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An inquisitive investigation into the effects of self-regulated learning

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AN INQUISITIVE INVESTIGATION INTO THE EFFECTS OF SELF-REGULATED LEARNING

by
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Abstract

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The purposes of this inquisitive investigation were to (a) gain an insight into the self-regulation strategies that third grade students naturally engage in, (b) to teach specific self-regulation strategies to these students, and to (c) explore the effects of utilizing such strategies on different aspects of academic performance. Throughout the study students demonstrated a wide range of strategy use, before and after teaching about self-regulation. The majority of the data collected illustrates several positive impacts on both test grades and homework completion for the 14 participants in the study, who are in the third grade, when multiple self-regulation strategies are used to study or complete assignments at home. Data in the form of pre and post surveys, group discussions, interviews, test grades, and homework assignments are analyzed. The results of the study illustrate several patterns related to self-regulation strategy use and academic performance. Essentially the data shows that when students use different self-regulation strategies in and out of the classroom, there are positive effects. Such positive effects, discussed in more detail in chapter 4, include higher grades on tests, more accurate and thorough homework completion, and a greater level of independence and personal accountability during independent work time. Results of the study and implications for future teachers or researchers interested in the topic, which includes holding a workshop for other faculty members about self-regulation and perhaps teaching these skills to your students, are subsequently discussed in more detail.

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Chapter 1

Scope of the Study

Introduction

"The traditional view of education as an activity for the young is being increasingly supplanted by contemporary demands for lifelong learning. But how well have we equipped our youth to assume the burden of learning for themselves?"

(Zimmerman, 1996, p. 1).

The day starts like any other; the students noisily file into the room out of breath from their pre-school romp on the playground. They unpack and most take out their planners in which they copy down the night's homework, a familiar routine displayed daily on the SmartBoard. While the same nine or ten students are following directions the remainder of the class is engaged in off-task behavior, like playing with scissors, sharpening pencils, talking to their neighbors, or daydreaming despite the familiarity of their consistent morning routine. When those who are disengaged in the morning activities are asked what they should be doing, almost all of them respond with "I don't really know."

My original thoughts are that these students truly do not know what they should be doing, yet Albert Bandura, a psychologist who many are familiar with from his work on social cognitive theory, would absolutely have a different opinion. A webpage created by The Charles A. Dana Center at the University of Texas at Austin and Agile Mind, Inc. quotes Bandura as saying:

> We find that people's beliefs about their efficacy affect the sorts of choices they make in very significant ways. In particular, it affects their levels of motivation and perseverance in the face of obstacles. Most success requires persistent effort, so low self-efficacy becomes a self-limiting process. In order to succeed, people need a sense of self-efficacy, strung together with resilience to meet the inevitable obstacles and inequities of life. ("Learning and the Adolescent Mind," n.d.)

Although these students are not necessarily faced with obstacles, they are indeed faced with choices to be made. According to Bandura, it could be suggested that the individuals in need of little or no redirection who complete the steps of the morning routine are in fact motivated to do so or have a rather high-efficacy leading them to make better choices in regards to what they should be doing at the moment. What about the individuals who appear to be less inclined to abide by requests and instead follow their own agenda? Are these individuals unmotivated, are they purposefully being defiant, or are they unsure of how to carry out steps? Whatever the reason or reasons may be, this rather tiny incident led me to think on a larger scale and ponder the possibilities of why some students do what is required of them while others do not.

I soon came across the first term *self-efficacy* that most often was accompanied by the words *motivation* and *perseverance*. Embracing the views of Zimmerman (1996), I was certain that what I wanted to center my research and writing around was this idea of encouraging students to be masters of their own thoughts and actions, at least in terms of academics. This I later discovered is largely known as "self-regulation" (it is important to note that the term *self-monitoring* is used synonymously with *self-regulation* throughout this thesis).

Purpose Statement

After the second round of "I need help" and blank stares I began to observe certain students first during instructional time, paying particular attention to their behavior when directions or instructions were given. I thought to myself, "*maybe some of these learners are babied at home"* leading me to think*, "and if this is the case, how can I teach them to be more independent, at least while they are under my direction?"* Skeptical of the information

I may find I began my research in order to refine my thinking and shape my question into one of inquiry. I first stumbled upon an article by David J. Nicol and Debra Macfarlane-Dick (2006) analyzing the results of a study in which teachers in the United Kingdom used feedback in order to assist their elementary students to become more "self-regulatory", a term with which I have become quite familiar and intrigued.

Self-monitoring has caught the attention of researchers and teachers alike, but why has the term gained so much support in the academic world? Defined by Zimmerman (1996) as "self-generated thoughts, feelings, and actions intended to attain specific educational goals, such as analyzing a reading assignment, preparing to take a test, or writing a paper" (p. 2), self-monitoring is an effective approach that has proven to be successful in increasing on-task behavior while boosting the completion of homework in some students because it is sustained by personal accountability. More importantly, self-regulation allows the student to be an active agent placed at the center of improving his or her behavior. Since the idea of self-regulating one's own learning encourages the generalization and maintenance of helpful skills such as organizing and planning, students can perform these skills across content areas without the immediate assistance of a teacher. For example goal setting is a central part of self-regulating one's own performance (Bandura, 1977). When students set high performance standards for themselves their achievements are likely to be greater than those who do not engage in this process. Bandura (1977) supports this idea by saying "high achievers tend to make self-satisfaction contingent upon attainment of difficult goals; low achievers adopt easy goals as sufficient" (p. 163). Yet the abilities encompassed by the term self-regulation, such as goal setting and planning, are not easy to master nor are they inherent in all learners. Most

of Bandura's work, however, revolves around the idea that most behaviors if not all, are and can be learned. He writes that:

> Learning would be exceedingly laborious, not to mention hazardous, if people had to rely solely on the effects of their own actions to inform them what to do. Fortunately, most human behavior is learned observationally through modeling. (Bandura, 1977, p. 22)

Therefore we as teachers need to model and teach the skills and techniques that are required in order for one to become self-regulating.

To become self-monitors, students need to learn how to keep track of what and how they are doing in order to adjust behaviors and thoughts to meet goals or complete tasks. Serving as a motivator, knowledge of results that can be delivered to students in the form of written or verbal feedback helps to enhance performance even when this information specifies the level of attainment but not necessarily ways for correcting errors (Bandura, 1977). In his book Social Learning Theory Albert Bandura (1977) states, "If people are to function effectively, they must anticipate the probable consequences of different events and courses of action and regulate their behavior accordingly" (p. 58). Therefore to avoid acting "blindly" in ways that may prove to be unproductive, Bandura maintains that learning and performance goals must be clearly defined, as must consequences for meeting or failing to meet such goals (1977). Then students can learn how to talk themselves through a set of directions or persist at a difficult task. Bandura also believes that "self-motivation requires standards against which performance is evaluated" (p. 161) so self-evaluating success on a daily basis is also important as is comparing progress to earlier performance. Such cognitive representations of future outcomes serve to function as current motivators of belief in the hopes that students can learn to motivate themselves by internalizing a physical model or example of success that they hope to imitate (Bandura, 1977). Although aspects of self-

regulation such as goal setting and progress monitoring are essential to the process but contingent upon circumstances, acting as an agent of change in your own learning puts the individual at the center of success and can be very impactful.

Adjusting influences on behavior and achievement like the environment in which you work or study affects opportunities for gain. However before these adjustments can take place a firm sense of efficacy, a term defined by Bandura (1977) as "People's beliefs about their capabilities to produce effect" (p. 29), must be intact. Barry J. Zimmerman (1996) adds "when self-regulatory processes play an integral role in the development and use of study skills, students become more accurately aware of improvements in their academic achievement and experience a heightened sense of personal efficacy" (p. 10). Found in the book Self-Determined Learning Theory is a study titled "Assessing Adjustment Gains by Students in General and Special Education" which was conducted by Dennis E. and Deirdre K. Mithaug (2003). The study outlines the correlation between one's own beliefs and their achievement. The Mithaug's found that a change in personal beliefs affected the regulation of adjustments in both general and special education students (2003). They draw the conclusion that "beliefs that are significantly discrepant from adjustments will provoke regulatory behavior to restore the match between them and those adjustments. This means that students' beliefs about their adjustment capacity *are* accurate reflections of actual capability" (Mithaug & Mithaug, 2003, p. 122). Hence the conclusion can be drawn that if one does not know how to sufficiently adjust different variables to maximize potential achievement, we as teachers must provide our students with ways or examples of how to do so.

John G. Borkowski and Pamela K. Thorpe argue, "Educators and psychologists need to devote greater energies and resources to addressing the critical issues that surround the

ever increasing problem of underachievement, especially as it is occurring in North America" (as cited in Schunk & Zimmerman, 1994, p. 45). More interesting is Borkowski and Thorpe's' proclamation that an understanding of this unspecified and vague generalization of "underachievement" can be found in the "failure to integrate self-regulation and affect and is attributable, at least in part, to insensitivities, unresponsiveness, or unrealistic demands placed by parents on very young children as they struggle to develop cognitively and emotionally" (as cited in Schunk & Zimmerman, 1994, p. 45). In essence self-regulation is slowly but surely being placed at the forefront of education reform and is a process that must be learned and understood by teachers and parents alike in the hopes that students will gradually become more accountable and assume a greater sense of responsibility for their own academic success.

