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Learning to Learn:

Using Self-Regulation Strategies to Improve the Academic Habits of High School Students with Learning Disabilities

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Abstract

In this capstone paper, I explore the difficulties students with LD and ADHD have in utilizing metacognitive strategies while learning. To help in this area, I look specifically at self-regulation, a concept closely connected to Albert Bandura's social cognitive model, which posits that successful learning takes place at the intersect of personal beliefs and external supports. From here, I argue that our educational framework must move from being content-driven to student-driven, looking at four specific areas needing transformation. First, in learners and learning, I explore the specific deficits that students with LD and ADHD bring to the learning process, as well as how self-regulation can begin to compensate for these weaknesses. Next, in the learning environment, I look specifically at two case studies that demonstrate what a student-centered classroom should look like. Third, in curriculum and instruction, I summarize the key components of self-regulation instruction, including direct instruction, modeling, guided practice, feedback, and self-reflection. Fourth, in assessment, I argue for a more student-centered approach to tests, one that uses assessments as a learning tool to help students measure their growth and practice their academic habits. Finally, I discuss the experience of implementing self-regulation instruction in my own classroom. I end with a call to action for improved strategy instruction for all students.

Introduction

"I feel pretty good about the test," responded Matthew, as he turned in his economics test to me. While likable and good-natured, Matthew was at best an average student, whose primary focus was basketball and friends. I had checked in on his progress a few days ago, to make sure he was preparing.

"Yeah, I think I understand the material pretty good," he had responded then, in the typical self-assuredness that often made me wary.

"But you're going to still study, right?" I asked firmly.

"Yeah, yeah, I will, Mr. Johnson," he grinned before hurrying to the cafeteria.

As I graded his test a few days later, it was obvious he had, at best, a surface-level understanding of the material. He missed several of the multiple choice questions, and his essay response left out several key parts. He scored a 74.

The next day I handed back the tests, and after class I caught Matthew right when he was leaving.

"Can we talk about your test?"

"Yeah, I don't know what happened," he responded candidly. "I mean, I looked over the notes and tried to re-read some of the sections in the textbook. I guess it was just a harder test than I was expecting."

"How long did you study?" I asked.

"Um, maybe 30 minutes. It was pretty late by the time I started studying, and I was distracted by my brother who was playing video games, so maybe I didn't get as much done as I should've."

"I guess not. Let's get together in the next week or so and talk about some ways you can improve your study habits," I suggested.

"Yeah, that'd be good. Thanks, Mr. Johnson."

"See you, Matthew."

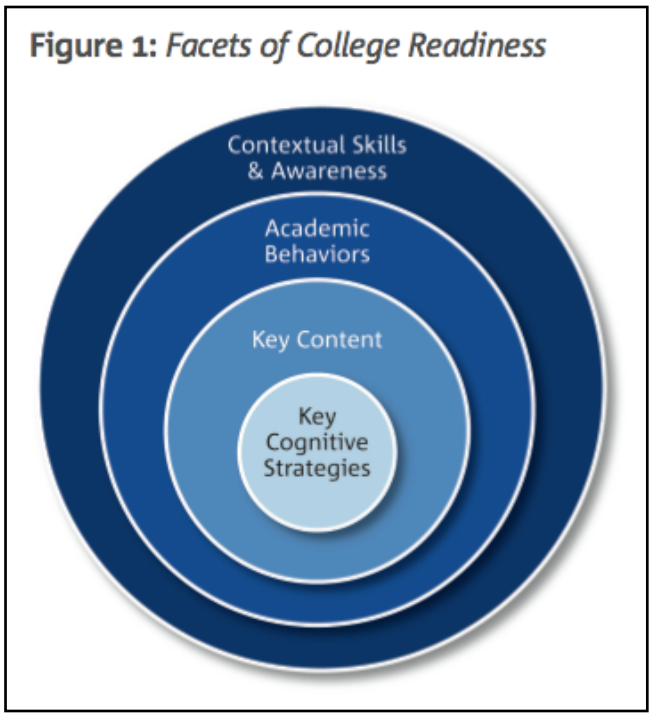
Matthew graduated from high school last spring, and later in the fall I saw him right as he was starting his freshman year of college. I asked him what his goal was for the semester. He responded confidently that he wanted to earn all A's and B's, and I think he genuinely believed he would. By the end of the semester, he had withdrawn from one class because he was failing, and he only passed another because of an extra credit assignment completed at the eleventh hour. He ended the semester with a 2.1 GPA, confident that next semester would somehow be better.

Statement of Purpose

Anybody who has taught high school has experienced this before, and yet how often do we take time out of our classes to specifically teach study skills and habits? For many teachers, it is assumed that study habits come naturally, that students will just "pick it up" after a few tests, as if studying is a communicable disease that is caught from frequent exposure to tests and quizzes. Other teachers simply see themselves as Darwin's agent for natural selection: those that make it through their gauntlet will pass, and those that don't were never meant to. But for most teachers, there just isn't enough time in the schedule to slow down and go over basic academic habits: how to take notes, how to study, how to organize your notebook, how to take a test. With countless standards, benchmarks, and high-stakes testing, can I really afford to delay teaching the

French Revolution so that I cover something they should have already learned in middle school? And so, as basic student skills continue to go untaught (and thus unlearned), well-intentioned students who lack crucial skills get left holding the bag.

What makes Matthew's situation unique, but not uncommon, is his ADHD, which shows itself in how he stuffs his handouts into his book, how he fails to plan ahead for long-term projects, and how he struggles to study adequately for tests. Having taught students with learning disabilities (LD) and ADHD for several years now, I have come to realize how important it is that teachers take the time to specifically teach and model desirable student behaviors, as well as give students the chance to practice and sharpen these skills. I'll admit that I have not always held this philosophy, and at different points in my teaching career I have shared the various attitudes expressed in the above paragraph. But the thing is, if academic skills come naturally, why do some students never develop them? If we as teachers are too busy to teach study skills, will teaching content even matter?



According to David Conley (2007), an expert on college readiness in high schools, Figure 1 contains the four key components of what prepares students for college. What's notable is that most teachers focus on key content, only to forget or ignore the other three facets. While many students can adopt the other facets on their own, students with LD and ADHD often

struggle to independently learn the strategies, behaviors, and skills necessary to successfully navigate the waters of academia (Elbaum & Vaughn, 2006; Lerner, 2003; Mercer & Pullen, 2005). As a teacher, I have been entrusted to teach students who struggle how to navigate these waters, and this capstone essay is meant to chart one way of doing so.

Many researchers and scholars have tasked themselves with determining what is the best instructional strategy for teaching students with learning disabilities, and one method that consistently stands out in terms of effectiveness is strategy instruction and self-monitoring (Graham & Perin, 2007; Swanson, 1999). These can be described as specifically teaching students the skills and strategies necessary for academic success (what Conley terms "academic behaviors," or metacognitive and study skills), as well as giving them the tools to self-regulate or self-monitor their learning. Several studies (Alexander, 1997; Zimmerman, 1997) have shown that students who practice self-regulation strategies are active learners who perform well in the classroom, whereas students who lack these skills are low-achieving and approach learning passively (Zito, Adkins, Gavins, Harris, & Graham, 2007). As such, improving students' ability to self-regulate their behaviors and utilize effective academic habits is a worthwhile goal.

