi-experimental designs because the groups being studied may not be equal. "A mere quantitative superiority of the experimental group mean score over the control group mean score is not conclusive proof of its superiority" (p. 407), which made the use of the *t*-test appropriate for this design because the experiential and comparative groups could not be guaranteed to be equal in ability or size. The mean and median scores from the MAP test were compared using an independent-samples *t*-test to interpret the impact of the intervention on student reading achievement and to discredit any possible sampling error differences.

A two-way 2X2 ANOVA was used to evaluate the effects of the intervention related to students' ELL status. Best and Khan (2006) noted that "the analysis of variance is an effective way to determine whether the means of *more than two samples* are too different to attribute to sampling error" (p. 423, emphasis in original). This type of analysis fits this study because the experiential and control classrooms could be split into ELL and non-ELL students and the difference in means compared to obtain a more accurate determination of whether the status as an ELL was related to the growth scores in reading.

**Limitations and Delimitations of the Research Design**

Limitations to this research study included the sampling method and time constraints. The method of convenience sampling may have limited the accurate representation of the student population. The intervention was generally designed to be utilized over an entire school year,

and this study utilized pieces of the intervention over the course of a half of a school year, which may have affected the results of the study.

**Internal and External Validity**

Internal validity occurs when the independent variable being manipulated influences the outcome of the study, while external validity ensures a study can be replicated to other settings (Best & Khan, 2006). The intervention was designed so classrooms across the district would be able to replicate the study and measure the impact of an intervention in self-regulation skills on the overall reading achievement of their students. The comparison of two classrooms within the same school with a small sample size of only 47 does lend itself to threats to the internal validity. As this study was designed to serve as a pilot for a potentially larger study to include other schools in the district, and the experiential classroom teacher was the only one given the intervention lessons, there were steps taken to help ensure the internal validity was not compromised. The executive function intervention had been developed in association with the Strategies, Motivation, Awareness, Resilience, Talents, and Success (SMARTS) curriculum and was research based and student tested. The target population was a representative sample of fifth graders within the district (high minority, low income).

**Expected Findings**

It was expected there would be a positive relationship between the intervention in self-regulation skills of planning, organizing, and monitoring and the students' reading achievement. It was also expected that there would be some relationship between the students' growth scores and their classification as an ELL.

## Ethical Issues in the Study

Students who were not provided with the opportunity to participate in the intervention may have lost out on the opportunity to gain life skills that will help them academically well beyond the current school year. Students and parents were provided with consent forms, along with contact information for the researcher if there were questions about the study before it began. Confidentiality of all students was maintained, as data was collected by the classroom teacher initially, and only summary documents with no student names were given to me. Formal approval by the school district, building principal, and classroom teacher was obtained before any research began. The IRB approval was sought and granted by the university prior to any data collection.

## Chapter 3 Summary

The intention of this research was to utilize a quasi-experimental design to study the impact of an intervention in self-regulatory skills on students' reading achievement. Using a pre- and post-test design, student data was compared using an independent-samples *t*-test to determine the impact of the intervention. A two-way 2X2 ANOVA was used to analyze any potential relationship between achievement levels and student status as second-language learners. The goal of the study was to determine if teaching self-regulatory behaviors had an impact upon students' reading achievement.

## Chapter 4: Data Analysis and Results

The instrumentation used in this research study was a 13-lesson intervention designed to explicitly teach self-regulation strategies and student performance data from a nationally normed test. The intervention was developed by Meltzer (2010) for use within general education classrooms. The lessons within the original intervention were designed to be used with students across multiple grade levels and could be used in a general education classroom without specific written permission from the author or publisher. The intervention was modified slightly to fit into the time frame of this study. Throughout the implementation of the intervention, the experiential classroom teacher had continuous contact and access to the principal researcher via email and monthly in-person meetings to ensure the intervention was taught with fidelity. As the meetings themselves were not part of the data collection, no formal notes were taken aside from the dates of the meetings.

The main instrument used in this research study was the pre- and post-test scores from the MAP test administered through the district by the NWEA. This test has been used in the target district for eight years and is a test every student from Grades kindergarten through 8 takes three times per year. The NWEA reported the reliability of the instrument to be at least .80 (as measured by a Pearson *r*) over multiple years of study. The validity of the instrument has been measured as concurrent validity with a Pearson correlation coefficient, with most coefficients being just below or just above the .80 threshold (Northwest Evaluation Association, 2004).

Due to the quasi-experimental design with pre- and post-test data collected from two classrooms, an independent-samples *t*-test was utilized to determine the impact of the intervention on the mean reading achievement scores of both classrooms from the pre-test in September to the post-test in late January/early February. The overarching research question for

this study was the following: How does targeted teaching of self-regulation strategies impact the reading achievement levels of low-income urban students? The research questions were

1. To what extent, if any, is there a statistically significant difference in reading achievement between students taught with and without an intervention in self-regulation?
2. What are the effects of intervention in self-regulation and students' status as ELL on their reading growth?

The null hypotheses for this study stated the following:

1. There is no statistically significant difference in reading achievement between students taught with and without an intervention in self-regulation.
2. The intervention in self-regulation and students' status as ELL has no effect on their reading growth.

**Description of the Sample**

This study focused upon fifth graders' reading achievement with or without an intervention in self-regulation skills. To answer this research question, a sample of at least 20 fifth grade students was needed for each of the experiential and comparative classrooms. The sampling method was a convenience sample since the students were placed into their respective classrooms the prior spring at the administrative level. Both classrooms began the school year with 25 students.