Statement of Research Problem and Question

What happens when I teach different self-regulating strategies in order to help students monitor their own learning, progress and success? What impact, if any, does self-regulation strategy use have on the academic performance of elementary school students?

Story of the Question

As a practicum student at this stage of my graduate work I am confident in my abilities to determine the difference between noncompliance and ADHD-like behavior such as the inability to focus/daydreaming, learned helplessness, or curricular mismatches. When several students sit at their desks with their hands raised, I am shocked by the repeated responses when I approach these students, which is some variation of "I need help" or "I don't know what to do right now." My feeling of helpfulness turned into disappointment due to my personal preconceived notion that third graders are incredibly independent, or at least

should be. As the day proceeds I can't help but think that these students simply had a rough start to their day, causing their disengagement from the typical morning routine. Yet later that afternoon, something occurred that could have potentially validated my fears that remained dormant in the back of my mind: *perhaps these learners require the direct guidance or supervision of an adult in order to carry out tasks, especially independently.* Yet I couldn't help but let my optimistic side surface and out-shadow my negative assumptions.

I digress to revisit the incident that fueled my current interest in student accountability/responsibility/self-regulation. During an afternoon social studies lesson the teacher prepped the students with both verbal and written directions as well as student clarification, essentially answering any potential questions that may arise. Moments after the directions are given in about four different forms and the independent work is distributed, at least five hands are in the air while two students were out of their seats for unwarranted reasons and three others sit motionless at their desks. The other fifty percent of the class worked diligently but this alarmingly does not prompt the others to begin their work. This all too familiar scene prompted me to begin my journey into a possible area of interest and potential research question: *Why aren't these learners more independent?*

For readers to fully understand my abstract area of interest that I first noticed in Mrs. Thompson's third grade inclusion class, it is crucial to know a bit about my early educational experiences. "Don't ask me questions until you have asked at least *three* friends (always a heavy emphasis on the *three*)," Mrs. Pritchett would say without fail prior to giving us any form of work. This rule of thumb must have resonated with other teachers, or a very aggravated individual directed an in-service on how to deflect student questions, because my

schooling from grades 2-5 was filled with collaboration and cooperation among us students whenever we were unsure of a question or answer.

These memories, paired with the afore mentioned vignette, prompted me to inquire further about more relevant ways in which we can help our learners become more responsible for their progress, more independent, and more aware of their academic strengths and weaknesses in order to guide future decision making.

Organization of Thesis

In the following chapters the reader will gain an insight into what it means to be a self-regulating learner. Chapter two is a review of the current literature available that discusses self-regulation and strategies thought of as crucial that self-monitoring learners engage in. Chapter three outlines my tentative plan that I will follow out in order to carry out my research. In addition to the actual research design in chapter three I provide the reader with a brief history and purpose of teacher research.

Chapter four is mainly a compilation of my data collection. In this chapter I will analyze the results of several different surveys and compare them with academic performance in the form of homework and test grades that were collected at various times throughout the semester. I will use the results of the surveys, which will be administered before, during, and after my instruction about self-regulation, in order to determine the impact, if any, the information I provide students with has on certain dimensions of academic preparation and performance. In chapter five the data I collect and analyze will be summarized and explained more explicitly. The results of my study will essentially suggest whether or not self-regulation strategy use has any impact on academic achievement or other aspects like motivation, preparation, or engagement in activities. Chapter five also explains

the implications of the study and how it may benefit other teachers and researchers. Chapter five will conclude with a brief series of suggestions for future researchers interested in the topic.

Chapter 2

Review of the Literature

An Introduction into the Basics of Self-Regulation

As early as the 19th century during the initial establishment of the republic, personal accountability and individual initiation of one's acquisition of knowledge stood at the forefront of American educational philosophies. Ben Franklin, a great American icon, wrote his "Autobiography" in which he detailed accounts of goal setting and progress monitoring, written evidence of techniques that still persist today that he used to improve both his memory and learning (as cited in Zimmerman & Martinez-Pons, 1990). Cognitive theorists such as Bandura attest that learning techniques similar to those utilized by Franklin like intermediate goal setting in conjunction with self-reflection assist in the comprehensive process of self-regulation, a heavily researched and studied practice. According to Michiko Kayashima and Akiko Inaba, authors of "How Do We Facilitate Development of Learner's Self-Regulation Skill?" the metacognitive skill of self-regulating allows learners to think and control his/her own thinking processes in order to achieve his/her goal independently (n.d.). They note that self-regulation is not domain knowledge, suggesting that almost every learner has the potential to master the skill (n.d.). The much broader concept of self-regulation more specifically includes various components like intrinsic motive to learn, self-efficacy, reciprocal feedback, and personal initiative, skills that may not come naturally to some but can be learned all the same (Zimmerman & Martinez-Pons, 1990). Studies show that learners engaged in one, some, or all aspects of self-regulation, for instance by managing and controlling their effort on classroom academic tasks, promote and reach higher levels of academic achievement. Self-regulatory learners employ in a variety of age-old practices in

order to learn, remember, and understand the material in comparison to their counterparts who may fail to do so for a variety of reasons. Yet if we refer back to Inaba and Kayashima, if the reason for disengagement is because a learner does not naturally posses such self-regulatory skills, it becomes the responsibility of the teacher to model and teach them (n.d.).

Understanding the Bigger Picture: What is Self-Regulation and why is it Important?

An assortment of definitions exist that attempt to encompass all that self-regulation is. In the study titled "The Self-Regulation Questionnaire" it is defined as "the ability to develop, implement, and flexibly maintain planned behavior in order to achieve one's goals" (VandeCreek & Jackson, 1999 p. 1). Although these are in fact skills utilized by those engaged in self-regulation, this definition does not highlight the dexterity of these learners. Barry J. Zimmerman defines self-regulation as "self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals" (as cited in Al-Harthi, 2008, p. 1). Through the assistance of his definition we begin to unravel the purpose of self-regulating, however not yet specific to the academic setting. Another definition proposed by Josyula et al. in their research titled "Metacognition for Self-Regulated Learning in a Dynamic Environment" reads that self-regulation is "the ability of an agent to be able to determine when to learn, what to learn, and how to learn" (n.d., p. 1). This along with the afore mentioned definitions vary in detail and specificity; however most models of self-regulation seek to incorporate motivational and cognitive components that assist students' learning in coordination with three different determinants: their personal processes, the environment, and their behavior (Zimmerman & Martinez-Pons, 1990). Additionally most theorists and researchers of self-regulation view students as metacognitively, motivationally, or behaviorally active promoters of their academic achievement (Zimmerman & Martinez-

Pons, 1990). Zimmerman (1990) illustrates what a self-regulating learner looks like by adding "they approach educational tasks with confidence, diligence, and resourcefulness" (p. 4). As many of us have more than likely done at one time or another, Zimmerman (1990) writes that perhaps the most important thing these learners do is "proactively seek out information when needed and take the necessary steps to master it. They [self-regulated learners] view acquisition as a systematic and controllable process, and they accept greater responsibility for their achievement outcomes" (p. 4). Yet all of these terms, skills, and definitions are meaningless unless accompanied by strategies through which such self-regulation occurs complemented by discussing benefits that are gained from engaging in such a profound process.

Prerequisites for Effective Self-Regulating

Before we can self-regulate our learning Albert Bandura believes it necessary to first establish a sense of self-efficacy. Bandura firmly believes that a strong sense of efficacy enhances human accomplishment and personal wellbeing in many ways, also benefits of regulating one's own learning (1977). He also says that, "People with high assurance in their capabilities approach difficult tasks as challenges to be mastered rather than as threats to be avoided." (Bandura, 1997, p. 197) With such a high self-efficacy develops an intrinsic interest to complete and remain engaged in tasks along with goal setting and planning and most often, desired levels of achievement. An important feature of individuals with high self-efficacy is their ability to attribute failure to insufficient effort or a personal deficit in knowledge or skills that were knowingly required to succeed. Bandura offers four different ways in which this intrinsic characteristic called self-efficacy can be developed, maintained, and strengthened. First and foremost he attributes a high sense of self-efficacy to experience.