After a brief look at the theoretical perspective underlying self-regulation, this essay will look at students with LD and ADHD, specifically the deficits they bring to the classroom in terms of self-regulation and academic habits. Second, a description of how the learning environment can be better structured to serve the needs of struggling students will be covered. Third, this essay will assess specific curriculum instructional strategies that can be used to enhance students' self-regulation and academic habits. Fourth, a look at assessments will take place and how they might function to help reenforce the skills and strategies being taught to

students. In the conclusion, I will describe the experience of trying to implement self-regulation strategies in my own classroom this semester. Overall, this essay is concerned with the basic question: what can teachers do to help struggling students succeed? It is a question that has come to define who I am as a teacher, and it is only fitting that it is the topic of my capstone essay.

Theoretical Perspective

Before jumping into how to improve self-regulation strategies among students, a brief breakdown of the theoretical underpinning of this essay is warranted - namely the social cognitive model. Next, a clear and workable definition of self-regulation and academic habits is required, since these terms are quite fluid and can mean a number of things depending on their context. Finally, we'll briefly look at the components of LD and ADHD, so as to again clearly establish a working understanding of these terms.

Social Cognitive Model

The idea of self-regulation is part of a larger construct known as the social cognitive model, which posits that individuals acquire knowledge through observing others (Schunk, 2003). The social cognitive model, according to its pioneer Albert Bandura (1986, 1997) is based on the idea that "human achievement depends on interactions between one's behaviors, personal factors (e.g., thoughts and beliefs), and environmental conditions" (Schunk, 2003, p. 160). In other words, an individual's ability to accomplish a task not only depends on her actions (studying), but also on her beliefs (studying will help me learn) and on external factors (being taught study skills by her teacher). These three factors, sometimes called the triadic processes (Zimmerman,

2000), are tightly interwoven, where one directly impacts the other. Barry Zimmerman, along with Dale Schunk and others, have worked to translate Bandura's social cognitive model to the classroom, with the ideas of self-efficacy, metacognition, and self-regulation all steeped in this theory. Since this paper is specifically about self-regulation, we'll turn next to it.

Self-Regulation

Self-regulation has become a well-known idea and strategy in the past few decades, although it often goes by other names, including metacognition, executive functioning, self-monitoring, and mindfulness (terms which will be used interchangeably throughout this paper). Someone who uses self-regulation techniques is self-motivated, able to set goals and meet them, and then reflect upon his or her performance and make improvements for next time. A self-regulated student, for instance, would recognize she has a test at the end of the week, sit down to create a study plan, follow it consistently while monitoring her learning, and take the test with confidence. After the test, the student would assess her performance, determine which strategies were most effective and adjust accordingly for the next test. A student who lacks self-regulation strategies would do little of this and often requires an external presence (ie: a parent or teacher) to monitor and regulate her activity. Once she has taken the test, it is done and not to be worried about. There's no doubt that effective self-regulation often makes or breaks a student's performance in the classroom, but what makes up self-regulation and how does it work?

One of the most prominent scholars of self-regulation is Barry Zimmerman (2000) of New York, who has recognized three distinct phases of self-regulation: forethought, performance, and self-reflection. In forethought, two things take place: first, an individual (in our

case, a high school student) sets goals and strategically plans how to accomplish these goals. But along with this, the student also carries with him self-efficacy beliefs and philosophies which will keep him motivated. For instance, if the student sees the relationship between studying and learning, than he will be more inclined to do so (this is where students with LD and ADHD fall into trouble - they often don't see this connection because they lack effective academic habits). In our earlier example, the student's recognition there was a test and creating a study plan are examples of forethought.

Once the forethought or planning phase has occurred, the student moves into the performance (or volitional control) phase, which is where the action is (Zimmerman, 2000). Here, the student uses self-control and self-observation to keep himself on task. Self-control involves staying focused on the task and utilizing effective strategies to accomplish the goal set in the forethought phase. Self-observation, the aspect of self-regulation similar to mindfulness and metacognition, involves keeping track of one's progress and "checking in" to make sure learning is happening. A student who blankly stares at a textbook or mindlessly reads over the words might think she has accomplished the task at hand (read chapter one), when in fact she has learned very little. Conversely, a student who is attuned to self-observation strategies would recognize that she had blanked out and carefully reread the passage until mastery. This component of self-regulation is central to its effectiveness, particularly for students with LD and ADHD, who often have trouble monitoring their learning and paying attention.

The final phase is self-reflection, which involves self-evaluation and self-satisfaction (Zimmerman, 2000). Once the task is complete (taking the test), the student compares the results with their expectations (I got a C and I thought I would earn a B). A student skilled in self-

regulation would note that something went wrong in the first two phases and would adjust accordingly for the next test (use notecards instead of outlines). Self-evaluation is active rather than passive, and it seeks to make improvements for future activities. Closely connected to this is self-satisfaction, which is how happy the individual is with his or her performance. This is an important aspect because it directly feeds into the self-motivational beliefs of the forethought phase. If a student studies extremely hard for a test and then fails, self-satisfaction will be quite low and will eventually feed into the belief that no matter what I do, I can't learn. Conversely, if a student studies and does well, this will reinforce the belief that she is the master of her own fate and will study accordingly for the next test.

Zimmerman's (2000) three phases are cyclical in nature, in that what occurs in self-reflection directly influences forethought and so forth. Because of this, students often fall into self-fulfilling prophecies or feedback loops, where their beliefs (I'm dumb) impact their actions (why bother to study?), which in turn reinforces their beliefs (see, I failed). This is where many students with LD and ADHD are, which is why teaching specific academic habits is so vital, because it gives students the skills to use in the performance phase. But once again, to just teach study strategies without the framework of self-regulation can backfire when the student thinks they are studying but are actually zoning out or failing to adequately prepare. As Schunk (2003) notes: "high efficacy will not produce competent performances when requisite skills and knowledge are lacking" (p. 161). When this occurs, the study strategy is seen as worthless and the negative feedback loop is reenforced. So with a better foundational understanding of self-regulation in place, a closer look at what is meant by academic habits is appropriate.

Academic Habits

If self-regulation is the overarching expertise, then academic habits are the tools the student brings to the task at hand. For example, a carpenter might have all the training and motivation to build a table, but without the right tools, the table will not be built properly. Academic habits are those tools, but instead of tape measures and circular saws, successful students bring with them things like organizational skills, reading comprehension strategies, note taking abilities, and the like (Reid & Lienemann, 2006). As previously mentioned, without the specific tools and skillsets necessary for school success, no level of self-regulation or metacognition will help (Schunk, 2003). Likewise, without self-regulation, students will lack the motivation or guidance to use the correct study skills for the right situation. Because of the tight interconnectedness of these two concepts, some researchers collapse the terms into just executive functioning (Denckla, 2007; Mercer & Pullen, 2005). Nonetheless, this essay will equate academic habits with specific skills and behaviors - those tools that students require in order to be successful. Many students will successfully pick these "survival skills" up on their own, but other students will not, putting them at significant risk academically (Reid & Lienemann, 2006). Some of the students who struggle the most with organically learning academic habits are those with LD and ADHD.