Due to transient movement, the final experiential classroom sample had 23 students with 14 boys and nine girls. Of the students in the experiential classroom, 12 were classified as ELLs, with 11 students identified as non-ELL. The data for the experiential classroom was coded and redacted by the classroom teacher with numbers so she would be able to match pre- and post-test

scores before providing the information via email to the principal researcher. The final comparative classroom sample had 24 students with nine boys and 15 girls. Fifteen of the students in the comparative classroom were classified as ELL students, with the remaining nine students in that classroom considered to be non-ELL. The data for the comparative classroom was coded and redacted by the control classroom teacher with letters so she would be able to match pre- and post-test scores before the reports were emailed to the researcher.

There were three variables examined in this study. Two independent variables studied were participation in the self-regulation intervention and status as an ELL. Both the experiential and the comparative classroom teachers coded their data to show gender, ELL status, and test scores for both pre- and post-tests. This coding by the teachers allowed student data to be matched by number or letter respectively for the pre-and post-tests to ensure student anonymity was not breached and that the data was attributed to the correct student. The third variable was a dependent variable of the growth between the pre-and post-test scores.

**Summary of the Results**

The first research question examined the relationship between reading growth after an intervention in self-regulation. The data analysis showed no statistically significant difference in reading growth with the inclusion of the intervention as compared to students who did not participate in the intervention (see Table 1). This analysis supported accepting the null hypothesis that the inclusion of the intervention did not make a significant difference in reading achievement. The students' reading levels were also examined to analyze whether the participation in the intervention showed any other increases that might be worth exploring in future research. Student data from both the experiential and the comparative classrooms were put into data tables and the grade level equivalent identified. The student score and grade

equivalent for the pre- and post-test were identified to determine the amount of grade level growth obtained during the intervention period. The equivalents are noted by grade and month (e.g., 3.2 would indicate third grade, second month of school). The growth was calculated based upon the grade-level equivalent measures.

The second research question examined the relationship between a student's status as an ELL and their reading achievement after an intervention in self-regulation skills. The means and standard deviations for reading achievement as a function of the two factors are presented in Table 3. The ANOVA identified no significant relationship between a student's status as an ELL and their reading achievement growth with the inclusion of the self-regulation intervention.

**Detailed Analysis**

An independent-samples *t*-test was conducted to test the null hypothesis that there would be no difference in the reading achievement between students taught with and without an intervention in self-regulation. The analysis revealed no statistically significant difference in the average reading achievement between students taught with and without an intervention in self-regulation, $t(45) = 1.02$, $p = .312$. The average reading achievement of students taught with an intervention in self-regulation, ($M = 6.61$, $SD = 8.62$) appeared greater than the average reading achievement of students taught without an intervention in self-regulation ($M = 4.08$, $SD = 8.32$). The results indicated that on the average, reading achievement between students taught with and without an intervention in self-regulation was no different. The null hypothesis that there would be no difference in the reading achievement between students taught with and without an intervention in self-regulation failed to be rejected.

However, the descriptive analysis shows a slight advantage in academic growth in the experiential group. See Figure 2.

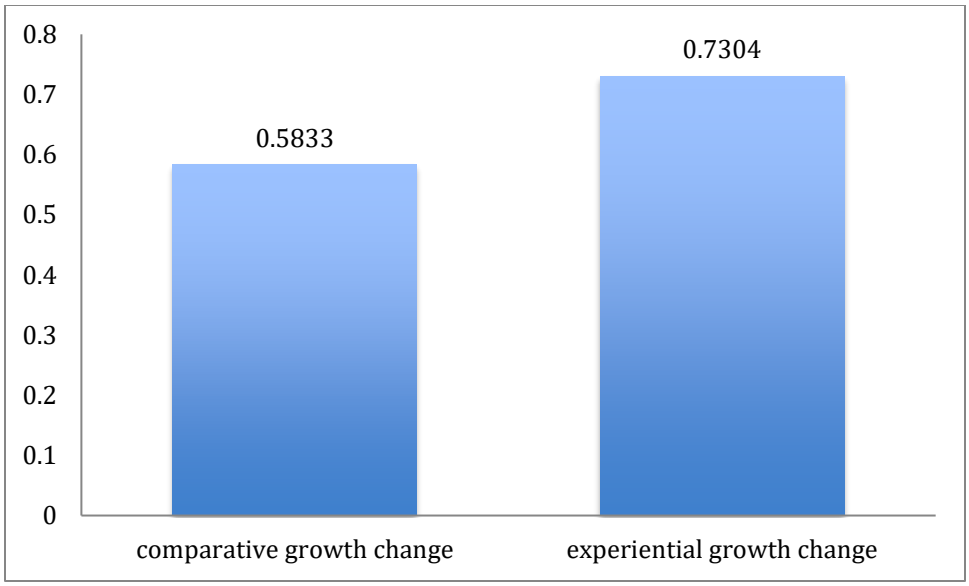


*Figure 2.* The difference in the average growth of reading scores between the comparative and experiential groups

For the second research question, a two-way 2X2 ANOVA was conducted to evaluate the effects of the intervention in self-regulation and students' ELL status on reading achievement. The means and standard deviations for reading achievement as a function of the two factors are presented in Table 1. The ANOVA identified no significant main effects $F(1, 43) = 1.28$, $p = .265$, partial $\eta^2 = .03$ for the intervention in self-regulation and students' ELL status $F(1, 43) = 1.53$, $p = .223$, partial $\eta^2 = .03$. There was also no significant interaction between intervention in self-regulation and students' ELL status, $F(1, 43) = 0$, $p = .989$, partial $\eta^2 = 0$.