Bandura believes that successes aid in the establishment of initial self-efficacy while believing in oneself especially when taking on difficult tasks despite previous setbacks helps to improve it (1977). Secondly Bandura writes that witnessing others similar to yourself succeed through sustained efforts positively affects one's perception about their own capabilities. However Bandura points out that perceived similarity to the person whom you observe will positively or negatively affect how persuasive efforts and results will be to an individual (1977). Easy enough to provide students with is "social persuasion", the third way Bandura suggests self-efficacy can be developed. Verbal reminders and positive praise are proactive steps teachers can take to encourage their learners that they posses the necessary skills to complete tasks or assignments, which can also help to dispel any self-doubts (Bandura, 1977). In addition to raising people's beliefs in their capabilities, Bandura suggests that those attempting to "socially persuade" their learners not only try to structure situations for them in ways that bring success but also try to avoid placing people in situations prematurely where they know they are likely to fail (1977). Lastly Bandura sites the following as the fourth way of modifying self-beliefs of efficacy: "reduce people's stress reactions and alter their negative emotional proclivities and interpretations of their physical states." (1977, p. 129) In other words, teachers can try and provide students with more positive feedback and deliver negative feedback in the form of suggestions on how to reach desired goals instead of simply listing their deficiencies. Show them where they are presently in comparison to where the teacher wants them to be and provide them ways of achieving such proficiency. Bandura's extensive research into self-efficacy can relate to academics in greater ways. The stronger the perceived self-efficacy, the higher the goal challenges people set for themselves and the firmer is their commitment to them. To remain task oriented,

Bandura believes, requires a strong sense of efficacy, especially when previous failures and a firm belief in self-deficiency is already in place (1977). He says that individuals with a low efficacy hold themselves to lower standards and decrease their aspirations. These individuals also put forth less effort if they believe the end result is failure and in turn their performance deteriorates (Bandura, 1977). Therefore building in our learners a sound sense of self-efficacy is crucial if we aim for them to be masters of their own learning and knowledge acquisition later on in their education despite the intricacy of the process because of profound benefits derived from the overall practice.

What Self-Regulating Entails: The Processes in Which Self-Regulators Regularly Engage

Self-regulation is not a subconscious process like breathing or blinking nor is it an isolated endeavor; rather it is an umbrella term that is supported through multiple concepts and procedures. The encompassed strategies refer to those useful during the acquisition of information, skills that involve agency, purpose, and instrumentality perceptions by learners. So what processes specifically do self-regulators engage in that make them active agents in their own learning? In their study "Student Differences in Self-Regulated Learning: Relating Grade, Sex, and Giftedness to Self-Efficacy and Strategy Use" Zimmerman and Martinez-Pons (1990) explain that self-regulating has many different dimensions; their mastery, implementation, and usefulness depend on variables such as academic context, personal efforts, and outcomes of behavioral performance. Throughout their research they were able to identify and classify the following 14 learning strategies as ones that self-regulators frequently engage in: self-evaluating, organizing and transforming, goal-setting and planning, seeking information, keeping records and monitoring, environmental structuring, self-

consequating, rehearsing and memorizing, seeking peer/teacher/adult assistance, reviewing tests/notes/texts. Typically learners actively engage in these processes in hopes of achieving desired academic goals. It is important however to note that the researchers developed these titles for the purpose of their study, although most of their strategies appear in other research on the topic. In his independent work titled "Self-Regulated Learning and Academic Achievement: An Overview" Zimmerman explains that self-regulation centers on personally initiated processes and responses that are designed to improve one's ability and environment for learning (1990). He adds that self-regulated learners also plan, set, organize, self-monitor, and self-evaluate at various points during the process of knowledge acquisition which allows them to determine the best approach to successfully complete tasks (Zimmerman, 1990). In other words, self-regulating learners "select, structure, and create environments that optimize learning" and are characterized by their "awareness of strategic relations between regulatory processes or responses and learning outcomes and their use of these strategies to achieve their academic goals" (Zimmerman, 1990, p. 5). A central aspect of self-regulating is recognizing when you know a fact or posses a skill and realizing when you do not. Zimmerman writes that self-regulators proactively seek out information when needed and likewise take the necessary steps to gather and master it. Another significant feature of self-regulating is self-orienting feedback, according to Zimmerman. During this process students themselves analyze the effectiveness of their learning methods and strategies and use this information to their benefit in a variety of ways. For instance self-regulatory learners evaluate how well a study strategy or environmental condition helped to achieve a certain goal and depending on the outcome, say a desired grade, they either alter or continue the process through which the goal was reached or unattained (Zimmerman, 1990). Prior to

engaging in an actual academic tasks regardless of its difficulty, self-regulators first self-assess in order to plan and set goals based on their knowledge of self which help them to persist despite obstacles and also self-evaluate at various points (Zimmerman, 1990). How can these differing aspects of managing one's learning help students? According to Zimmerman self-regulators are able to adjust their learning responses to new and changing conditions and proactively seek out and profit from learning activities (1990). Self-regulated learners are motivated to do well because they know and understand the processes through which success is attainable. They are able to independently compare their performance with desired outcomes and required criteria, promoting their active engagement and accountability in their own academic success (Zimmerman, 1990).

Benefits and Outcomes of Self-Regulating

Now that it is understood what it means to be self-regulating through the establishment and unpacking of its processes, it is time to delve into the "so what" factor. Zimmerman and Martinez-Pons contend that self-regulation helps to develop an "intrinsic" motive to learn, confidence in abilities, and a high sense of self-efficacy (1990), which Alfred Bandura defines as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives" (as cited in Ramachaudran, 1998, p.1). Once an initial sense of self-efficacy is established, learners can then gradually decrease the level of and eventually phase out adult assistance (Zimmerman & Martinez-Pons, 1990), a magnificent benefit of self-regulating. Those who can regulate their own performance and monitor achievement understand how to best situate themselves for optimal learning and success, yet another advantage that self-regulators have the benefit of. Learners who engage in self-regulating processes have the potential to "acquire the savvy

and personal resources to overcome obstacles, such as poor learning environments, rambling lectures, poorly written books, and difficult tasks" (Zimmerman, 1996, p. 9). These individuals are able to do so because they become aware how to plan and use study time more effectively, understand and summarize text material more effectively, employ in more effective methods of note taking, anticipate and prepare more thoroughly for examinations, and write more effectively (Zimmerman, 1996). Once these capabilities are recognized learners begin to value particular tasks, which leads to continued engagement, more expended effort, and higher levels of achievement on such tasks (Schunk & Zimmerman, 1994). Self-regulated learners thus become more motivated to learn the material as opposed to learning it simply to get a good grade because they believe schoolwork is interesting and important. Consequently they become more cognitively engaged in the process of learning and comprehending material. Elisabeth DeGroot and Paul Pintrich write that:

> Students who believe they are more capable are more likely to report the use of cognitive strategies, to be more self-regulating in terms of reporting more use of metagocnitive strategies, and persist more often at difficult and uninteresting tasks. (1990, p. 33)

What Research Says and Proves About Self-Regulation

In theory self-regulation sounds like a phenomenal routine in which all learners should execute, but in practice is it effective? Zimmerman and Martinez-Pons (1990) interviewed 45 boys and 45 girls of the 5^{th}, 8^{th}, and 11^{th} grades from a school for the academically gifted and an identical number from regular schools regarding their personal use of the [Zimmerman's and Martinez-Pons's] aforementioned 14 strategies. The gifted students were chosen as a comparison group because they demonstrate more "persistence of motive and effort" plus "confidence in their abilities" (Zimmerman & Martinez-Pons, 1990,

p. 51) which led them to believe that these learners would display greater self-efficacy than regular students, which in fact they did. They discovered that the gifted students who were interviewed showed more verbal and math efficacy, providing empirical support that these learners display greater academic motivation and self-confidence than their counterparts from the study. They also found that confidence in the verbal comprehension skills of gifted students was acquired at a younger age ($5^{th}/8^{th}$ grade vs. $8^{th}/11^{th}$) than those in the regular school It is noteworthy to mention that the gifted program was highly accelerated. Nonetheless gifted learners from their study reported organizing, transforming, self-consequating, seeking peer assistance, and note taking more than others studied. In his book "Developing Self-Regulated Learners" Zimmerman writes that "We have evidence that academic self-motivation grows initially from parental goal expectations but ultimately from acquired academic standards, perceived self-efficacy, and personal goal setting" (1996, p. 9). Interestingly enough the gifted learners also appear to seek more adult-assistance than their regular education peers, mostly from their parents, taking greater advantage of parental resources (Zimmerman & Martinez-Pons, 1990). Zimmerman and Martinez-Pons discovered from the results of their study that in general girls engage in more record keeping, monitoring, environmental structuring, goal-setting, and planning, portraying them as greater users of self-regulation strategies (1990). Their research also indicates that reviewing texts declined as reviewing self-recorded notes increased while seeking teacher assistance also increased in the regular education learners (Zimmerman & Martinez-Pons, 1990). This leads one to ponder, as Zimmerman and Martinez-Pons also do: did academic self-efficacy develop with the increasing independence from parents? If so then it could be suggested that these self-regulators need to establish self-efficacy earlier in their education, since parental

involvement is unlikely to decline before the 8th grade. In brief the results of their study indicate that students' efforts to strategically regulate their learning are associated with higher self-perceptions of mathematical and verbal efficacy. They also found that children's self-perceptions of competence declines from the time they enter school through high school, most drastically during middle school, mostly due to competitive grading and a growing sense that abilities are endowed traits (Zimmerman & Martinez-Pons, 1990). However the results of their study may prove that this decline in self-perception can be combated if self-regulation is introduced early establishing a firm foundation of knowing one's abilities, a high sense of self-efficacy, and an intrinsic motivation to succeed. In short, efforts to strategically regulate their learning are associated with higher levels of math and verbal efficacy and an effective model of self-regulation, if introduced early in one's education, may in fact have merit for training students to become more effective learners (Zimmerman & Martinez-Pons, 1990). DeGroot and Pintrich (1990) conducted a study involving 173 seventh grade students from eight science and seven English classes in hopes of finding a correlation between motivational orientation, self-regulated learning, and classroom academic performance. They found from the results of their study that self-efficacy was positively related to student cognitive engagement and performance. Their findings imply that teaching students about different cognitive and self-regulatory strategies may be more important for improving actual performance on classroom academic tasks, but that improving students' self-efficacy beliefs may lead to more use of these cognitive strategy. The students with high levels of motivation to learn the actual material and not just get a good grade reported persisting on their academic work and self-regulating their performance. They conclude that the cognitive variable of self-regulation in particular was a better predictor of actual

academic performance and affirm that it is important for teachers to socialize students' intrinsic value for schoolwork because those in their study who valued the tasks in their classrooms engaged in self-regulating more often than those with little intrinsic motivation (DeGroot & Pintrich, 1990).