LD and ADHD

Some of the students who struggle most with both metacognitive strategies and executive function skills are those with learning disabilities (LD) and/or Attention-Deficit Hyperactivity Disorder (ADHD). While there are specific criteria that define both of these categories, there is significant overlap, particularly in the fact of comorbidity: one out of three students with ADHD

also have LD and vice versa (DuPaul & Stoner, 1994). This is primarily the case because both categories ultimately deal with an executive function disorder, as termed by Denckla (2007), who notes that Russell Barkley (1997), a pioneer in ADHD research, positioned "deficient executive function as central to the meaning of the syndrome" (p. 5). Students with LD also struggle with executive function issues (Meltzer & Krishnan, 2007), which is why Denckla (2007) suggests EFD (executive function disorder) is perhaps a more helpful label than either ADHD or LD. Since self-regulation is a key component of executive functioning, making sure students are effective practitioners is crucial for overcoming this deficit.

While more will be discussed about LD and ADHD in the learners and learning section of this paper, the purpose of this essay is not to provide a clinical breakdown of each disorder, but to acknowledge that these students specifically struggle with self-regulation and academic habits, along with many other students who lack a formal diagnosis. Although the American Psychiatric Association (2000) only identifies ADHD as affecting 3-7% of the school-age population, 80% of adolescents were found to exhibit symptoms of ADHD, making the issues of self-regulation and study skills important for many students (Merriman & Codding, 2008). Because this paper is more concerned with students who have specific deficits in these skills, the terms ADHD and LD will be used interchangeably and somewhat liberally. This is not to suggest that these disorders are the same or should be treated identically in the classroom (every child has unique learning needs), but rather that both types of learners often struggle with the strategies this paper is concerned with. Ultimately, many students (labeled or otherwise) require explicit instruction in self-regulation strategies and academic habits to succeed in school, and with that, we move into the first main section, learners and learning.

Learners and Learning

There's little question in what makes a good student - they study for tests, take notes, ask questions, are organized, do their homework, and are concerned about their performance. A student with above-average IQ without these skills will struggle in many classes, whereas an average or even below-average student with these skills will still manage to do okay. These characteristics, which I have termed academic habits, can also be thought of as study skills or learning strategies. Chris Dendy (2000) sums it up this way, "average or above average IQ is not enough to do well in school. Students must also have strong executive function skills." Simply put, they are incredible important for school success, both in high school and college, and yet they often go untaught.

How do LD and ADHD Students Struggle?

This makes school particularly difficult for students with LD and ADHD, who have been shown to struggle in these areas. Research indicates that these students often approach tasks passively (Bos & Vaughn, 1994; Lerner, 2003; Torgesen, 1982; Wong, 1991) and have either delayed or deficient executive functioning skills (Mercer & Pullen, 2005). Because of these deficits, students with LD and ADHD often struggle with the following: working memory and recall, activation and effort, impulsivity and controlling emotions, and complex problem solving, not to mention disorganization, forgetfulness, and time management (Dendy, 2000; DuPaul & Stoner, 1994; Minskoff & Allsopp, 2003). In fact, among students with LD, those who have developed academic habits and metacognition skills regularly outperform those who lack these skills (Ellis, Deshler, and Schumaker, 1989; Mercer & Pullen, 2005).

Not surprisingly, many students with LD and ADHD struggle in studying and taking tests as a result of these deficiencies (Mercer & Pullen, 2005). Because students with LD struggle in these areas, they often have poor self-concept and low self-esteem, which lead to lower expectations and motivation for future achievement (Elbaum & Vaughn, 2003; Lerner, 2003; Mercer & Pullen, 2005). This lack of motivation and self-efficacy begins to push students from seeing learning as an internal issue (effort, hard work, practice) to an external issue (the test was hard, the teacher was unfair), which further erodes motivation and effort (Wong, 1991). As the cycle perpetuates, deficient metacognitive and academic habits can have lifelong consequences, making the instruction of self-regulation strategies that much more important.

How can self-regulation strategies help?

So why are self-regulation skills so important for learning anyway? Bernice Wong (1991), an expert in metacognition and learning disabilities, describes learning as a complex task that involves making sense of new information by using a variety of strategies to connect new knowledge to prior knowledge. Knowing which strategy to use and when is often taken for granted by teachers and other "experienced" learners, who naturally select the correct tool for the particular task. Wong (1991) provides a lengthy but useful example of metacognition in action:

> After being informed that there will be a midterm examination involving short essay answers, the good students begin to plan their study schedule. With 3 weeks left before the midterm, they start reading their lecture notes and corresponding chapters from their textbooks...They seek out the teaching assistant and the professor for help over parts of their notes and texts on which they lack thorough understanding. (p. 238)

Wong (1991) goes on to discuss what was taking place below the surface of these decisions, and she sums up the situation nicely: “effective coordination or orchestration of these interactions is responsible for the success of any learning outcome. These executive processes are the individual’s metacognitive skills” (p. 239).

While this describes how any good student might go about studying, it stands in stark contrast to how Matthew described his studying in the introduction of this paper. Wong (1991) confirms how Matthew studied as typical behavior for students with LD, who “have little indication of such coordination between task demands and suitable strategies” (p. 240). Wong, who has done extensive research on the connections between metacognition and learning disabilities, has determined that students with LD not only struggle with cognitive deficits, which are the common focus for educators, but also strategic deficits, such as those described as self-regulation. The thinking goes, then, that if you teach students these metacognitive tools, they will be able to better process and understand new content, which will empower students to begin taking responsibility for their learning and once again become active learners who attribute learning to their effort (Meltzer, Pollica, & Barzillai, 2007). This has been established in multiple studies where students with LD were taught self-monitoring skills and subsequently showed significant growth (Sander, 1991; Shapiro, 1989), as cited by Mercer and Pullen (2005). In fact, in Swanson’s (2001) meta-analysis of interventions for teens with LD, it was determined that metacognition had some of the largest gains (with an effect size of over .80!). With the knowledge that metacognition works for students with LD and ADHD, the remaining portion of this paper will seek to explore how self-regulation and academic habits can be effectively taught to students.

The Learning Environment

Because many students with ADHD and learning disabilities struggle to develop effective self-regulation habits on their own, providing a welcoming and responsive learning environment is crucial for overcoming this deficit. As discussed earlier, what sets the social cognitive theory and self-regulation apart is their emphasis on the "environmental factors" of the learner, as termed by Bandura (Schunk, 2003). Several studies, which have surveyed both general and special education students, reveal that students desire the following from their teachers: more assistance, better explanation, more individual attention, more care and support, and more engaging instruction (Kotering & Braziel, 2002; Lovitt, Plavins, & Cushing, 1999). It goes without saying that such traits are desired by every learner, and teachers who foster welcoming and responsive environments end up better serving all their students, not just those with an IEP.

