Self-monitoring to Improve Academic Success
For a High School Student Identified
With Attention Deficit Hyperactivity Disorder

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Abstract

This study examined self-monitoring and the academic performance of a male student in high school identified with attention deficit hyperactivity disorder (ADHD). The study was conducted over two weeks. Data collected included the use of a planner in the mainstream classroom, responses to three survey questions regarding the student’s attitudes toward school, and use of the self-monitoring guide. The results show that the student improved grade average in all five classes. He improved the use of the notebook planner in the classroom from 0% of the time to 50% of the time. His attitude toward school fluctuated with his grades, his attitude toward the notebook planner was reported as “helpful,” and his attitude toward self-monitoring was mixed.
I am a special education teacher in a large, private high school. Working in a private school has some terrific advantages, including a culture of independence. All of my colleagues appreciate the independence we have in our classrooms, but I have come to realize that inherent in this culture of independence is a loss of consistent examination of best practices in education. In particular, my school has not implemented Response to Intervention (RTI) with its inherent demand for driven decisions, which is at the forefront of education reform.

My caseload consists of 33 students, including fourteen students with attention deficit hyperactivity disorder (ADHD), whom also demonstrate executive dysfunction. These students are in mainstream classes, and the purpose of our specially designed instruction model is to provide academic support without data-driven interventions as promoted by RTI. At times, success for the students appears to be hit or miss with no plan or method for evaluating successful interventions.

Although each of my students has a unique set of needs, one particular student is a walking vacuum of need, sucking all of my time and energy. I have been working with this student for nearly three years in my resource room, increasing his services from one supported study, to an additional second supported study. He continues to perform below his peers in his mainstream classes due to poor organization and homework completion. These behaviors are a manifestation of his ADHD and executive function disability.

Two experiences have led me into this direction toward developing strategies for helping students with executive dysfunction. First, this fall I attended a seminar on executive function.
The first day of the seminar gave an excellent background in brain research on executive functioning, explaining how these skills grow, or fail to grow, over time. From this brain research, I gained insight that individuals with executive dysfunction live for the moment. A successful intervention teaches the student how to look beyond the present, be more reflective and to work toward a future goal.

Insight was not enough. I still needed an instructional model with a built-in process of evaluation that I could use in my classroom. Earlier in the fall, I participated in an RTI class at the University of Southern Maine, which included information on self-monitoring. A student using a self-monitoring strategy should become more aware of his or her behavior and barriers to success, which is the first step in overcoming the barriers. In my research project, my student will have a self-monitoring guide to be completed daily in the learning center on the use of his daily planner. The self-monitoring guide will include a short survey that indicates whether the student used the planner, and whether the planner is helping him to pass his work on time and to improve his grades. At the end of the data collection process, the student will have the opportunity to reflect whether the planner contributed to his academic success.

This research has three aims for the student. First, the research will examine whether self-monitoring has any on effect in the academic performance of a high school student as measured by his grades. Secondly, the research will examine whether the student increases the use of the planner when he is self-monitoring. Thirdly, the research will examine if the student’s attitude towards school is affected by self-monitoring.

I have a fourth aim for this research, but the results will not be immediately seen. Using this data-driven approach may be a first step taken within my department toward implementation of RTI. This research may demonstrate to my colleagues that RTI can be implemented at the
high school level. I firmly believe that my school needs to shake off a layer of independence and incorporate some of the data driven features of RTI in the interest of best practices for all students.

**Literature Review**

Executive functioning is a broad term describing abilities used in all facets of an individual’s daily living. One formal definition is “the executive functions are a set of processes that all have to do with managing oneself and one’s resources in order to achieve a goal. It is an umbrella term for the neurologically-based skills involving mental control and self-regulation” (Cooper-Kahn and Dietzel, 2008). The authors list processes that fall under this umbrella, including self-monitoring, which is the focus of this research. The authors describe self-monitoring as “the ability to monitor one’s own performance and to measure it against some standard of what is needed or expected” (p. 4). Individuals with poor self-monitoring habits are unable to reflect whether or not their actions or behaviors are meeting expectations.

Many students have self-monitoring deficits, but students with ADHD are particularly susceptible to these deficits, and the numbers are rising. Students with ADHD make up an increasing population in students with disabilities. The Centers for Disease Control and Prevention (CDC) reported, “3%-7% of school-aged children suffer from ADHD.” (CDC, 2010, p. 1) Although the rate for learning disabilities has remained relatively flat, the number of students in the general population identified with ADHD is increasing by approximately 3% per year (Yan, 2008). This increase in ADHD is significant because executive dysfunction is so closely tied to ADHD, prompting additional study in this area. A study of 240 children aged five to 15 used the Behavior Rating Inventory of Executive Function (BRIEF) to identify executive function weaknesses. The authors found a significant correlation in between predicting ADHD in
children and the BRIEF. (Mares, McLucke, Schwarz, and Saini, 2007). In my own school, 41% of the students are identified under Other Health Impaired for ADHD (Precourt, 2010). Consequently, students with ADHD with poor self-monitoring skills comprise a significant portion of my special education classroom.