What can we do as Teachers to establish and enhance the Self-Regulation Skills of Our Students?

Research is endless on the effects of self-regulation and it is referred to by Bandura as a "natural step toward becoming independent, which can only happen when students take responsibility for their own behavior and learning making them agents of change" (as cited in Ramachaudran, 1998, p. 15). More importantly, the ability to self-regulate marks a shift from reinforcement by others to intrinsic reinforcement of appropriate behaviors decided upon by oneself. It is a strategy that can be taught to and benefit learners of all ages and abilities and can naturally be integrated into the everyday curriculum. Teacher support when students' strategies do not seem to work can be pivotal to their establishment and continuation of a self-regulatory approach. In conjunction with support, teachers can model self-monitoring and strategy-selection procedures for their students (Zimmerman, 1996). Likewise another helpful technique when teaching students to become self-regulators is to clearly define performance outcomes for a given task and identify and outline consequences for failing to meet the requirements. Once this is done students will be able to "talk" themselves through a set of instructions in order to reach their goals or likewise become familiar with asking themselves questions about their progress or lack thereof. For example one can stop and ask themselves, "Am I on task right now?" or "is what I'm doing helping me reach my goal or achieve the performance outcomes necessary to succeed on this assignment?" Dale H.

Schunk who is a professor of educational psychology at Purdue University says, "The most important goal right now in education is to teach kids to operate independently and if students are not already able to do so when they get to us in the classroom we as teachers must teach them strategies to exercise some degree of control over one's learning" (as cited in *USA Today*, 1997, para.4). Schunk provides tips for parents to help their offspring become self-regulated learners, but most are applicable to teachers as well. For example, he explains that teachers must ensure that their students know the correct methods and procedures for doing a particular assignment. Teachers can cover the steps several times and further clarify them in order to ensure that their learners are aware of how to complete the task. Another suggestion is to build their confidence; when students feel they can do well and that someone believes they can too they will most likely try hard despite the difficulty level of the work. A suggestion that can be useful throughout one's entire education and even beyond is teaching your students to control their emotions. We as teachers can teach our learners not to panic if test questions or assignments are too hard and likewise provide them with strategies for working through difficult work across content areas (Schunk, 1997). Another easy thing to do that can be integrated into the everyday routine is emphasizing progress both individually and collectively. Teachers can point out and remind their students that the work they are currently doing is much more complicated than the work they were completing six weeks ago.

During a time when teachers are under increasing scrutiny, it is imperative that we provide our students with as many possible strategies to succeed in a time of immense school reform. It is known that all students are different in that they obtain and retain information in different ways, place greater emphasis on certain subjects than others, vary in levels of

motivation and support, and have differing definitions of success. However if we can begin to shift responsibility for the learning process to our students by teaching them a common set of strategies and skills that allow them to benefit from the same information in similar ways and instill in them an intrinsic desire to succeed then perhaps we can begin to close the gaps among our learners. Self-regulation is a practice that enables students to recognize their abilities and realize that they themselves are truly responsible for their academic success. In theory this can help to eliminate the use of teachers as scapegoats for poor performance and less than proficient grades because those who are self-regulators place themselves at the center of their learning and achievement. It will be interesting to personally engage in and teach these strategies in which students can potentially become willing and able to assume responsibility for self-regulating their academic achievement. The first two chapters of this thesis have essentially set the stage for the subsequent research that will allow me to discover the effects, if any, of teaching third grade students self-regulation strategies on their academic performance over the course of 10 weeks.

Chapter 3

Context and Design of the Study

Introduction

In the following chapter, I discuss the research design and methodology I use in my study that analyzes the various effects of self-regulation strategy use on student learning and achievement. This thesis focuses on students in a third grade inclusion classroom and all of the research was done in this setting where I completed my student teaching. The qualitative research paradigm, the form of which my research design and data-collection methods take, is a complex process rooted in cultural anthropology and American sociology (Kirk & Miller, 1986). A central purpose of qualitative research, especially for teachers, is to make sense of a witnessed social phenomenon. Not an easy task to do, pursuing qualitative research generally requires immersion in the everyday life of the setting chosen for the study which allows the researcher to enter the informants' world and through ongoing interaction, gain the informants' perspectives and meanings. Qualitative research is suitable for my study because it is fundamentally interpretive rather than definitive. It seeks to aid teachers in making sense of what they are observing in their classroom and use this information to guide further instruction, classroom community building, or help to understand a particular social situation, event, role, group, or interaction (Locke, Spirduso, & Silverman, 1987). Rather than come to one definitive conclusion about why something or someone acts the way it does, qualitative research involves multifaceted processes to help gain an insight into the mechanisms of a social phenomenon in order to work in a parallel fashion with, rather than against, its many aspects. This means that the researcher makes an interpretation of the data collected which includes developing a description of an individual or setting, analyzing data for themes or

categories, and finally making an interpretation or drawing conclusions about its meaning personally and theoretically, stating the lessons learned, and offering further questions to be asked (Wolcott, 1994). Essentially I feel the process of qualitative research has effectively helped me carry out my study because I wish to gain an insight into the process of self-regulation as it is seen in third grade students in order to better understand the social phenomenon of varying academic achievement.

An important aspect of qualitative teacher research is ensuring that the data collection methods you have chosen are both interactive and humanistic, which fortunately for us should not be too difficult due to the rising popularity of this type of research, increasing variance in data collection techniques, and the process through which we must undergo before carrying out research.

Context of the Study

This study took place in a Pre K-5 elementary school in southern New Jersey. I spent the entire 16 weeks of student teaching in the same classroom, which allowed me the opportunity to understand particular aspects of the participants such as individual student behavior during whole-group and independent work time. I focused my first two weeks of research on identifying the different self-regulation strategies the students were using before they were aware of a technical name for it by observing and interviewing them. The remaining six weeks of research were dedicated to introducing the students to various self-regulation strategies, additional interviews and surveys, observations, and collection of homework and other assignments. The data included in this research is strictly representative of the classroom it was collected from and the findings are not directly applicable to any other setting.

School District

The school that the research took place in will remain nameless in order to ensure the privacy of the staff and students. It is located in an area of southern New Jersey where as of the census of 2000 there are 42,891 people, 14,066 households, and 11,342 families residing. According to the National Center for Education Statistics (NCES), the school educates 756 students from grades pre-kindergarten through fifth and in the 2009-2010 school year 60 percent of students are Caucasian and nearly 29 percent of students are African American. Additionally 32 percent of students are eligible for free or reduced lunch. According to the 2000 census, the median income for a household in the area where the school is located is $61,366 with about 5.8% of the population below the poverty line.

Participants

Of the 22 students in the third grade inclusion classroom where the research took place, 14 parents or guardians agreed to allow their child to participate. The entire class was taught the self-regulation strategies and engaged in discussions but data was collected only from the 14 students whose parents signed the consent form. Among the 14 participants, eight are female and six are male, three are African American, one is Hispanic, and the other ten are Caucasian. Of the six male participants three of them have IEPs. An in-class support teacher comes to assist these three students during language arts, writing, and math. The general education teacher has been a third grade teacher at this school for the past seven years but this is her first year working with an in-class support teacher. In the proceeding chapters I use initials to refer to the participants in order to keep their identities anonymous and label them as male or female.

Procedures of the Study

Prior to beginning my actual research in the classroom I created a list of the certain self-regulation strategies that interest me the most based on Zimmerman and Martinez-Pons' list of 14 self-regulating strategies (1990, p. 51). The research spanned over the course of eight weeks, and during the first two weeks I looked for evidence of students using the particular strategies I would be focusing on before I taught them. The list includes: following directions (written and oral), seeking help/asking questions, progress monitoring/goal setting, creating an effective learning environment. I used a table to keep track of strategy use during the initial two weeks of data collection by recording observations and asking the class as a whole to identify which of the following they actively engage in when they don't know the answer to a question, when they complete an assignment at home, and when they study for a quiz or test (see Appendix A).