As established earlier, self-regulation and academic habits are crucial to student success and should be specifically taught in the classroom. To do this effectively, the learning environment must be responsive and student-centered, where the teacher focuses on students' needs rather than on curriculum deadlines and material to be covered. Teachers need to hold high expectations for student success and use individualized and differentiated instruction, particularly when teaching study skills. Not surprisingly, such environments have been shown to help students with LD and ADHD (Huang & Cho, 2009; Mercer & Pullen, 2005; Merriman & Codding, 2008), making the classroom culture an important part of teaching self-regulation strategies to students who struggle. In order to demonstrate more clearly the importance of student-centered and individualized instruction, two studies have been chosen and are described

below. Both are concerned with what helps students best acquire study skills, which will provide an important framework for which to discuss curriculum and instruction.

Study 1

One study that provides particularly helpful advice in terms of structuring the learning environment comes from Huang and Cho (2009), who look at successful afterschool programs to see what made them effective. While this article is concerned with afterschool programs, what sets these programs apart from others is their focus on study skills and student motivation, both characteristics inherent in self-regulation. Recognizing that "building study skills [is] a way to boost students' academic confidence as well as achievement across content areas," these programs focused on specifically teaching students time management, organization, test preparation, and note taking (Huang & Cho, 2009, p. 387). Rather than leave these important skills to chance, the environment cultivated in the afterschool programs was intentional by using homework planners, practicing note taking, and studying for tests. Not only did the most successful programs teach specific skills, but they helped foster positive attitudes toward school, resulting in greater motivation (which is a key part of self-regulation). Seeking to create a welcoming and friendly environment, "the homework instructors described creating positive and open environments in which students were not afraid to ask for help," so that students would be comfortable asking for assistance when needed (p. 389).

While not all aspects of afterschool programs can or should be implemented into the everyday general education classroom, it is clear that focusing on a welcoming and safe environment, where students won't be called out for needing help, is an important step in

rebuilding struggling students' motivation and confidence in the classroom. And beyond motivational speeches and encouraging posters, the best way to do this is to actually teach them the skills and strategies necessary to actually succeed in their courses, so that success begets future success.

Study 2

Another study that sheds light on effective classroom environments comes from Merriman and Codding (2008), who look at the impact coaching has on homework completion for students with ADHD, who tend to be more inconsistent with turning in their homework (DuPaul & Stoner, 1994). Merriman and Codding (2008) cite several studies (Barkley, 1997; DuPaul & Weyandt, 2006; Meyer & Kelley, 2007) that show self-monitoring and self-management skills improving homework completion. Notably, Merriman and Codding (2008) note that "at the secondary level self-management interventions are commonly recommended for students with AD/HD, as these strategies may be more feasible than teacher- or parent-mediated interventions" (p. 341). This makes sense when one considers adolescents' typical resistance toward authority figures, which is where coaching comes in. Coaching seeks to empower individuals to set goals and track their own progress with the help of a coach. Almost like a support person, the coach provides the environment for the coachee (ie: the student) to reflect on his or her performance, think of ways to improve, and to implement these changes (Merriman & Codding, 2008). A key component of coaching is encouraging the student to actively think of these improvements on their own, rather than receiving them passively, which is often the case.

In order to determine the effectiveness of this intervention, the Merriman and Codding (2008) study tracked three high school students with ADHD, who were coached for a series of weeks on improving their math homework completion. In this process, they were taught to set goals, monitor their homework completion and accuracy, and track their progress through graphing the results (sounds like self-regulation, right?). Within a few weeks, rates in both completion and accuracy for all three students jumped dramatically, and even after phasing the intervention out, the students' progress persisted. Merriman and Codding (2008) acknowledge that this can be a time-intensive intervention at first, but once the students embody the skills learned through coaching, they become largely self-sufficient, which is a primary goal of self-regulation instruction.

Once again, this study reaffirms the idea that a supportive and welcoming classroom culture, one where the teacher supports the student's learning, can have dramatic effects on student achievement. A student-centered classroom, where students are encouraged to set, monitor, and track their own goals can be an effective and empowering way to learn self-regulation and academic habits. While this intervention might be difficult for a teacher to implement on a wide scale, surely he or she could identify a few students who are struggling and attempt to coach them to develop the skills they will need not only for the current class, but for all of their classes. Schools that have advisories or homerooms are uniquely positioned to take advantage of the coaching philosophy, so that students can be given the tools necessary to self-monitor their progress and improve their study skills. While many students with LD or ADHD are mainstreamed into general education classrooms, their special education coordinator or teacher can serve as an important point person for this coaching to take place.

Closing Thoughts

Too many vital skills go untaught and therefore unlearned by many of our students, LD or otherwise. In both studies, an important assumption was challenged that often goes unquestioned in today's classroom, namely that students can learn study skills and self-regulatory habits on their own. While elementary classrooms are built upon the necessity of teaching basic student skills, much of this fades away by the time students enter high school, despite the fact that new and advanced skills are needed to tackle the more difficult content. Many students are able to adapt and adjust on their own, but many others do not, finding themselves at a loss for how to succeed in high school. Beyond everything else in this paper, the learning environment -- the classroom's culture and the teacher's philosophy -- will often determine a student's success in school. In order to ensure that more students become academically proficient, a student-centered environment must be fostered, one that seeks to meet the students where they are and equip them with the tools needed for future growth and advancement. The two studies discussed above focused specifically on teaching study skills and self-monitoring habits, and in both instances, students realized greater achievement. These interventions were successful because they dared to go against conventional wisdom and recognize that students do not enter the learning environment as fully formed students who just need more facts. "While the content changes from year to year, the process, or *how*, of learning is consistent and can be modified to address the changes in the curriculum," but if students never learn the "how", then the "what" becomes unnecessarily difficult or even impossible to acquire (Meltzer, Pollica, & Barzillai, 2007, p. 171). Once the classroom environment is reoriented to be student-centered, curriculum and instruction will begin to evolve as a result, which is where we turn to next.

Curriculum and Instructional Strategies

So if teachers acknowledge that students with LD and ADHD struggle with acquiring study skills and metacognitive habits on their own, that these skills are important, and that the classroom culture can be reoriented to foster growth in these areas, what happens next? Fortunately, what makes study skills so easy for us as teachers to ignore also makes them easy to teach. To teach study skills, you have to have content, which high school teachers happen to have in abundance. As discussed in the previous section, it's not so much that skills replace content, but that teaching content becomes the vehicle to enhance the academic and metacognitive habits students will need to become lifelong learners (Mercer & Pullen, 2005). What's tricky is making skill instruction intentional and meaningful, rather than hoping it happens by chance. This is where most teachers get into trouble - we assume students will "pick it up on their own," which is clearly not always the case.

In terms of curriculum, and as discussed in the previous section, we as teachers have to move beyond the mentality that "textbook is king" or "content is king" and instead focus on student learning, which is a subtle but dramatic difference. To do this, a curriculum focused on teaching specific learning skills is crucial, especially for students who have ADHD and/or LD (along with other students who struggle in school). As mentioned earlier, it is pretty clear (Ellis, et al., 1989; Mercer & Pullen, 2005) that better self-regulation leads to better academic habits, since students begin to recognize the benefit of, and thus start, studying, staying organized, etc. Since these skills are so important, it makes sense not to leave their development to chance. As such, this section will be concerned with how to teach self-regulation strategies and instill academic habits in those students who need them most.