That is, the intervention in self-regulation' main effect revealed that there was no difference in reading achievement of students who participated in the program or not.

The ELL status main effect indicated that there was no difference in reading achievement of students who were classified as ELL or not. The purpose of the study was to determine whether the intervention in self-regulation would improve reading achievement. The results of the analysis indicated that neither the ELL or the non-ELL students in the intervention in self-

regulation performed differently from the ELL or the non-ELL students who were not in the intervention in self-regulation. The null hypothesis that the intervention in self-regulation and students' ELL status has no effect on their reading growth failed to be rejected.

Table 1

*Mean and Standard Deviations for the Effects of Self-Regulation and ELL Status on Reading Achievement*

| | ELL | | Non-ELL | |
|---|---|---|---|---|
| Variable | *M* | *SD* | *M* | *SD* |
| Intervention in Self-Regulation (experiential) | 8.08 | 9.64 | 5.00 | 7.47 |
| Non-Intervention in Self-Regulation (comparative) | 5.27 | 8.97 | 2.11 | 7.15 |

**Chapter 4 Summary**

This quasi-experimental research study was designed to examine the relationship between student achievement in reading and an intervention in self-regulation skills. In this study, a convenience sampling of fifth grade inner city students was utilized. Students were split into a comparative or experiential classroom with the latter receiving a 13-week intervention designed to teach students how to self-monitor, self-regulate, and learn to be more metacognitive. The means of the student pre- and post-test scores were analyzed with an independent-samples *t*-test to examine the impact of a self-regulation intervention on student reading achievement. This study also examined the relationship between students' status as an ELL and their participation in the self-regulation intervention.

In this study, two variables were examined in consideration of the research questions: participation in the intervention and status as an ELL. To consider the first research question, student pre- and post-test scores from the NWEA's MAP test were analyzed by using an independent-samples *t*-test to compare the means. The results showed no statistically significant difference in the growth of the means. This supported accepting the null hypothesis that an intervention in self-regulation was not found to have a positive impact upon students' reading achievement.

Overall, the self-regulation intervention showed no impact upon students' reading achievement with respect to growth in scores and reading levels. There is no significant relationship between the students' language status and the intervention.

## Chapter 5: Discussion and Conclusion

With the adoption of the No Child Left Behind Act of 2001, students in Grades 3 through 8 were tasked with being able to take and pass standardized tests in reading and math annually. Studies have found that students in these grades struggle to process information that they should be learning to be successful with these tests (Mason, 2013). In 2015, the NAEP test showed only 36% of the nation's fourth graders were reading at or above proficiency level with no significant increase from the 2013 testing cycle (Nations Report Card, 2017).

The concept of self-regulation, a person's ability to self-monitor and self-reflect to determine what is and is not working as he or she progresses toward a learning goal, has become more important for today's students with the pressure of yearly standardized tests. Meltzer (2010) acknowledged that self-regulation strategies are part of the processes of executive functioning. Students who lack executive functioning, or self-regulation, skills are more likely to be poor readers and have difficulty monitoring what reading strategy to use and when to use it. In addition, students with weakness in these skills are less likely to recognize when they are using the wrong strategies to perform a learning task.

Previous research indicated an emphasis upon secondary level or college students and their ability to self-monitor and self-regulate their behaviors, with little to no focus on whether elementary-aged students would benefit from explicit teaching in self-regulation strategies. Elementary students who successfully learn to regulate their behaviors toward learning strategies are more likely to carry these behaviors forward into secondary school, but there was a distinct lack of study focused on this age group (Heller & Marchant, 2015; Hill, 2013; Mason, 2013). The target school was selected for study due to a historical trend of fifth grade students having a greater deficit in reading achievement compared to math over the course of a school year. Over

a 5-year period of time, fifth graders in the target school showed an ever-widening gap between reading and math achievement data, with the first year of data (2012–2013) showing a gap of 2.4 points and the final year of data (2016–2017) showing a gap of 6.8 points, with math always showing more achievement. While it makes sense for one subject area to have a higher achievement level than the other over time, the concern for this school was that the gap was widening every year. A 2- or 3-point difference in achievement growth is not a concern if it stays stable, but when the difference increases yearly, it shows a need for some further study to determine what was occurring to create this larger deficit. This study aimed to determine whether a targeted intervention that taught explicit self-regulation strategies to these students would help to decrease the gap between their reading and math achievement.

It is important to note that this school and grade level were selected because the two teachers teach their students with similar methodologies using the same content and strategies. They collaborate on all their planning and work to ensure their students are getting the same experience regardless of which teacher they have. This similarity in the teaching methods was essential to this study to show whether one variable, the inclusion or exclusion of the intervention, would have any impact upon the reading growth of their students.

**Summary of the Results**

This focus of this study was to determine whether a targeted intervention in which students were taught self-regulation strategies, wherein the strategies were named and the students were taught when it was appropriate to use the strategies, would have an impact upon their reading achievement scores.