I used the data collected from this initial survey to gain a general idea of the self-regulation strategies that the students were already familiar with. Next I chose three assignments prior to formally introducing self-regulation: a math test, a science test, and a spelling test. I recorded the participants' scores on these three assignments. Then I chose a spelling homework assignment, noted who had to redo the assignment and who did not, and conducted an interview of the 14 participants to find out more about strategies that were used when completing the assignment (see Appendix B).

Next I used information from Zimmerman and Martinez-Pons' study titled "Student Differences in Self-Regulated Learning" (1990) to facilitate a group discussion about goal setting, one about creating an effective learning environment, and also conducted a group discussion about seeking help and following directions. During the first discussion I

explained the importance and impact of goal setting when completing assignments or studying based on research included in chapter two. I modeled the strategy and showed the students how to use this in the future by giving them the example: *I want to finish my homework by 6:30 so I can watch my favorite show;* if I did not reach my goal then something I previously did must be altered and vice versa: *if I did not finish by 6:30 then next time I need to come straight home instead of stopping at my friend's house*. At the end of each day during that week I had several students raise their hand and verbally tell the class a goal they were setting for themselves, regarding something in or out of school, and during the following days discussed ways we could alter our paths to success if we did not achieve our goals. The next week followed a similar pattern; I explained some strategies that students can use in order to create an ideal environment for completing assignments or studying both in school and out. We shared ideas of what we were going to try that night when doing homework and discussed the effectiveness the following morning.

In order to discuss with the students different strategies to use when they need assistance, we discussed the kinds of things the students currently do when seeking help or when they are stuck on a question. I recorded their answers and discuss the results in chapter four. Then I provided each student with a laminated index card that listed several things to try before asking the teacher for help based on what they already knew to try (see Appendix C). We reviewed the different procedures students were to try before asking the teacher for help to remind them of the things they already know how to do (like re-read the directions) before seeking help. Each child was also given a handprint cut out which was red on one side and gray on the other. If they were truly stuck on a question even after trying other options to

solve the problem on their own, they were to place the hand red side up and continue working until help was available.

Finally, we spent the following week discussing aspects of directions that confuse most third graders. I made note of several comments but realized most students who do not self-regulate probably are not aware of what it is that is confusing them. So after some note-taking and class discussions, I created a list of certain language found in directions that may confuse students, included the meaning of the word or phrase, and glued it to the opposite side of the index card they already had (see Appendix D).

Each student then received four beads that were attached to their index card by Velcro. If their "hand" was on red and I approached their desk, they were instructed to hand me a bead if they really struggled with a question and needed assistance. I reminded them that this was not a punishment for asking a question but merely a way for me to keep track of how many questions were asked throughout the day after being introduced to the strategies listed on the index card. At the end of each day I counted up the amount of beads I had collected from the 14 participants and kept a log for the week.

Lastly I provided the students with "check boxes" to assist them with another spelling homework assignment (see Appendix E). I then recorded who used the check boxes, who had to redo the assignment a second time, and the reason why they may have had to redo it.

Data Analysis

I collected pre and post data in an attempt to find any obvious affects of self-regulation strategy use. I wanted to know if any of the participants were already actively engaging in self-regulation without knowing it in order to identify any noticeable trends or patterns. The initial surveys helped me realize a possible link between self-regulation

strategy use and higher test grades and will be further analyzed in the following chapter. I will also analyze the impact of certain self-regulation strategy use in terms of gender and disability, a possible trend detected during the eight weeks of data collection. **Limitations**

Due to the time constraints of student teaching and the completion of my coursework, I was not able to gather as much data as I would have liked regarding the asking questions and seeking help portion of my research. Likewise due to the fact that only 14 out of 22 parents allowed their child to participate I was not able to collect data from as wide a range of participants as I would have hoped.

It was difficult to keep track of the questions students were asking while also teaching during the final week of data collection and therefore my findings for the amount of questions that students were asking are not 100 percent accurate but rather a general estimate. Lastly during the various surveys I did not have the time to delve further into specific aspects of the self-regulation strategy use of the 14 participants prior to introducing them. Instead their answers to the first survey are very vague and generalized based on what the participants are aware they do when studying or doing homework. Again I collected data from only 14 students in a single third grade inclusion classroom at a fairly large elementary school in southern New Jersey. Therefore my data is only representative of the students in this particular classroom and cannot be generalized for a similar setting.

Chapter 4

Results of the Study

Introduction

In this chapter I discuss and analyze the results of the research that took place in a third grade inclusion classroom. First I examine the results of the initial strategy-use survey which are charted and included in this section and discuss several early patterns that emerge. Although I have not included the answers in this chapter, next I will discuss the results of the interview questions of the 14 participants and compare and contrast these with the test scores I collected. I will then analyze the data collected from the week of research that focused on asking questions.

Prior to Teaching About Self-Regulation

It is important to keep in mind that the information and data discussed under this particular heading is from the time prior to formally introducing self-regulation to the students. With that being said, I conducted a survey in order to gain an insight into which of the strategies I would be focusing on that my students already engage in. I also collected this data to help identify any potential impact of self-regulation on academic performance in the form of test scores that I would want to pursue throughout my research. Table 1 shows the results of the initial strategy-use survey and only includes the answers from the fourteen participants. I have indicated which participants, who are referred to by initials, are male and which are female as well as those who have an IEP.

Table 1 What Do You Do When You Study for a Test or Do Homework? Survey

Name	Make a Quiet Environment	Set a Goal for Myself	Try to Figure Things Out On My Own	Realize When I Need Help	Seek Help When I Realize I Need It	Use Books/Other Materials to Help Me	None
A.C. (female)	X	X	X				
M.F. (female)		X			X		
C.H. (male, IEP)					X		
J.H (male)			X				
A.H. (female)	X	X	X			X	
D.L. (male)			X				
J.M. (male, IEP)							X
C.O. (female)	X		X			X	
M.R. (female)	X	X					
J.S. (male, IEP)			X				
M.T. (female)		X			X		

A.W. (female)	X				X		
K.Y. (female)			X				
B.Y. (male)			X				

My very first observation of the survey results is that more female participants than male raised their hand for using one or more self-regulation strategy when completing homework or studying for a test. Five out of the eight female participants answered that they like to set up a quiet place when doing homework or studying but no male participants admitted to using this strategy. Four out of six males raised their hand only for "Try to Figure Things Out on my Own" and one of the participants with an IEP said he uses no strategy when doing homework or studying.

The most obvious pattern to emerge from this initial survey is that more female than male students naturally engage in at least one of the strategies included in my research while completing homework or studying. Yet it is important to keep in mind that students are only asked about the strategies I have chosen to focus my research around and may in fact engage in other forms of self-regulation.

Next I recorded the scores of the participants on a math, science, and spelling test (see Table 2).

Table 2 Test Scores (prior to teaching about self-regulation)

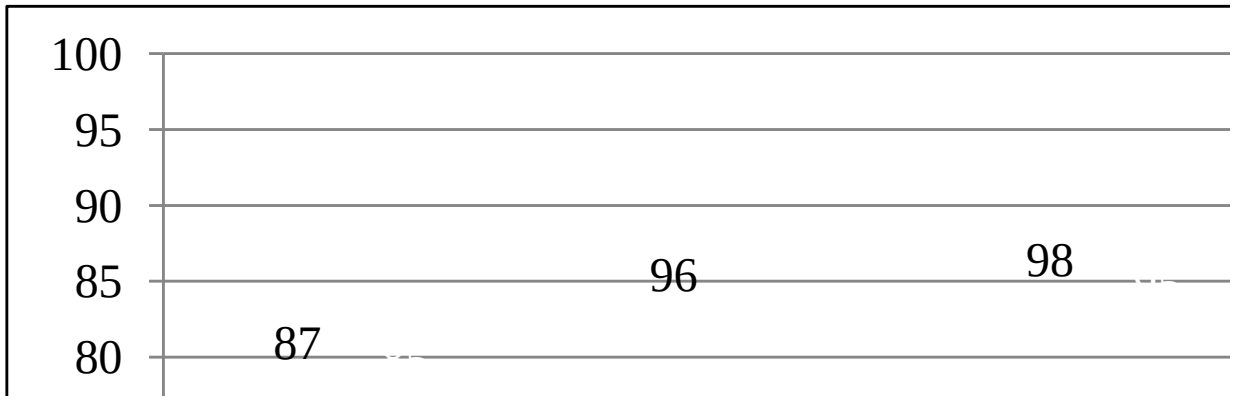
Name	Math Test	Science Test	Spelling Test	Name	Math Test	Science Test	Spelling Test
A.C. (female)	88	100	100	C.O. (female)	88	100	100

M.F. (female)	97	96	100	M.R. (female)	91	92	100
C.H. (male, IEP)	79	92	100	J.S. (male, IEP)	70	92	87
J.H (male)	88	79	100	M.T. (female)	82	96	100
A.H. (female)	91	100	93	A.W. (female)	73	92	93
D.L. (male)	97	100	100	K.Y. (female)	94	89	100
J.M. (male, IEP)	71	78	93	B.Y. (male)	99	87	93

I obtained this data in order to compare academic performance with the initial strategy use survey.