Teaching Self-Regulation Strategies

If students are just given some study strategies (try notecards!), there is a good chance little will change. Why? Well, there's a few reasons. First, as mentioned previously, students who have historically struggled in school have become passive learners, which often has them attributing their success or failure on external factors, like the difficulty of the test or the unfairness of the teacher (Wong, 1991). And if the student's performance in the class is due to aspects outside of their control, why bother studying? What's the point? Second, students who fail to self-monitor often assume they're studying, only to discover during the test that they have not learned as much as they thought (you can imagine this being very frustrating, and thus a contributing factor to becoming passive and apathetic learners). If a student who struggles with attention issues continues to space out while studying notecards, it is unlikely they will do much good. In sum, students have to have strong self-regulatory habits before they develop effective study skills, or else failed study strategies simply reinforce the issues of poor self-concept and motivation.

Many educators and researchers have crafted a variety of acronyms to teach self-regulatory habits, including UDL, SIM, SCL, SRSD, and others. No need to worry; I'm not going to compare and contrast each of these techniques. Rather, since all of these strategies seek to enhance students' self-regulation habits, they are many commonalities which Schunk and Zimmerman (1998) have boiled down to one streamlined process. The following six steps provide the structure by which self-regulation techniques can be taught in the classroom.

First, and most importantly, is the explicit instruction (or direct teaching) of metacognitive strategies. So for instance, if a teacher is going over the importance of monitoring one's awareness and level of engagement while studying for a test, the teacher would first give

specific instruction of what this looks like. This can become more complicated than it at first seems, since every required step should be laid out, and the most popular way of explicitly teaching a metacognitive skill is through modeling, which involves the teacher showing student what the skill looks like in action (often by verbalizing the thoughts that ought to be occurring in one's head). This can also occur through peer mentoring, where students pair up and share their methods of getting homework done or staying motivated to study.

Next, once the teacher has explicitly (made visible the invisible steps) taught students how (and why!) to use the strategy, it is important that students are given the chance to practice these strategies with teacher support, often called guided practice. Much like learning to ride a bike, this is the stage when the parent is holding the seat and balancing the bike for the child. Without sustained practice, the direct instruction will fade away, so giving students the opportunity to try out the strategy multiple times is crucial.

Connected to this step is the requirement of effective feedback. Because students with LD and ADHD often struggle in these areas, they have limited prior knowledge as to whether or not they are using the strategy correctly. The only thing worse than the lack of practice is sustained practice done incorrectly, and the teacher's role in this phase is to provide helpful feedback and honest suggestions for improvement. The student is done no favors if the teacher glibly pats them on the head, because when the strategy eventually fails to bring about academic improvement, the student will give up on the strategy. A useful way to provide feedback is through assessments, which will be discussed in the final section of this essay.

Along with teacher feedback and suggestions, many self-regulation instruction techniques include monitoring, which is where the student tracks their progress and aims to make

modifications as necessary. This is where students begin to internalize and make the strategy their own, which happens as they continue to practice and improve through both teacher feedback (external) and self-monitoring (internal).

As students become more adept at the particular skill being taught, then the teacher will begin to withdraw support, much like the parent would begin to let go of the bike. This is often done through scaffolding, where more and more of the supports are pulled away until students have successfully mastered the skill. So the process has gone "from teacher modeling to guided practice and finally to independent practice" (Schunk & Zimmerman, 1998, p. 228).

The final step involves self-reflective practice, which is the third phase of Zimmerman's self-regulation cycle. This is where students assess their performance and progress and adjust their strategies for next time. Similar to the teacher feedback phase, but self-directed this go around, reflection is an important part in students improving their overall learning experience by continuing what works and discarding what doesn't.

What you can see at work in these steps is the endorsement of Zimmerman's (2000) three-step cycle discussed back in the theoretical perspective: forethought, performance, and self-reflection. As opposed to content, which is mostly a fixed thing to be stored up, skills are like clay that demands to be shaped, played with, and molded until it becomes a useful thing. Throughout this process, students who have never given metacognition much thought begin to see the connection between the inputs and outputs, becoming better and more motivated learners in the process. For many of the self-regulatory habits, like mindfulness, self-reflection, and motivation, however, you have to have something to do to practice them, which is where academic habits come into play.

Teaching Academic Habits

Once students have become sufficiently mindful and conscious of their learning habits and how these influence their progress, they will be able to build and acquire effective academic behaviors that will help them improve their overall performance in school. While there are a multitude of academic habits at work in today's classrooms, some basic skills for success include: studying for a test, taking notes, summarizing a passage of reading, keeping an organized binder, planning for long-term assignments, paying attention in class, getting help from the teacher, and others. To teach these skills, the habits of self-monitoring and self-reflection are needed. For instance, if students need to learn how to summarize a passage of reading into a few sentences, the teacher would model this, give students a chance to practice this skill while providing feedback, and eventually allow the students to do this independently without support. But what makes self-regulation unique is the emphasize on encouraging students to self-check and ensure they are following the appropriate guidelines on their own. This allows students to catch errors and mistakes in their learning and self-correct, thus preventing the misalignment that often occurs when students like Matthew take a test feeling more confident than they should.

Closing Thoughts

Ultimately, in order to implement self-regulation instruction into the curriculum, the student - and not the teacher, textbook, or content - must be the focus of the class. When properly aligned, the instruction naturally works to provide the student with the skillset necessary to take ownership of his or her own learning, rather than passively receive facts from the teacher. The self-regulation method of instruction empowers the student in two ways. First, it explicitly

teaches the skills that so often go untaught and gives students the chance to practice and master them. Second, it gives students the tools and mindset to eventually take this skill and make it their own, particularly by encouraging self-monitoring and self-reflection throughout the learning process. Reid and Lienemann's (2006) sum it up best: "if students with LD lack effective strategies for an academic task, then *we should teach them effective strategies*" (p. 10).

Once students have improved their self-regulation habits, one can imagine how the learning process will open itself up for students who use to struggle (Lerner, 2003). Even better, these instructional strategies benefit *all* students, not just those with learning difficulties (Meltzer, Pollica, & Barzillai, 2007), which is increasingly important as schools move to full inclusion for students with mild disabilities like LD and ADHD. As students acquire and store up the self-regulation and academic habits necessary for success, an important component of fine-tuning these skills comes with assessments, which is the next section of this paper.

Assessment

As students are practicing and trying out new metacognitive and academic routines, concrete and consistent feedback is important. For instance, if you are trying to lower your blood pressure, then taking and recording measurements is part of your strategy, so you can track and correlate your blood pressure to your eating and exercise habits. After a few weeks of exercise, you would ideally see progress and, being motivated, continue in this path. If you didn't make progress, however, you would at least realize that what you were currently doing wasn't working and to try something else instead. Thus, it would be ideal to measure your blood pressure on a daily or at least weekly basis, so that you would get feedback on your progress. Now imagine the

same goal, but only checking your blood pressure once a year. How would you know if you're making progress, that your strategies are working? Would you make the connection between choices and results, and thus be motivated to change your lifestyle? Or would you lose focus and slip back into the comfortable routine that got you into this problem in this first place?