Students with ADHD and associated poor self-monitoring skills need effective strategies to be successful in school. One of the most common strategies for developing self-monitoring behavior includes creating checklists for the student to use when completing homework, and students reflecting on their performances (Landon and Oggel, 2002). Another strategy is that students graph their completed homework and grades (Warger, 2001). Although both of these articles listed self-monitoring strategies, they did not provide any empirical data to back up the strategies’ effectiveness.

Other researchers (Gureasko-Moore, DePaul and White, 2006) have examined self-monitoring from a quantitative perspective. One study looked at three middle school boys identified with ADHD in mainstream classes that the teachers described as frequently unprepared for class. The authors advocated a self-regulation rationale because the participants would be responsible for their own behaviors. The approach is less teacher-centered and can be generalized to all academic settings. This rationale is even more important in high school where the students are transitioning to post-secondary work or education. In these cases, students’ ownership of their progress is imperative. The results of this survey were positive, with all three students improving by over 30 percentage points over their pre-intervention behaviors. One key component of this study is that the researchers spent considerable time training the participants in class preparation skills and self-monitoring skills. I will incorporate training in my study, but
since my student’s target behavior is the use of a planner, the training will not need to be as comprehensive.

Other researchers have reached beyond homework grades and incorporated organizational skills to improve academic performance. One of the principal strategies used with a middle school was an “organizational skills form” (Anderson, Munk, Young, Conley, Caldarella, 2008, p. 8). The researchers also used a system of positive reinforcers to shape the four students behaviors. This research is promising because each of the four students raised their grade in the organization class from C’s and D’s to A’s, B’s, and C’s. I will work my student to create a system of rewards that will motivate him to use the self-monitoring intervention.

Self-monitoring strategies can be used for more than keeping track of homework progress and improve organization. These strategies can also be used for behavior modification. A strategy that is common in middle or elementary schools is check-in/check-out. The study by Todd, Campbell, Meyer and Horner illustrated a classic example of check-in/check-out. In this study, the students were responsible for handing their monitoring card several times per day to the teachers to rate. The students could see their progress daily, and they knew that they would receive a reward, if they met a stated goal. I will include goal setting into my research design.

All of the cited research examined students in middle school and lower grades. There is little research on developing self-monitoring skills for high school students, but a study by Stenhoff, Davey and Lignugaris (2006) examined the impact of student choice with high school students. In the study, a high school student with a learning disability completed more assignments when he was able to choose the task himself. I will incorporate student choice of materials, goals, and rewards are incorporated in my research design.
This literature review did find significant research on strategies for increase self-monitoring skills in middle school students including checklists, goals, and rewards. However, the needs of my subject, a high school student, warrant additional study in the area of incorporating choice of materials, goals and rewards. The participant of my study will be a junior in high school, who has had special education services for ten years with no major improvement in his self-monitoring and organization skills. This research may be a last effort from his formal education to teach him these vital skills.

**Research Question**

The primary research question is: Does self-monitoring of the use of a planner by an eleventh grader in a private high school in his mainstream classes, have any on effect on the academic performance of a high school student identified with an ADHD and an executive function disability? Examination of the data may reveal if improvement in academic performance is it due to the use of the planner, due to the self-monitoring, or due to both elements working together. It will also be interesting to note whether the self-monitoring changed the frequency of the use of the planner in the student’s mainstream classes. The last aim of this study is to determine whether self-monitoring affects a student’s attitude towards school and organization skills.

**Methods**

**Setting**

The setting of the study is in a private high school in Maine. The population of 1341 students comes from three sending towns; in addition, a few private tuition students, including 38 overseas residential students, attend. The three sending towns are diverse in nature. The largest
town is a coastal, suburban city with mixed commercial businesses and rural areas. The other two sending towns are rural with fewer businesses than the larger city.

The high school offers diverse programs ranging from piano to Advanced Placement Chemistry for grades nine through twelve. The faculty includes 88 teachers and the student ratio is 15.23 students/teacher. The campus includes a small private middle school in a separate building, but the middle school has separate administration and is not a factor in this study.