I then took the scores of the participants who raised their hand for using two or more self-regulation strategies on the initial survey (see Table 1) and averaged their scores for the three tests. I did the same for those who raised their hand for using one strategy or fewer and put the results into a chart (see Table 3).

Table 3 Average Test Scores of Participants Based on Number of Strategies Used



The chart illustrates that the seven participants who admitted to using two or more strategies when studying or completing homework, who are coincidentally all female, had a higher test average on all three tests. On the other hand the seven participants who raised their hand for using one strategy or fewer, six of who are male, had noticeably lower test averages. The data suggests that higher test scores could be linked to multiple self-regulation strategy use when preparing for a test.

Homework

Next I collected a spelling homework assignment and noted which of the 14 participants had to redo it. Of the seven participants that recorded using two or more strategies on the initial survey, one of them had to redo the spelling assignment and explained that she and her parents were both confused with the content. More interesting is the fact that of the participants who use one strategy or fewer when doing homework, all seven of them had to redo the assignment for different reasons.

It is important to keep in mind that I did not record what strategies the students used on the particular spelling assignment but rather the ones they believe they use prior to teaching them. With that being said, the data suggests that more accurate homework completion could be attributed to self-regulation strategy use. It could also be said that the more strategies a student engages in when completing homework, the better chance they have to do it properly the first time. More specifically, five out of the six participants who did not have to redo the assignment said they like to make a quiet environment when doing homework and seven of the eight who had to redo it did not raise their hand for this strategy. Therefore the data suggests that creating a quiet and effective environment particular to the

individual when completing homework is a highly effective strategy that positively affects academic performance on homework.

In addition to keeping track of who had to redo the assignment I also conducted a survey of the 14 participants after completing it. On the survey all six of the participants who did not have to redo the assignment answered that they thought they would get an A on the homework and likewise said they used at least one self-regulation strategy while completing it. Six out of the eight participants who had to redo the spelling assignment admitted to doing the work with the TV on. This data suggests that a high sense of self-efficacy can attribute to higher academic performance on homework as seen with the 6 participants who did not have to redo it. It could also be said that a controlled learning environment can better benefit a student when doing work at home as opposed to being surrounded by distractions.

Teaching about Self-Regulation

After collecting my initial data I began to introduce the students to the various aspects of self-regulation that I would be teaching. Since this study focuses on the potential effects of self-regulation strategy use, I have not included the outcomes of the several discussions we had as a class about each strategy. Rather I conducted another survey of the participants after teaching them about following directions (written and oral), seeking help/asking questions, progress monitoring/goal setting, and creating an effective learning environment. I did so to see which of the strategies I taught them about, if any, they actually used when studying for a proceeding math test after we discussed them in order to compare this to their scores (see Table 4).

Table 4 Self-Regulation Strategy Use When Studying or Doing Homework (after teaching about them)

Name	Make a Quiet Environment	Set a Goal for Myself	Try to Figure Things Out On My Own	Realize When I Need Help	Seek Help When I Realize I Need It	Use Books/Other Materials to Help Me	None
A.C. (female)	X	X	X				
M.F. (female)	X	X			X		
C.H. (male,IEP)		X			X		
J.H (male)		X	X				
A.H. (female)	X	X	X			X	
D.L. (male)			X				
J.M. (male,IEP)		X					
C.O. (female)	X		X			X	
M.R. (female)	X	X					
J.S. (male,IEP)			X				
M.T. (female)		X			X		
A.W. (female)	X	X			X		
K.Y. (female)	X		X				
B.Y. (male)		X	X				

After teaching the various self-regulation strategies, 11 out of 14 participants raised their hand for using two or more strategies, four more than prior to teaching them. Five more

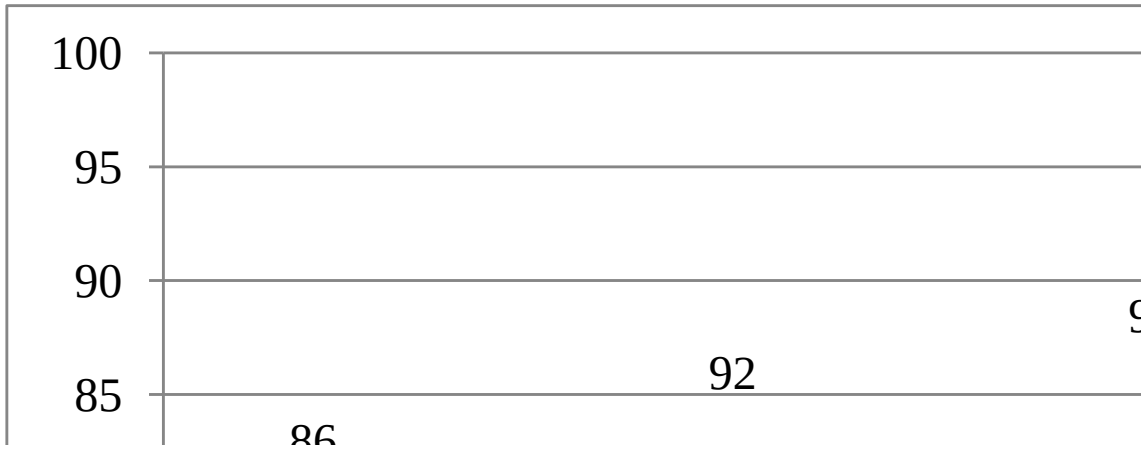
participants admitted to setting a goal for themselves when studying or completing a homework assignment. In addition to the survey I recorded the participants' test scores on the following math, science, and spelling test (see Table 5).

Table 5 Test Scores After Learning About Several Self-Regulation Strategies

Name	Math Test	Science Test	Spelling Test	Name	Math Test	Science Test	Spelling Test
A.C. (female)	88	105	100	C.O. (female)	88	96	100
M.F. (female)	97	91	80	M.R. (female)	91	100	100
C.H. (male, IEP)	79	78	100	J.S. (male, IEP)	70	92	93
J.H (male)	88	96	87	M.T. (female)	82	96	100
A.H. (female)	91	91	100	A.W. (female)	73	82	93
D.L. (male)	97	105	100	K.Y. (female)	94	93	100
J.M. (male, IEP)	71	87	100	B.Y. (male)	99	89	100

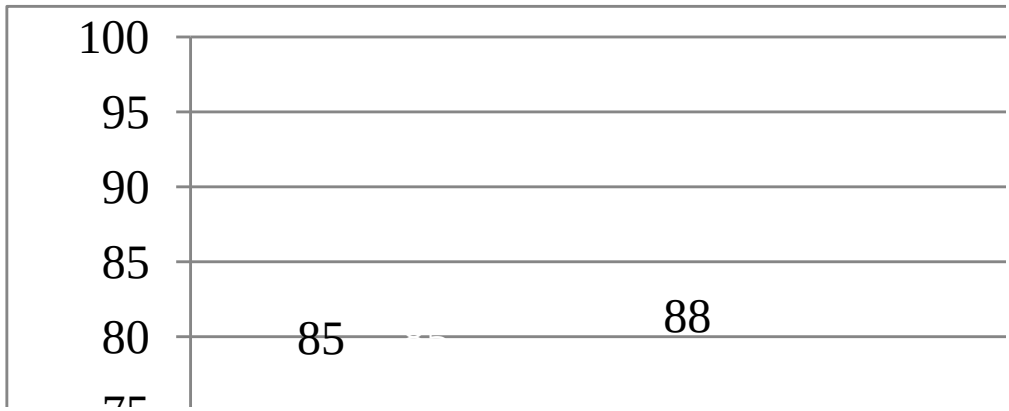
I used this information to validate the idea that self-regulation strategy use can positively impact test scores, which my data has thus far suggested. Next I compare the average test scores of all 14 participants prior to and after teaching the strategies (see Table 6).

Table 6 Average Test Scores (Before and After Teaching Self-Regulation Strategies)



Although an increased amount of participants admitted to using more self-regulation strategies when studying for these tests than initially, the data shows no significant change in the average test scores before and after learning the strategies. Therefore I compared the average test scores of those who previously said they used one or strategy or fewer (see Table 7).

Table 7 Average Test Scores of Students Who Initially Recorded Using 1 Strategy or Fewer (Before and After Teaching Them)



Four of the original seven participants who, prior to teaching about the strategies said they used one or fewer, admitted on the second survey to using two or more after learning about them. The data supports the original pattern that the use of multiple self-regulation strategies when studying for a test can lead to higher test scores. However a limitation to this

statement is the fact that I did not ask the students which particular strategies they used while studying for the tests. Still two out of the three participants with IEPs maintained or raised their grades on all three tests after learning about the strategies. Therefore it can be said that using more than one self-regulation strategy can also help students with disabilities improve their grades on tests.