One of the most important ways to help students adopt self-regulatory and academic habits is through guided and constructive feedback, as mentioned in the previous section, and one of the best ways to do this is through consistent and regular assessments. Tests are already a standard part of the classroom, but they are often seen as a means of checking the mastery of content (What was the Battle of the Marne?), not as a means of assessing skill levels and study habits. Fortunately, these are not mutually exclusively, and using one to measure the other is a natural, yet subtle, shift in the overall culture of the classroom. The subtle shift comes in the purpose of assessments, which come to be seen as learning opportunities and chances for growth.

Because students with LD and ADHD struggle with self-monitoring (knowing how well they have learned), students like Matthew can often approach a test feeling more confident than they ought. Much like the blood pressure example above, giving students shorter and more frequent assessments gives them a more accurate picture of how well they understand a concept, rather than just a unit test after three or four weeks of material, which is often the practice in high school. For instance, in a math class on fractions, wouldn't it be more helpful to have small quizzes several times a week, so students could identify which aspects they understand (adding fractions) and which ones they don't (converting improper fractions)? Not only will this give students a greater understanding of what they know, but it will give them a chance to course correct and try new strategies to master difficult concepts, rather than finding out on the unit test

they never understood improper fractions in the first place. Furthermore, shorter quizzes are "not such an isolated, anxiety-provoking situation," which can help discouraged students feel more empowered and enhance motivation and effort (Mercer & Mercer, 1998, p. 547).

Using Assessments to Self-Monitor Learning

More frequent assessments, combined with direct instruction and modeling of self-regulation and academic habits can be a powerful and immediate way to show students that when they study effectively, they learn and perform better on tests and quizzes. To help them see this connection, it's important for the teacher to create a structure where students can record their study habits and track their performance on these quizzes, so that a connection can be established, habits improved, and progress sustained.

Zimmerman, Bonner, and Kovach (1996) developed a useful approach to develop self-regulation skills in the everyday classroom through the use of progress charts. These are daily charts that students fill in, detailing anything from where they studied, how long the assignment took, any distractions that were present, or how confident the student felt in learning the material (which they term self-efficacy). Along with this "preliminary information," students can track the grade on the assignment or quiz that correlates with that night's work, graph the progress, and make connections between the inputs and outputs. For instance, if a student spends only 10 minutes on his math assignment while watching television in the living room, we can predict that he might not perform well on his homework. But for the student, who is still learning self-regulation techniques, he might not see the connection and instead believe math is just too hard. The teacher, noticing the poor choice in time spent and location, can help the student, through

coaching, to see that the current setup is not achieving the desired results (learning, or more basically, good grades). From here, the student might try studying in his room for 15 or even 20 minutes, and if his grade on the next assignment or quiz improves, then he will be encouraged to maintain this study habit. As a result, the student becomes empowered because the teacher created a framework where students are required (through a participation grade, perhaps) to record and track their study habits (or note taking skills, reading comprehension, etc).

For students unsure of which strategies to try, a chart can be a helpful starting place by suggesting ways to improve one's learning. Below is an example chart I created for a math class:

Used Notes	Showed your work	Checked your work	Asked for Help	Did Extra Problems	Time Spent	Predicted Correct	Actual Correct
☑	☐	☐	☐	☐	15	9	7
☐	☐	☐	☐	☐			

The teacher might encourage students to try out at least one or two of the strategies for a week, track their data, and see if any progress occurs. As students do this, and hopefully begin to make improvements, they will begin to make the connection between strategies used (input) and learning achieved (output). Students will then be motivated to try other strategies or apply these strategies to other classes, thus complementing the curriculum and instructional strategies discussed in the previous section.

Zimmerman, Bonner, and Kovach (1996) also encourage students to track this information graphical, similar to the approach in curriculum-based assessment (Mercer & Pullen, 2005). This can be especially powerful if students simply track how long they spend studying for a quiz and the resulting grade. As students increase the time invested, the score received should increase (if not, this signals to the teacher that there is a breakdown in the academic habits, and

further instruction is necessary). As students track their progress, they become more active participants in the learning process, and thus better students.

Another way to use this method of assessments to help strengthen academic habits is by having students keep track of the study strategy used on a particular quiz or test. As students learn and become comfortable with various study strategies (note cards, outlines, study groups, etc), they will naturally come to prefer some over others. To help students make better informed decisions on which strategy is best for them, having them record the strategy they used for a particular quiz, along with the quiz score, can help students decide whether or not the strategy was useful. As students record data in their charts, they are literally practicing metacognitive skills and improving their use of study strategies, making regular assessments a key component of reinforcing self-regulation strategies (Zimmerman, Bonner, and Kovach, 1996).

Closing Thoughts

When properly structured, assessments can be a powerful tool in cultivating within students self-regulation strategies and academic habits. Because students already see tests and quizzes as important, often more so than homework, using them to reinforce and improve metacognitive skills is a natural fit. This does require more frequent assessments however, and Zimmerman, Bonner, and Kovach (1996) recommend weekly ones, though I would go even further and say daily, giving students even more frequent chances to adapt their learning behaviors. Of course, teachers should assess themselves as well, and using some form of pre- and post-test surveys to measure student beliefs and attitudes about academic habits and metacognitive skills on a regular basis could be useful. Ultimately, assessments should be seen as learning tools, both for the

student and the teacher. Unlike a content-centered classroom, where the assessment is meant to bludgeon anyone who has failed to master facts and figures, the student-centered classroom uses assessments to measure how well the learning environment (textbook, teacher, classroom, etc) is improving student learning.

Implications and Call to Action

So okay, self-regulation is important and I get the theory behind it, but what does it look like? How does it happen on a daily basis? As a current teacher, I'm forced to deal with this messy collision of theory and practice on a daily basis. And let's be honest: no matter how good or effective a program, if it's tough to implement or takes up too much time, I'll probably give up after a few weeks. I mean, it's nothing personal researchers, but I've actually got to make your ideas work. Every day. With teenagers. You'll excuse me if your good ideas fall by the wayside as I go about my daily task of teaching history to high schoolers.

But in fact, while transforming classrooms from content-centered to student-centered is a significant philosophical shift in perspective, in practice it turns out not to be much different. Since I'm in a unique position to be researching an educational framework while teaching real-life students, I decided to implement some of these ideas in my own classroom. By no means a perfect model, I do feel that my attempts have begun to improve my students' learning strategies.