The first research question was the following: To what extent, if any, is there a statistically significant difference in reading achievement between students taught with and

without an intervention in self-regulation? Students in the comparative and experiential classrooms took the NWEA MAP test in September as their pre-test, and both classrooms took this test again in late January or early February as their post-test. The mean scores of these two tests were calculated, and an independent-samples *t*-test was run to determine the significance of the difference. The *t*-score was 1.02, which is not statistically significant. The experiential classroom experienced higher growth than the comparative classroom but not enough to determine whether the growth occurred because of the inclusion of the intervention. It is important to note that the researcher also examined whether the students' reading level at the beginning of the year had any relationship to the ending reading level after the intervention. The comparative classroom had 10 students who experienced negative growth (a post-test score at or below the pre-test score), whereas the experiential classroom only had 5 students who experienced negative growth. This shows there may have been some positive impact from the inclusion of the intervention, even if it was not a statistically significant difference. This would be worth exploring further in a longer study.

The second research question examined whether the students' status as an ELL had any relationship to their reading growth after the self-regulation intervention. The two-way 2X2 ANOVA was run to look at this relationship. The ELL students in the comparative classroom had higher growth measures than their non-ELL counterparts (3.16 points higher). The ELL students in the experiential classroom also had higher growth measures than their non-ELL counterparts (3.08 points higher). The difference in the growth rates for ELLs was almost identical in both classrooms, which demonstrates that the intervention did not have any relationship with the growth of the ELL students.

**Discussion of the Results**

The findings of this study do not statistically prove an intervention in self-regulation had any impact upon student achievement in reading. However, there was more positive growth experienced in the classroom of the students who did participate in the intervention, which shows there could be some relationship between the intervention and the students' growth. The use of the NWEA's MAP test should show positive growth regardless of an intervention because students are being taught content throughout the semester that should result in positive growth. Garrido-Vargas (2012) noted the need for specific and actionable feedback from a teacher to help students move forward in the learning process. With the targeted lessons used in this intervention, there were opportunities for the teacher to follow up and offer feedback and support to the students to help them learn to be better self-monitors.

Throughout the intervention, close contact was kept between the experiential classroom teacher and the principal researcher to help monitor and facilitate the implementation of the intervention. During the post-testing window, the experiential classroom teacher reported that the students were taking longer than she had anticipated to complete the testing. Once the results were finalized, the amount of time students spent testing was examined. While this was not a specific part of the study itself, it is interesting to note that students in the experiential classroom who experienced the highest growth also increased the time they spent testing by larger blocks of time. One student in the experiential classroom experienced a 24-point gain (equivalent of two full years). This student also spent 92 more minutes on the post-test than was spent on the pre-test. Other students in the experiential classroom who showed gains of 15 points or more all spent at least 20 minutes longer working on the post-test than the pre-test. Most students in the experiential classroom, even those that did not make the expected growth, spent more time on

the post-test than on the pre-test. This suggests that the self-regulation intervention, which focused on strategies for learning in addition to metacognition strategies, had a strong impact on their ability to monitor themselves as they were working. Zimmerman (1989) noted that having the ability to think about one's progress and actively seek to engage with the process of learning are vital components that embody a person's ability to self-regulate. While the results of this study did not show a statistically significant relationship between the scores, there were benefits reaped from the participation in the intervention. Students showed an increased ability to self-monitor as they were testing through the increased time they took on their post-tests compared to their pre-tests. It should also be noted that while math achievement was not the focus of this study, the students in the experiential classroom also had higher math gains than the students in the comparative classroom by 3.5 points on average and spent an average of 30 minutes longer taking the post-test in math than the students in the comparative classroom. The benefits of the self-regulation intervention on the students' ability to self-monitor also carried over into their math achievement for this semester's post-test.

The researcher also examined the beginning-of-the-year reading level and whether the intervention had a relationship between the increase in the reading level by mid-year testing. The experiential and comparative classroom teachers are collaborative and teach their students the same content using the same type of strategies. In examining this data, it was surprising to see how many students in the comparative classroom experienced negative growth over the course of the intervention period. Negative growth includes students with a 0-point gain because there should be some upward movement over the course of a semester, even by chance. The comparative classroom teacher had 10 students, almost 42% of her class, who did not make progress between the pre- and post-test cycles. This is consistent with the previous data from

this school with poor gains in reading throughout the grade level. The fact that a large portion of the students in that class experienced negative growth is concerning.

Turning to the experiential classroom with respect to the beginning-of-the-year reading level, this classroom had five students (22% of the class) experience negative growth during the intervention period. This classroom had more students experience positive gains overall, with one student experiencing a gain of the equivalent of three years. All classrooms are expected to experience positive gains over the course of a semester or year because student learning should be occurring. Since the experiential classroom had many more students experience a positive gain (78% versus 58%) over the course of the semester, the conclusion can be drawn that the intervention had some relationship to the growth measures in the experiential classroom, even if it was not a statistically significant one.

The second research question sought to examine if the students' status as an ELL had any relationship to their reading growth after the self-regulation intervention. This question was added to the study because the target school has a high population of students whose first language is not English. Both classrooms had more students identified as ELL than non-ELL, although the experiential classroom was almost split (12 ELL, 11 non-ELL). The comparative classroom had six more students identified as ELL than non-ELL. A two-way 2X2 ANOVA was run to look at the effects of the intervention as related to the students' status as an ELL. The results showed there was no statistically significant relationship between the intervention and the status as an ELL. It was interesting that both classrooms ELL students experienced just over 3 points more growth than their non-ELL peers. Since the same growth happened in the comparative classroom, without the inclusion of the intervention, it is clear that the students' ELL status does not have a relationship with the intervention.