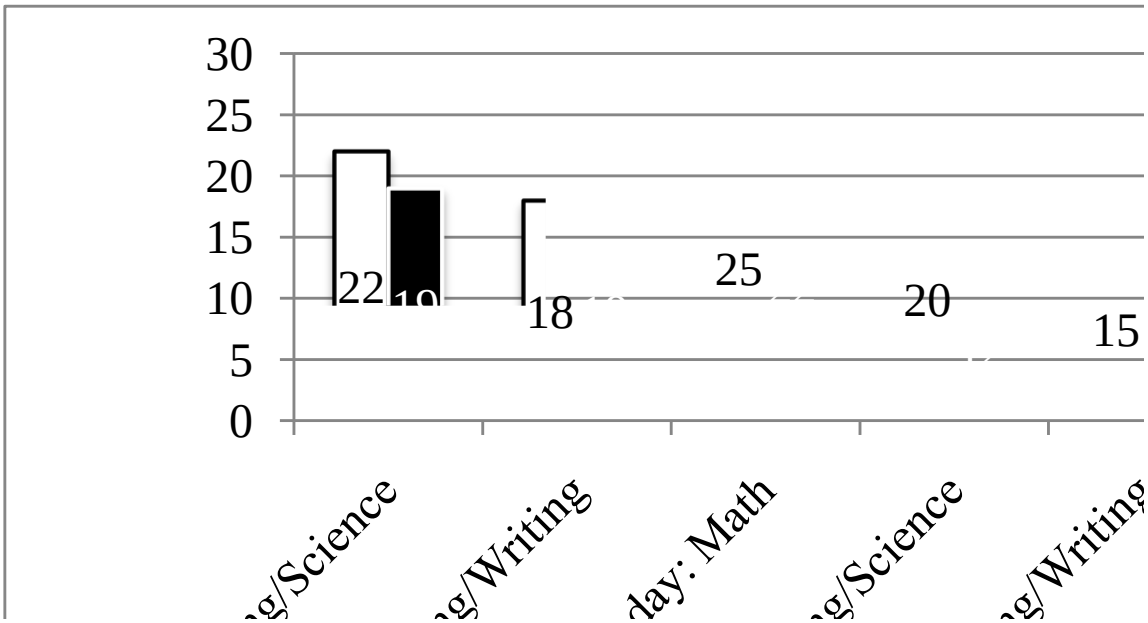
Homework

After providing the students with "check boxes" to assist them when completing their spelling homework for the week, I noted which students had to redo the assignment. Before learning about self-regulation eight of the participants had to redo the spelling assignment. After using the "check-boxes" to help reinforce self-monitoring on the same assignment a few weeks later, only three students had to redo the assignment. All three students had to redo the assignment because of handwriting and for the most part, is unrelated to actual academic ability. Here the data suggests that encouraging students to regulate their work by reminding them of the most important aspects of an assignment using simple "check-boxes" can improve their homework completion and thoroughness.

Asking Questions/Seeking Help

I was particularly interested in collecting data on how often the participants ask questions. I split the day into three sections: morning/science, reading/writing, and math. Then I attempted to record the amount of questions that were asked during each of the three time periods, on a Monday and a Friday before I introduced self-regulation to the class. Then I did the same on a Monday and a Friday after explaining the index cards, paper hand, and beads (refer to chapter 3) to the students. I compared this data in order to look for any patterns (see Table 8).

Table 8 Amount of Questions Asked Before and After Learning Self-Regulation Strategies



After introducing the students to strategies that can be used when stuck on a question or are in need of help, the amount of questions that students asked during independent work time decreased during almost every period of the day on the Monday and Friday. It is important to note that it was difficult to record data on questions asked and teach simultaneously, therefore this data represents the amount of questions I was physically able to record during a given time period.

Triangulating Data

Once I created a list of the several self-regulation strategies that I wanted to focus my research on it was easier to identify the different sources of data I would need to collect. In my research I use surveys, test scores, observations, interviews, and homework assignments as data sources. The majority of my data suggests that the use of one or more self-regulation strategies when studying for a test or completing a homework assignment leads to better academic performance. In general those participants who say they use various strategies in

and out of school repeatedly score higher on tests than those who do not use any and more accurately and thoroughly complete homework assignments.

Female participants were inherently more likely to regulate their work and progress but this changed after teaching the entire class certain strategies. Participants with IEPs saw significant increases in their test scores and homework completion, which based on the data, can be attributed to an increase in self-regulation strategy use. Overall using the strategies that were taught to the participants when doing homework or studying appears to yield no negative side effects on academic performance. My data suggests that not only can students benefit from being self-regulatory, but that any kind of learner is capable of learning, implementing, and benefitting from using them.

During an interview with J.M., a participant with an IEP who initially said he did not use any of the strategies, explained to me that he never thought to set up a quiet place when completing homework. He said, "I normally do homework by myself while my mom takes care of my brothers and sisters. I tried doing my homework in my room because I don't have a TV in there and it helped me." J.M. positive self-efficacy and self-regulation strategy use helped him to focus on the assignment and even get it done quicker than usual. Consequently he did not have to redo the spelling homework the second time, unlike the first assignment I collected before teaching about self-regulation. This data further supports the pattern that using self-regulation positively affects academic performance and in some students can impact their self-efficacy and desire to do better on assignments.

On many occasions I saw students flipping the index back and forth that I had provided them with (see chapter 3). J.S. is a participant who at first raised his hand for "Try to Figure Things out on my Own" when stuck on a problem. It is no surprise that J.S.,

another student with an IEP who frequently gives up on tasks when they appear to hard, had to redo his spelling assignment before I introduced the students to self-regulation. Therefore I paid particular attention to how this participant used the suggestions I provided on the index cards. On several occasions I witnessed J.S. flipping the card over and scanning it for assistance. I also saw him talk to his neighbors a few times and when I asked one of them what he was saying the explained to me that "J.S. was asking us if we knew how to do a problem". These incidents which provided me with useful data, illustrate that self-regulation strategies can help build students' confidence, help them become more independent, increase time on task, and enhance academic performance.

Chapter 5

Implications for Future Teachers and Researchers

Introduction

The results of this study yield several implications that could be of use to future teachers or researchers interested in the topic of self-regulation. The female participants in the study raised their hand for using several important self-regulation strategies prior to teaching the class about them. After teaching and modeling for the students various strategies all 14 participants raised their hand for using one or more of the strategies when studying or doing homework. Therefore it is important as a future teacher interested in self-regulation that not all students naturally engage in this process; however, they do have the ability to learn and subsequently use them in the classroom and at home. With that being said, the study implies that teachers cannot simply assume our students know what it means to self-regulate their progress and success. Instead before the school year starts it would be a worthy investment to take time and write down what you want your students to be responsible for on their own while in your class and at home relevant to academics. Then it would be wise to take time in the beginning of the school year, perhaps during morning work for the first few weeks or when time permits, to explore any self-regulatory strategies you think your students would be capable of utilizing in order to meet your requirements. Hopefully by the end of the year the process of self-regulation will become second nature to most of your students.

Positively Affects Academic Performance

More importantly, the results of the study imply that self-regulation strategy use can positively affect academic performance, both on tests and homework assignments. The average test scores of those participants who admitted to using 2 or more strategies was

repeatedly higher than those who raised their hand for using one or no strategies. This is true for both minority and learning disabled participants. This implies that educating our students about self-regulation strategies can be of great benefit to a variety of learners.

Students need a model

The averages for the participants who originally raised their hand for using one or no strategies rose on all three tests after teaching about self-regulation. This data from the study implies that a prospective curricular mismatch, learning disability, or other diagnosis can potentially be ruled out if your students are exposed to basic self-regulation strategies once they enter your classroom. The fact that the number of participants who raised their hand for using 2 or more strategies after teaching them increased could imply that although students are capable of engaging or are even conscious of such self-regulatory processes, some of them might need a model to understand the benefits and proper way to execute such course of action.

Increase in Independence

The last two weeks of research focused on decreasing the level of dependency on the teacher during independent work time. I collected data by recording the amount of questions that students asked when instructed to do work on their own, teaching them strategies to use when completing tasks unaided, then recording the amount of questions to compare to previous numbers. Several participants raised their hand for doing at least one of the things I would soon be teaching them to do when working independently before I even introduced these particular self-regulating strategies. However since the number of questions respectively declined after teaching these remaining strategies implies that students, third graders in particular, may need a constant reminder of what they already have in their

repertoire in order to internalize these approaches to independent work. For future teachers this may mean taking an inventory of the strategies your students are already aware of to successfully complete work on their own and holding a discussion of other possible ways to work through a difficult task on their own accord. If students are not taught or reminded of different methods to try during an independent work period than we cannot expect them to complete tasks without eventually seeking teacher assistance. Adversely the data implies that teaching students about self-regulation strategies could possibly decrease the amount of times a teacher needs to field questions and intervene by teaching the students to take more responsibility for their own learning and success.