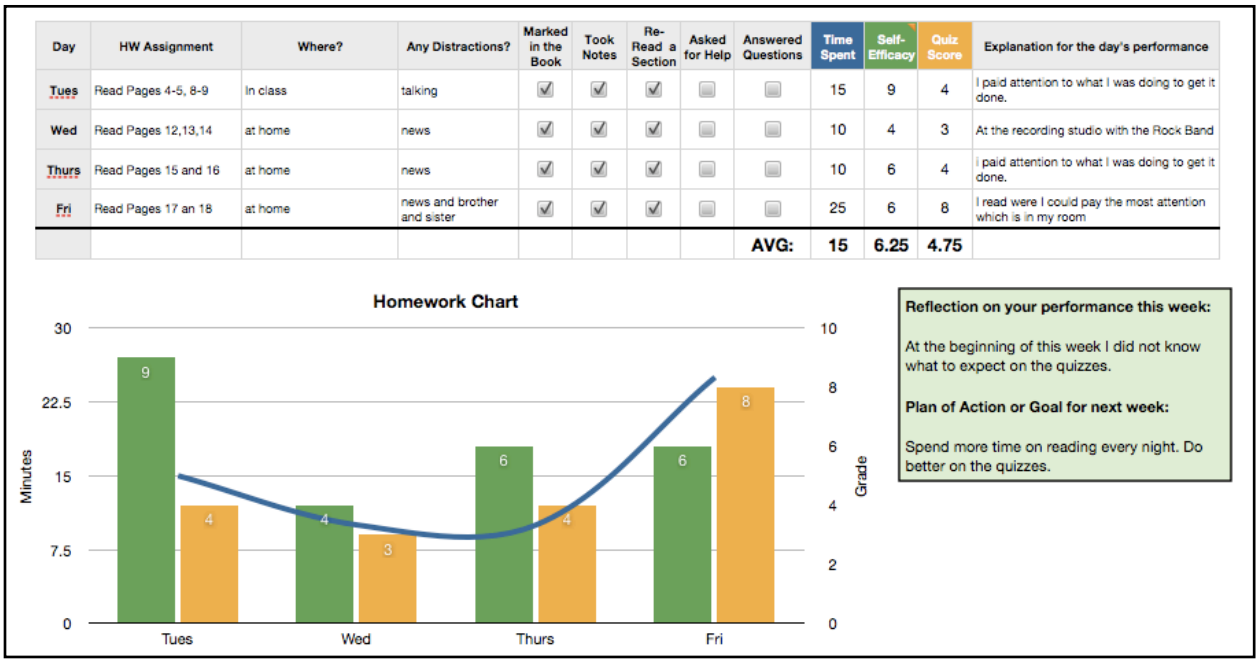
Self-Regulation in Practice

For the past two months, my three senior-level economics classes (a semester-long course) have been an unofficial case study of how to actually implement all these ideas I've been mulling over

for the past four to five months. I was originally moved to this topic because of students like Matthew, who though they had gotten through high school, were struggling to make it in college. Working with seniors in their last semester of high school, then, seemed like a good place to start, and I used Zimmerman, Bonner, and Kovach (1996) as my guide. I structured the class to have nightly reading assignments with daily quizzes the next day, which would account for 20% of their grade. The nightly reading only averaged two to four pages, which is the pace I have followed in the past. Anyhow, along with taking daily quizzes, 10% of their grade, class participation, involves filling out reflection charts on a daily basis, which asked them to record where they read, any distractions that were present, how long they spent, how well they thought they had learned the material (on a scale of one to ten), and their actual quiz score (out of a possible ten points). The daily quizzes are a mix of multiple choice and short answer questions, as well as the occasional graphing problem. We would often grade the quiz in class, so students could get instant feedback, and they could then record their score on the chart. Students also graphed their results to show the relationship between time spent and quiz score. While they took the quiz, I was able to walk around and check their chart completion, which was on their desk. Every two weeks, we have a chapter test or a project, and these are worth 40% of their grade.

I made sure to explain the system and demonstrate how to fill in the charts, so that all students could do so comfortably. I also explained the importance of reading comprehension and self-monitoring in college and talked them through some basic strategies to try out while reading each night. Because of the daily quizzes, students were held accountable to the nightly reading, which was somewhat of a culture shock for them, not so much because they had homework, but because they had to learn new concepts on their own with just the textbook as their guide. While

this is a relatively foreign concept in high school, in college it can happen quite frequently if the professor relies on the textbook for all of the course assessments. I worked to keep them encouraged, but I'll be honest, the first week was tough. To keep their grades from being too affected, I gave students the option of outlining the pages the quiz covered for up to five extra points on the quiz (not to exceed ten total points). I provided an example outline for them to follow, and several students used the option to improve their grade, with some students doing the outline before the quiz to improve their comprehension and enter the quiz with a built in five points. At the end of each week, students reflect on their performance for the week, set a goal for next week, and a plan of action for reaching that goal. I think this could probably occur more frequently, perhaps daily, to encourage greater self-reflection. I have included a picture of what one student's completed chart looked like for the first week:



Day	HW Assignment	Where?	Any Distractions?	Marked in the Book	Took Notes	Re-Read a Section	Asked for Help	Answered Questions	Time Spent	Self-Efficacy	Quiz Score	Explanation for the day's performance
Tues	Read Pages 4-5, 8-9	In class	talking	☑	☑	☑	☐	☐	15	9	4	I paid attention to what I was doing to get it done.
Wed	Read Pages 12,13,14	at home	news	☑	☑	☑	☐	☐	10	4	3	At the recording studio with the Rock Band
Thurs	Read Pages 15 and 16	at home	news	☑	☑	☑	☐	☐	10	6	4	I paid attention to what I was doing to get it done.
Fri	Read Pages 17 an 18	at home	news and brother and sister	☑	☑	☑	☐	☐	25	6	8	I read were I could pay the most attention which is in my room
								AVG:	15	6.25	4.75	

Reflection on your performance this week:

At the beginning of this week I did not know what to expect on the quizzes.

Plan of Action or Goal for next week:

Spend more time on reading every night. Do better on the quizzes.

By the second and third weeks, most students had adjusted to the demands of the quizzes and learned how to read more strategically to predict what will be on the quiz. In terms of optics, I probably should have called the homework "studying for the quiz" rather than "reading,"

because students often interpret reading as a once-over scan of the pages, with little effort to understand or learn the material. I regret that I did not create a pre-assessment to measure their self-regulation and academic habits before beginning this process, but I do feel that students have taken more responsibility for their learning, are more attuned to the demands of learning, and have begun to see the connection between effort and results. For the most recent unit on demand and supply, I switched the quizzes to cover the material discussed in class the day before, because the content is more difficult to understand on its own. In doing so, students are now responsible for taking detailed notes and studying these on a nightly basis to better understand the material, and I believe both formats have been useful in improving academic behaviors.

Overall, I have been pleased with how the class has been restructured, though there are still several ways to improve the process. In working on this paper, I have realized that I need to be more conscious and intentional in teaching self-regulation habits like mindfulness and goal-setting, as well as academic habits like reading strategies and note taking. Setting aside a few minutes each class for students to share with a neighbor how they study or write down a specific goal for the week would also be beneficial. Similarly, taking more time to speak with students on their progress, even if it's just for a minute, would help individualize the process, particularly for those students who struggle to adapt. While students have improved their daily academic habits to do better on the quizzes, I wonder if this will transfer to other classes, and more importantly to college. Obviously, this process should begin in middle school rather than a semester left until graduation, because only through sustained effort will students develop into independent and reflective learners. But as a first step, I'm pleased with the progress and plan to continue this for the remainder of the year, as well as work with other teachers to help them implement some of

these elements in their classrooms for next school year. Ultimately, if teaching students self-regulation strategies to improve their academic habits is going to work, it's going to take more than just me doing it. As such, I have already applied to present this topic at an independent school conference in November, in the hopes that more teachers will empower their students to become more successful learners.