**Discussion of the Results in Relation to the Literature**

Self-regulation refers people's ability to analyze what a task requires them to do, develop a goal to help them complete a given task, monitor whether they are making progress toward meeting the goal, reflect upon the learning they experience, and develop strategies to continue to move forward with learning (Zimmerman, 1989; Hill, 2013). Fifth grade students in the target school have historically shown a distinct lack of ability to self-regulate in reading, as their reading achievement scores had a sharp decline over a 5-year period. The Michigan Department of Education (2016) identifies students as "at-risk" for academic failure if they meet certain criteria: having a teenage parent, family history of school failure, high absentee rate, eligibility for free or reduced-price lunch, or being classified as an ELL. The target school is identified as a Title I school because all the students in the school meet at least two criteria on the State of Michigan Title I criteria list. Meeting these criteria suggests that the students in the target school are more likely to experience academic failure, fall behind their same-age peers who do not meet the criteria, and are much less likely to know how to self-regulate their behaviors. The historical data from the target school showed that these students were experiencing academic failure at an alarming rate because so many were exiting the school not reading at grade level.

Social cognitive theory, the root of the self-regulation theory, suggests that people are aware of their own behaviors and have a self of self-efficacy (Garrido-Vargas, 2012). An important aspect of this theory is the idea that a person can and will purposely sway his or her performance to fit a situation (Bandura, 2005). This was an important concept in which to frame this research study. Zimmerman (1989) introduced the concept of triadic reciprocality, which suggests that a person, his or her behavior, and his or her environment are all equal influences upon each other. The theory suggests that each triad is interacting with the other two in a back-

and-forth pattern that can have a direct relationship with the level of self-regulation a person exhibits. In other words, the students are influenced by their own motivation but also receive influence from their environment and the behaviors they exhibit based upon feedback from peers, parents, and teachers. With respect to this study, it was made clear that students were likely not receiving feedback and suggestions for improvement prior to the study because their reading growth had such a deficit compared to math growth. The results of this pilot study indicate that when students are specifically taught strategies and given appropriate suggestions for when to use the strategies, their ability to better monitor themselves increases. Noting the time difference that students took to complete their post-tests, in both subject areas, suggests that the feedback students received after the time management intervention lesson had a lasting impression that they may carry with them well into future school years.

Hall (2012) suggested there are three distinctive components of self-regulation: competence, relatedness, and autonomy (p. 27). These components can be thought of as the ability to complete a task, having trust in the learning environment to be able to take risks and make mistakes without being criticized, and understanding that they, the students, are ultimately in charge of themselves and their learning. The students in the experiential classroom, who experienced the self-regulation lessons, showed higher growth overall than their peers in the comparative classroom. The students in the experiential classroom took risks to learn new strategies in the intervention and applied them to previous learning and new learning experiences. Understanding that they were in a safe environment to take these risks and not be penalized for mistakes may have had something to do with their willingness to take more time on their post-tests. The conclusion could be drawn that because the students realized they were in charge of their own learning, they took that to heart and put their best foot forward in their post-

test cycle to demonstrate to themselves and their teacher the impact of their learning to be better self-regulators.

Adams and Forsyth (2013) suggested that people are born with the desire to grow and be better learners and are influenced by the feedback they receive from teachers. Students who have teachers who allow them to make mistakes and learn from those mistakes are more likely to become better self-regulators than students who are always told what to do and exactly how to do it. In addition, feedback must be given continuously throughout a learning cycle to help students learn and adapt their strategies over time rather than only receiving feedback at the end of a learning cycle. By that time, poor habits and insufficient strategies have already been learned and internalized, and it may be more difficult for students to select better strategies the next time without consistent and meaningful feedback. The lessons used for this intervention study provided follow-up suggestions to help the experiential classroom teacher provide ongoing feedback and reflection to her students regarding the use of the strategies being taught. Due to the systematic use of the strategies and revisiting and reinforcing them over the course of the intervention cycle, the higher growth in their reading scores suggests this feedback is vital to helping students grow as independent learners.

Gonzalez-DeHass and Willems (2016) noted that "students of all ages . . . can acquire strategic competence and self-regulation strategies" (p. 295). The teachers who are tasked with helping students learn to be self-regulators must also be tasked with knowing and understanding each strategy's purpose and use. If teachers are not demonstrating for students when a specific strategy is appropriate, students may waste time and effort practicing with an inappropriate strategy for the task at hand. The inclusion of follow-up tips and suggestions with the intervention lessons more than likely had an impact on the students' selection of appropriate

strategies. The use of learning aids and exemplars of when to use a specific strategy could very well help a student save time when trying to decide which task is most appropriate until the strategies are truly internalized and students select the appropriate strategy without extraneous forethought.

**Limitations**

This study included several research limitations. First, this quasi-experimental study was conducted on a small scale with only 47 participants in two classrooms at one school. The small population size may not be an accurate representation of these results on a larger scale. In addition, the convenience sampling method limits the study insofar as the students in the experiential classroom may not be an accurate representation of all the fifth graders in the district.

The intervention used as the instrument in the study was designed to be taught over the course of an entire school year. The intervention was modified to fit into the timeline of the research study, and the limited intervention may have affected the results of the study. The timeline for the study did not accommodate seeing whether this growth would continue through the second semester and have an impact on the end-of-year scores.