Conclusions

Monitoring ones own progress, setting goals and making accommodations in order to reach them, and evaluating growth are all positive steps that can be taken in order to become increasingly independent. There is no set time at which individuals should take on these tasks and with increasing class sizes and strict time constraints in the classroom, what better place to introduce these skills than in school. The data collected throughout this research implies that increased self-regulation strategy use can only positively affect academic performance. Teachers can simply various self-regulation processes and make them comprehensible for students through discussions and modeling. The results of the study imply that students with IEPs, students from different backgrounds, as well as both male and female students are capable of learning and performing various self-regulation strategies in order to increase independence and enhance tests scores and homework completion.

Future researchers may be interested in investigating the impact of different strategies that were not included in this study. They may also be interested in studying which strategies

are the most impactful in urban vs. suburban areas. I was originally overwhelmed with the amount of literature that exists about self-regulation. Then I realized that not all of the information I was uncovering was current. Self-regulation, especially in students, has been a highly researched and analyzed topic in the past as well as today. This makes me realize that being self-regulating does not just affect academic performance but can set precedents for your future efforts, achievement, and attitude toward learning. Therefore it is imperative that teachers and parents alike conduct a bit of research themselves in order to learn more about self-regulation so that we may expose the youth to such an empowering process. The data from this study suggests that using self-regulation strategies positively impacts academic performance, motivation, and personal accountability in students and I hope that teaching students, if even briefly, about various self-regulation strategies becomes the standard in future classrooms.

References

Al-Harthi, A. S. (2008). *Learner Self-Regulation in Distance Education: A Cross Cultural Study* [PDF document]. Retrieved from Lecture Notes Online Web site: http://www.uwex.edu/disted/conference/

Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, N.J.: Prentice Hall.

Borkowski, J. G., & Thorpe, P. K. (1994). Self-regulation and motivation: A life-span perspective on underachievement. In D. H. Schunk & B. J. Zimmerman (Eds.), *Self regulation of learning and performance: Issues and educational applications* (pp. 45-73). Hillsdale, NJ: Lawrence Erlbaum Associates.

Josyula, D. P., Hughes F. C., Vadali, H., Donahue, B. J., Molla, F., Snowden, & M., Miles, J. (n.d.). Metacognition for self-regulated learning in a dynamic environment [PDF document]. Retrieved from National Aeronautics and Space Administration (USA) & National Science Foundation: http://www.cs.umd.edu/~darsana/papers/SASO-09.pdf

Kayashima, M., & Inaba, A. (n.d.). How do we facilitate development of learners' self regulation skills?. 1-10.

Kirk, J., & Miller, M. L. (1986). *Reliability and validity in qualitative research*. Beverly Hills: Sage Publications.

Locke, L. F., Spirduso, W. W., & Silverman, S. J. (1987). *Proposals that work: a guide for planning dissertations and grant proposals* (2nd ed.). Newbury Park, CA: Sage.

Mithaug, D. E., & Mithaug, D. K. (2003). Assessing adjustment gains by students in general and special education. In D. E. Mithaug, D. K. Mithaug, M. Agran, J. E. Martin, & M. L. Wehmeyer (Eds.), *Self-determined learning theory: Construction, verification, and evaluation* (pp. 121-137). Mahwah, NJ: Lawrence Erlbaum Associates.

National Center for Education Statistics (2010). *Public Schools* [PDF document]. Retrieved from http://nces.ed.gov/globallocator/

Nicol, D. J., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model. *Studies in Higher Education, 31*(2), 199-218.

Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology, 82*(1), 33-40.

Schunk, D. H. (1997, December). Helping students achieve success – Teaching self regulation helps children become better students – Brief article. *USA Today*. Retrieved from http://findarticles.com/p/articles/mi_m1272/is_n2631_v126/ai_20077708/

The Charles A. Dana Center at the University of Texas at Austin and Agile Mind, Inc. (n.d.). *Learning and the adolescent mind*. Retrieved October 21, 2010, from http://learningandtheadolescentmind.org/people_06.html

United States Census Bureau (2000). *U.S. Summary: 2000* [PDF document]. Retrieved from http://www.census.gov/prod/2002pubs/c2kprof00-us.pdf

VandeCreek, L., & Jackson, T. L. (1999). *Innovations in clinical practice [special issue]: a source book*. Sarasota, FL: Professional Resource Exchange.

Zimmerman, B. J. (1990). Self-regulated learning and academic achievement: An overview. *Educational Psychologist*, *25*(1), 3-17.

Zimmerman, B. J., & Martinez-Pons, M. (1990). Student differences in self regulated earning: Relating grade, sex, and giftedness to self-efficacy and strategy use. *Journal of Educational Psychology*, *82*(1), 51-59.

Zimmerman, B. J., Bonner, S., & Kovach, R. (1996). *Developing self-regulated learners: beyond achievement to self-efficacy*. Washington, DC: American Psychological Association.

Appendix A

Sample Initial Strategy-Use Survey

It was important to gather pre data in the form of this survey. I wanted to know what self-regulation strategies the participants were already engaging in prior to teaching them. The data gathered from this survey helped me to detect whether or not the participants were using new strategies that were taught to them. This allowed me to differentiate between what self-regulation strategies, if any, were contributing to their current levels of performance.

Name	Make a Quiet Environment	Set a Goal for Myself	Try to Figure Things Out On My Own	Realize When I Need Help	Seek Help When I Realize I Need It	Use Books/Other Materials to Help Me	Other
A.C.							

Appendix B

Interview Questions about Spelling Homework

I interviewed the 14 participants by asking them the following questions individually and recording their answers. I wanted to see what kinds of strategies, if any, the participants were using when completing work at home. Then based on who had to redo the assignment and who did not in conjunction with the interview responses, I was able to detect an early pattern that exists between self-regulation and academic performance.

1. What did you think about this assignment?
Entire thing was hard Parts were hard It was easy

2. How much help did you get on this assignment?
Needed help on entire thing Needed help on some parts Didn't need any help

3. How well do you think you did on the assignment?

4. What did you do when you didn't know an answer?
Skipped the question and went back Asked for help (from____) Didn't answer it

5. Where did you complete this assignment (describe the environment):

6. What self-regulating strategy did you use (if any)? If you used one, how did it help you?

7. How could you improve your grade on this assignment?

Appendix C

Index Card Showing with Options to Try Before Asking Teacher for Help

I wanted to gain an insight into the strategies my students already use when they need help. Therefore we had a class discussion and many of the participants raised their hand for doing some of the self-regulation strategies I would soon be teaching them about. Then I created this index card to remind the students of different suggestions to try when they are stuck on a question and need assistance. After explaining what each step meant, students were asked to subsequently follow the suggestions before asking the teacher for help.

Before you ask the teacher for help . . .

1. Re-read the directions **AND** the question(s) **2** more times (once in your head and once quietly out loud)

→ Underline or circle key words and phrases (turn the card over!)

2. Ask yourself, "What am I trying to figure out in this problem?" or "What is this question asking me?" and "Would my answer make sense?"

3. Think back to similar problems or questions you have done in the past.

4. Ask your question to at least **3** friends at your table.

5. Look up any confusing words in the dictionary.

* If you are still unsure, change your sign to **RED** and move on to another problem until the teacher can help you.

Appendix D

Index Card with Common Words/Phrases Found in Directions

Before creating this side of the index cards for each student I held a discussion in order to gain an insight into what confuses third grade students about directions. I wanted to know if the wording was too difficult to master or if they just did not know what to do after reading it once and still being unsure of what is being asked of them. With a better understanding of what parts confuse the students, I was able to create a list of various words and phrases most commonly found in directions that may stump most third graders (based on our discussions). Then I included the meaning of such words and phrases and glued it to the back of the other index card already on their desk.

Key Words and Phrases in Directions

Math	Reading
Does, Will, Can, Do = Yes or no answer	*Infer = Take what you know and read to make a guess
How do you know = Explain your answer	*How do you know = Explain your answer
How many more = Subtraction	*Why = Use what you read and give reason to answer the questions
Altogether, In all = Addition	
How many = Exact number amount	
Sum = Answer to an addition problem	
Difference = Answer to a subtraction problem	
Product = Answer to a multiplication problem	

Appendix E

Spelling Check Boxes

The students are already accustomed to check boxes but they are only created by the teacher and used on tests. I was curious to see if having a small reminder to double-check that the most important parts of the assignment were indeed complete would affect homework completion. Therefore I created check boxed for a spelling assignment, recorded who used them, and made note of who had to redo the assignment and who did not. Then I compared this data to detect any possible trend.

3 TIMES EACH:

Did you write your name, lesson number, and due date on your packet? (N,L#,DD)	
Did you write each word neatly 3 times each?	
Did you write each word once, and then check the spelling before you wrote it 2 more times?	

SPELLING WITH A MATH TWIST:

Did you correctly identify vowels and consonants in each word?	

SPELLING SENTENCES:

Do your sentences begin with a sentence starter?	
Do your sentences start with a capital letter and end with the correct punctuation?	
Did you reread your sentences to make sure they make sense?	