A Call to Action

As our economy becomes increasingly reliant on a college-educated workforce, students are entering post-secondary institutions at a growing rate, with enrollment jumping 26% from 1997 to 2007 (National Center for Education Statistics, 2008). Unfortunately, our educational system is not keeping up with these trends, and while more students are entering college, only about half of them will ever graduate (Education Trust, 2003), which is not surprising when 85% of professors report that college freshmen are not ready for college-level work (Conley, 2006). Such facts make self-regulation and academic habits not just an issue for students with LD and ADHD, but an issue for all students, because our current way of doing school is clearly not working. Making explicit instruction of metacognitive and academic strategies a crucial component of today's classroom makes sense, because students are entering a knowledge-based economy that requires the skills and habits embodied in self-regulation instruction. We are doing a disservice to students like Matthew if we continue the same old methods and expect different results -- in fact, that attitude sounds a lot like a learning disability. Our students (and our teachers and schools) deserve a better framework for education, and focusing on learning strategies like self-regulation is a good place to start. Let's get to work.

References

Bos, C.S., & Vaughn, S. (1994). Strategies for teaching students with learning and behavior problems (3rd ed.). Boston: Allyn & Bacon.

Conley, D.T. (2006). "College preparation for high school students." Eugene, OR: Center for Educational Policy Research.

Conley, D.T. (2007). Redefining College Readiness. Eugene, OR: Educational Policy Improvement Center.

Denckla, M.B. (2007). Executive function: Binding together the definitions of attention-deficit/ hyperactivity disorder and learning disabilities. In L. Meltzer (Ed.) Executive function in education: From theory to practice. (pp. 5-18). New York: The Guilford Press.

Dendy, C.A.Z. (2000). Teaching teens with ADD and ADHD. Bethesda, MD: Woodbine House.

DuPaul, G.J., & Stoner, G. (1994). ADHD in the schools: Assessment and intervention strategies. New York: The Guilford Press.

Education Trust. (2003). *Thinking K-16: A New Core Curriculum for All*. Washington D.C.: Education Trust.

Elbaum, B., & Vaughn, S. (2003). Self-concept and students with learning disabilities. In H.L. Swanson, K.R. Harris, & S. Graham (Eds.) Handbook of learning disabilities. (pp. 229-241). New York: The Guilford Press.

Ellis, E.S., Deshler, D.D., & Schumaker, J.B. (1989). Teaching adolescents with learning disabilities to generate and use task-specific strategies. *Journal of Learning Disabilities, 22,* 108-119.

Graham, S. & Perin, D. (2007). A meta-analysis of writing instruction for adolescent students. *Journal of Educational Psychology, 99,* 445-476.

Huang, D., & Cho, J. (2009). Academic enrichment in high-functioning homework afterschool programs. *Journal of Research in Childhood Education, 23, 3,* 382-392.

Kotering, L., & Braziel, P. (2002). A look at high school programs as perceived by youths with learning disabilities. *Learning Disabilities Quarterly, 25,* 177-188.

Lerner, J. (2003). Learning disabilities. Boston: Houghton Mifflin.

Lovitt, T.C., Plavins, M., & Cushing, S. (1999). What do pupils with disabilities have to say about their experiences in high school? *Remedial and Special Education, 20,* 67-76.

Meltzer, L., & Krishnan, K. (2007). Executive function difficulties and learning disabilities: Understandings and misunderstandings. In L. Meltzer (Ed.) Executive function in education: From theory to practice. (pp. 77-105). New York: The Guilford Press.

Meltzer, L., Pollica, L.S., & Barzillai, M. (2007). Executive function in the classroom: Embedding strategy instruction into daily teaching practices. In L. Meltzer (Ed.) Executive function in education: From theory to practice. (pp. 165-193). New York: The Guilford Press.

Mercer, C.D., & Mercer, A.R. (1998). Teaching students with learning problems (5th edition). Upper Saddle River, NJ: Prentice Hall.

Mercer, C.D., & Pullen, P.C. (2005). Students with learning disabilities (6th edition). Upper Saddle River, NJ: Pearson Education.

Merriman, D.E., & Codding, R.S. (2008). The effects of coaching on mathematics homework completion and accuracy of high school students with attention-deficit/hyperactivity disorder. *Journal of Behavioral Education, 17, 4*, 339-355.

Minskoff, E., & Allsopp, D. (2003). Academic success strategies for adolescents with learning disabilities and ADHD. Baltimore: Paul H. Brookes Publishing.

Reid, R., & Lienemann, T.O. (2006). Strategy instruction for students with learning disabilities. New York: The Guilford Press.

Schunk, D. (2003). Self-efficacy for reading and writing: Influence of modeling, goal setting, and self-evaluation. *Reading and Writing Quarterly, 19*, 159-172.

Schunk, D. & Zimmerman, B. (1998). Conclusions and future directions for academic interventions. In D. Schunk & B. Zimmerman (Eds.) Self-regulated learning: From teaching to self-reflective practice (pp. 225-235). New York: The Guilford Press.

Swanson, H.L. (1999). Interventions for students with learning disabilities: A meta-analysis of treatment outcomes. New York: Guilford Press.

Swanson, H.L. (2001). Research on interventions for adolescents with learning disabilities: A meta-analysis of outcomes related to higher-order processing. *The Elementary School Journal, 101, 3*, 331-348.

Torgesen, J.K. (1982). The learning disabled child as an inactive learner: Educational implications. *Topics in Learning and Learning Disabilities, 2,* 45-52.

National Center for Education Statistics (2008). Fast Facts on college enrollment. U.S. Department of Education. Retrieved February 21, 2010, from U.S. Department of Education Institute of Education Sciences: http://nces.ed.gov/fastFacts/display.asp?id=98

Wong, B.Y.L. (1991). "The Relevance of Metacognition to Learning Disabilities." In B.Y.L. Wong (Ed.), Learning about Learning Disabilities (pp. 231-258). San Diego: Academic Press.

Zimmerman, B., Bonner, S., & Kovach, R. (1996). Developing self-regulated learners: Beyond achievement to self-efficacy. Washington, D.C.: American Psychological Association.

Zimmerman, B. (2000). Attaining self-regulation: A social cognitive perspective. In Boekaerts, M., Pintrich, P.R., & Zeidner, M. (Eds.) Handbook of self-regulation. (pp. 13-39). San Diego: Academic Press.

Zito, J.R., Adkins, M., Gavins, M., Harris, K.R., & Graham, S. (2007). Self-regulated strategy development: Relationship to the social-cognitive perspective and the development of self-regulation. *Reading and Writing Quarterly, 23*, 77-95.