**Implication of the Results for Practice**

The implications of the results from this study show the need for a greater emphasis on teaching elementary students self-regulation strategies. The previous research literature included a large focus on secondary and tertiary school levels, with few studies showing any elementary students as the participants. Hill (2013) used an intervention method with low-income at-risk elementary students and found positive results. It was the only study in the literature search that demonstrated an active attempt to engage low-income elementary students in learning how to

self-regulate. This dissertation research study also focused on low-income students in a large urban school district where students also experienced some positive-growth after an intervention, although it was not statistically significant. Much of the previous research that did include elementary-aged participants did not put a focus or emphasis on low-income or at-risk children. These students, who already come to school with many factors stacked against them, should be regarded as important to further research. The more they are studied and the more intervention methods tried, the greater the likelihood that the achievement gaps between the at-risk populations and the less-at-risk populations can be closed.

Previous research focused mostly on gifted students who were not meeting their academic potential rather than students who carry many factors that put them at risk for academic failure. While it is worthwhile to study students who are not meeting their academic capability, it is even more important to closely examine how students with higher risk factors are impacted by programs and resources aimed at helping them to close the achievement gap and find their own true potential regardless of the factors in their lives that may serve as roadblocks to their learning.

Elementary school faculties and staff would be wise to consider adopting curriculum that focuses on teaching students the skills of self-regulation. If all students in the elementary grades had embedded lessons that taught self-regulation from the earliest grade and reinforced throughout their school years, the opportunity for all students to be more mindful, present, and focused on learning would increase dramatically. Teaching specific strategies that are reinforced and emphasized year after year, adding in new skills as the students get older, would provide opportunities for students to understand how they learn. When students are given the chance to really know themselves as learners and receive feedback as they move through learning cycles,

they are more likely to try harder and persevere even if a task is difficult. The implementation of a program that teaches self-regulation to all students at the elementary grades could have a tremendous impact upon helping every child, regardless of their ability or income level, to achieve at higher rates and increasing the numbers of students who are reading at grade level each year.

**Recommendations for Further Research**

This study was used as a pilot study to determine whether an intervention in self-regulation could be explored on a larger scale with elementary-aged students. The overarching research question in this study explored whether students would experience positive gains in reading with the inclusion of an intervention that taught them to be more self-aware and responsible for their own learning. Since the findings suggested that there was some relationship between the higher reading growth and the inclusion of the intervention, it is recommended that this intervention be taught on a wider scale in the target district. First, the intervention should be taught throughout the target school to students in third through fifth grade and the results examined. The intervention should be taught as a year-long intervention with reinforcement of each lesson and strategy to help students internalize the processes and begin to use them independently. Second, since this type of research lends itself to more qualitative-type analysis, it would be beneficial to utilize a mixed-methods methodology in future studies so the observations and interactions with students could also be analyzed to determine impacts upon students' thinking and metacognitive skills in addition to their self-regulation skills. The replication of the study utilizing a mixed-methods approach would serve as a follow-up to this pilot study to demonstrate if the results would be similar, better, or worse with the same population and school but expanded to include all the grades where state standardized testing is

given along with the MAP test. If the results of that follow-up study showed a positive relationship to this study, another larger scale study should be done at the district level. This may include providing the intervention to all fifth graders or to fifth graders in two of the four quadrants of the city to determine if the results of the study are similar to or different from the pilot when replicated on a bigger scale. With the expansion of the study, it would be recommended to work with fifth graders, as they are the students closest to middle school, where the skills of self-regulation will be even more important when the students have multiple teachers and teaching methods to contend with each day rather than one teacher they see all day for all subjects.

**Conclusion**

The purpose of this research study was to determine whether low-income students in an at-risk school would benefit academically in reading from an intervention that taught them how to self-regulate their behaviors. The results of the study demonstrated that the use of a systematic, explicit, and targeted intervention that named strategies and provided appropriate supports for student learning had some positive impact on student learning. Overall, the students in the experimental classroom experienced slightly higher reading growth and took more time on their final assessment than students who did not participate in the intervention.

Teaching specific strategies and skills to students that relate to self-regulation is vastly important, regardless of the ability or income level of the students. Mason (2013) claimed "inattention to teaching students how to read and write about expository material has serious implications for low-achieving students" (p. 125). It could be argued that there are also serious implications for students who are gifted but not meeting their academic potential. A focus on curricular supports across all school levels, from elementary school to the college level, that

emphasize and explicitly teach students how to monitor their learning and use metacognitive strategies would benefit all students.

## References


Adams, C. M., & Forsyth, P. B. (2013). Revisiting the trust effect in urban elementary schools. *The Elementary School Journal*, *114*(1), 1-21.

Adams, C. M., Forsyth, P. B., Dollarhide, E., Miskell, R., & Ware, J. (2015). Self-regulatory climate: A social resource for student regulation and achievement. *Teachers College Record*, *117*(2), 1-28.

Arguedas, M., Daradoumis, T., & Xhafa, F. (2016). Analyzing how emotion awareness influences students' motivation, engagement, self-regulation and learning outcome. *Journal of Educational Technology & Society*, *19*(2), 87-103.

Baas, D., Castelijns, J., Vermeulen, M., Martens, R., & Segers, M. (2015). The relation between assessment for learning and elementary students' cognitive and metacognitive strategy use. *British Journal of Educational Psychology*, *85*(1), 33-46. doi:http://doi.org/10.1111/bjep.12058

Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and Human Decision Processes*, *50*, 248-287. doi:10.1016/0749-5978(91)90022-L

Bandura, A. (2007). The evolution of social cognitive theory. In K. G. Smith, & M. A. Hitt (Eds), *Great minds in management: The process of theory development* (pp. 9-35). New York, NY: Oxford University Press.

Basaraba, D., Zannou, Y., Woods, D., & Ketterlin-Geller, L. (2013). *Exploring the utility of student think-alouds for providing insights into students' metacognitive and problem-solving processes during assessment development*. Retrieved from https://files.eric.ed.gov/fulltext/ED563291.pdf

Beeftink, F., van Eerde, W., Rutte, C. G., & Bertrand, J. W. M. (2012). Being successful in a creative profession: The role of innovative cognitive style, self-regulation, and self-efficacy. *Journal of Business and Psychology*, *27*(1), 71-81.

Best, J. W., & Khan, J. V. (2006). *Research in education* (10th ed.). Boston, MA: Pearson.

Bourke, R. (2016). Liberating the learner through self-assessment. *Cambridge Journal of Education*, *46*(1), 97-111. doi:10.1080/0305764x.2015.1015963

Buldur, S., & Tatar, N. (2011). Development of self-efficacy towards using alternative assessment scale. *Asia Pacific Education Review*, *12*, 485-495. doi:10.1007/s12564- 010-9440-y

Cao, L. (2012). Examining 'active' procrastination from a self-regulated learning perspective. *Educational Psychology*, *32*(4), 515-545. doi:10.1080/01443410.2012.663722

Cassidy, S. (2007). Assessing 'inexperienced' students' ability to self-assess: Exploring links with learning style and academic personal control. *Assessment & Evaluation in Higher Education*, *32*(3), 313-330. doi:10.1080/02602930600896704

Chueachot, S., Srisa-ard, B., & Srihamongkol, Y. (2013). The development of an assessment for learning model for elementary classroom. *International Education Studies*, *9*(6), 119-124. doi:10.5539/ies.v6n9p119

Collins, N. M. (2012). *The impact of assessment for learning: Benefits and barriers to student achievement* (Doctoral dissertation). Retrieved from https://eric.ed.gov/?id=ED545718

Garrido-Vargas, M. (2012). *Relationship of self-regulated learning and academic achievement among English language learners* (Doctoral dissertation). Retrieved from https://arizona.openrepository.com/bitstream/handle/10150/242375/azu_etd_12327_sip1_m.pdf;jsessionid=9192ABFF9B8C78C63E7562730E0C1C89?sequence=1

Giron, T. (2012). *Student culture and classroom assessment practices* (Doctoral dissertation). Retrieved from http://digitalrepository.unm.edu/cgi/viewcontent.cgi?article=1022&context=educ_ifce_etds

Gonzalez-DeHass, A. R., & Willems, P. P. (2016). Nurturing self-regulated learners: Teacher, peer, and parental support of strategy instruction. *The Educational Forum*, *80*(3), 294-309. doi:10.1080/00131725.2016.1173751

Grand Rapids Public Schools. (2017). *MAP growth summary—school.* Grand Rapids, MI: Data Warehouse.

Griffith, R. L., Steelman, L. A., Wildman, J. L., LeNoble, C. A., & Zhou, Z. E. (2016). Guided mindfulness: A self-regulatory approach to experiential learning of complex skills. *Theoretical Issues in Ergonomics Science*, *18*(2), 147-166. doi:10.1080/1463922X.2016.1166404

Hall, K. (2012). *Grounding assessment in authentic pedagogy: A case study of general education assessment* (Doctoral dissertation). Retrieved from https://ir.stthomas.edu/cgi/viewcontent.cgi?article=1017&context=caps_ed_lead_docdiss

Hameister, T. (2013). *Assessment leadership to promote student learning* (Doctoral dissertation). Retrieved from https://eric.ed.gov/?id=ED552038

Heller, M. L., & Marchant, G. J. (2015). Facilitating self-regulated learning skills and achievement with a strategic content learning approach. *Community College Journal of Research and Practice*, *39*(9), 808-818. doi:10.1080/10668926.2014.908752

Hill, A. P. (2013). *Understanding and enacting self-regulated learning with students receiving tier 3 instruction in reading: A practitioner inquiry approach* (Doctoral dissertation). Retrieved from https://eric.ed.gov/?id=ED558285

Jarvenoja, H., Jarvela, S., & Malmberg, J. (2015). Understanding regulated learning in situative and contextual frameworks. *Educational Psychologist*, *50*(3), 204-219. doi:10.1080-00461520.2015.1075400

Khaled, A., Gulikers, J., Biemans, H., & Mulder, M. (2016). Occurrences and quality of teacher and student strategies for self-regulated learning in hands-on simulations. *Studies in Continuing Education*, *38*(1), 101-121. doi:10.1080/0158037x.2015.1040751

Le, C. & Wolfe, R. E. (2013). How can schools boost students' self-regulation? *The Phi Delta Kappan*, *95*(2), 33-38.

Mason, L. H. (2013) Teaching students who struggle with learning to think before, while, and after reading: Effects of self-regulated strategy development instruction. *Reading & Writing Quarterly*, *29*(2), 124-144. doi. 10.1080/1057369.2013.758561

McCardle, L., Webster, E. A., Haffey, A., & Hadwin, A. F. (2016). Examining students' self-set goals for self-regulated learning: Goal properties and patterns. *Studies in Higher Education*, *42*(11), 2153-2169.

McMillian, J. H., & Turner, A. B. (2014, April). *Understanding student voices about assessment: Links to learning and motivation*. Retrieved from https://files.eric.ed.gov/fulltext/ED546874.pdf.

Meltzer, L. (2010). *Promoting executive function in the classroom*. New York, NY: Guilford Press.

National Conference of State Legislatures. (2017). *Third-grade reading legislation*. Retrieved from http://www.ncsl.org/research/education/third-grade-reading-legislation.aspx

Northwest Evaluation Association. (2004, March). *Reliability and validity estimates: NWEA achievement levels and measures of academic progress.* Retrieved from

http://images.pcmac.org/Uploads/Jacksonville117/Jacksonville117/Sites/DocumentsCategories/Documents/Reliability_and_Validity_Estimates.pdf

Obergriesser, S., & Stoeger, H. (2015). The role of emotions, motivation, and learning behavior in underachievement and results of an intervention. *High Ability Studies*, *26*(1), 167-190. doi:10.1080/13598139.2015.1043003

Ocak, G., & Yamac, A. (2013). Examination of the relationships between fifth graders' self-regulated learning strategies, motivational beliefs, attitudes and achievement. *Educational Sciences: Theory & Practice*, *13*(1), 380-387.

Onemli, M., & Yondem, Z. D. (2012). The effect of psychoeducational group training depending on self-regulation on students' motivational strategies and academic achievement. *Educational Sciences: Theory & Practice*, *12*(1), 67-74.

Perry, N. E., VandeKamp, K. O., Mercer, L. K., & Nordby, C. J. (2002). Investigating teacher-student interactions that foster self-regulated learning. *Educational Psychologist*, *37*(1), 5-15.

Punhagui, G. C., & de Souza, N. A. (2013). Self-regulation in the learning process: Actions through self-assessment activities with Brazilian students. *International Education Studies*, *6*(10), 47-62. doi: 10.5539/ies.v6n10p47

Reardon, S. F., Valentino, R. A., & Shores, K. A. (2012). Patterns of literacy among U.S. students. *Future of Children*, *22*(2), 17-37.

Rojas-Drummond, S., Mazon, N., Littleton, K., & Velez, M. (2014). Developing reading comprehension through collaborative learning. *Journal of Research in Reading*, *37*(2), 138-158.

RTI Action Network. (2017). *What is rti?* Retrieved from: http://www.rtinetwork.org/learn/what/whatisrti

Schunk, D. H. (1996). *Self-evaluation and self-regulated learning*. Retrieved from https://archive.org/details/ERIC_ED403233

Stiggins, R. J., Griswold, M., & Green, K. R. (1987). *Measuring thinking skills through classroom assessment*. Portland, OR: Northwest Regional Educational Laboratory.

Stoeger, H., Fleischmann, S., & Obergriesser, S. (2015). Self-regulated learning (SRL) and the gifted learner in primary school: The theoretical basis and empirical findings on a research program dedicated to ensuring that all students learn to regulate their own learning. *Asia Pacific Education Review, 16*(2), 257-267.

Tzohar-Rozen, M., & Kramarski, B. (2014). Metacognition, motivation and emotions: Contribution of self-regulated learning to solving mathematical problems. *Global Education Review, 1*(4), 76-95.

Van Dinther, M., Dochy, F., Segers, M., & Braeken, J. (2014). Student perceptions of assessment and student self-efficacy in competence-based education. *Educational Studies, 40*(3), 330-351. doi: 10.1080/03055698.2014.898577

Wang, M., & Degol, J. (2014). Staying engaged: Knowledge and research needs in student engagement. *Child Development Perspectives, 8*(3), 137-143.

Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology, 81*(3), 329-339.

## Appendix: Statement of Original Work

The Concordia University Doctorate of Education Program is a collaborative community of scholar-practitioners, who seek to transform society by pursuing ethically-informed, rigorously- researched, inquiry-based projects that benefit professional, institutional, and local educational contexts. Each member of the community affirms throughout their program of study, adherence to the principles and standards outlined in the Concordia University Academic Integrity Policy. This policy states the following:

**Statement of academic integrity.**

As a member of the Concordia University community, I will neither engage in fraudulent or unauthorized behaviors in the presentation and completion of my work, nor will I provide unauthorized assistance to others.

**Explanations:**

***What does "fraudulent" mean?***

"Fraudulent" work is any material submitted for evaluation that is falsely or improperly presented as one's own. This includes, but is not limited to texts, graphics and other multi-media files appropriated from any source, including another individual, that are intentionally presented as all or part of a candidate's final work without full and complete documentation.

***What is "unauthorized" assistance?***

"Unauthorized assistance" refers to any support candidates solicit in the completion of their work, that has not been either explicitly specified as appropriate by the instructor, or any assistance that is understood in the class context as inappropriate. This can include, but is not limited to:

- Use of unauthorized notes or another's work during an online test
- Use of unauthorized notes or personal assistance in an online exam setting
- Inappropriate collaboration in preparation and/or completion of a project
- Unauthorized solicitation of professional resources for the completion of the work.

**Statement of Original Work**

I attest that:

1. I have read, understood, and complied with all aspects of the Concordia University- Portland Academic Integrity Policy during the development and writing of this dissertation.
2. Where information and/or materials from outside sources has been used in the production of this dissertation, all information and/or materials from outside sources has been properly referenced and all permissions required for use of the information and/or materials have been obtained, in accordance with research standards outlined in the *Publication Manual of The American Psychological Association*

Digital Signature

Raye L. Wood

Name (Typed)

April 6, 2018

Date