The poverty level of this area can be explored using free/reduced hot lunch data. Since the high school is private, it does not participate in the standard hot lunch program. Instead, the school provides a subsidy of $3.00 per day and approximately 10% of the students participate. For a more accurate picture of the poverty level, since many high school students will not participate due to “image concerns” the free/reduced rate of 40% at the local elementary school is a better indicator.

In the high school, approximately 15% of the students are in special education, including 12 students in an off-site day treatment program. 120 of the students are completely in the mainstream and attend one of three resource rooms, with a total of six teachers and four education technicians, for academic support. Special educators teach special education math and English to twelve and three students, respectively. The school is developing a self-contained program for students with high needs, and the program will be limited to twelve students. The life skills program varies during the year from eight to twelve students.

Sample

The single participant of the study is a male high school student, 17 years-old, in special education class for students with mild to moderate disabilities. I chose this student, identified with ADHD, because he struggles daily with organization and homework completion. He
attends a resource room daily for organization issues and academic support. I will provide no identifying information due to confidentiality concerns.

This student uses no organization system because he believes that no system can improve his performance. If the intervention is successful, it could be a stepping-stone to more profound changes in how he manages his executive dysfunction.

**Procedures**

In the resource room, approximately one month before the study began, the researcher gave the student three choices for tracking his assignments, a planner, a calendar and a one subject wide-ruled notebook. The student chose the wide-ruled notebook. I gave the a list of missing work, and he entered the information into his notebook. The researcher trained the student for ten minutes on the use of the notebook in his mainstream classes. The instructions included crossing off finished assignments, and that the researcher would check the notebook in the resource room.

On the first day of the study, I emailed the student’s mainstream teachers for a current, numerical grade on the students, and I entered the information into my planner. During the beginning of block G-4, the students last block of the school day, I introduced the self-monitoring guide (guide) to the student with approximately 10 minutes of training. The guide included a check off list of classes to indicate use of the notebook planner either in the mainstream classroom or the learning center, a section to list assignments passed in on time, list of assignments passed in late or not at all, and three Linkert type questions. The questions included ratings on school in general, ratings on the effectiveness of the planner, and ratings on the effectiveness of the self-monitoring. Directions for using the guide are written at the top of the guide, which may be found in Appendix A. During the training, the student and the
researcher discussed incentives for the period of the self-monitoring. Since the student is 16-years old, he needed to participate in this process so that the incentives were age appropriate and likely to succeed. The student decided he would like to have a free breakfast if he used his notebook planner in his mainstream classes 100% of the time. The student wrote his reward in his notebook planner for reference.

The student completed the self-monitoring guide on every G-4 block with the assistance of the researcher. The student never completed it without prompting or guidance. He used the self-monitoring guide over a span of two weeks, but he completed the guide on only five occasions due to absences and the alternate-day schedule.

At the end of the grading quarter, I looked the student’s grades up on the computer to use them as the ending point of the formal study. The student and I discussed his grades with the planner and the self-monitoring guide to look for patterns in completing his assignments. Understandably, the student was upset about two failing grades, and he was unwilling to continue the use of the self-monitoring guide.

Results

The single subject of the study is a male high school identified with attention deficit hyperactivity disorder. The student had been using a notebook to record his assignments for one month before the study began. I recorded the student’s grades at the beginning of the study and on the last day of data collection. When I introduced the self-monitoring guide, he stated that he was willing to try it. The student’s attitude was cooperative until he learned about his failing quarterly grade. Once the student realized he was failing two classes, he was discouraged and noncompliant.
The original plan of the study required the student to fill in the self-monitoring guide daily; however, the student completed the self-monitoring guide at the end of every other day when the student had his resource block. With prompting, the student completed the self-monitoring-guide on five separate days. The student was absent one day.

The guide included three sections. The first section tracks the frequency of the use of the notebook in the classroom or Learning Center. The second section tracked assignments passed on time, late, or not at all. The third section consists of three Linkert type questions regarding school, the notebook, and self-monitoring.

Information collected on the first day provided the baseline on the use of the notebook in the classroom compared to the learning center. The student did not fill in his notebook in his mainstream classes, but wrote in his notebook in the learning center for all eight classes. On the final day of the data collection, he filled in his notebook in the classroom four times, and filled in the notebook in the Learning Center for the remaining four classes. Please refer to Appendix B, Table 1, and Graph 1 for the daily results.

The second section of the self-monitoring guide listed assignments passed in on time, late, or not at all. This data is not included because it is not reliable for two reasons. First, the student was unable to remember this information consistently. Second, the student admitted that he purposely omitted information because he did not want to do the homework.

The concluding section listed three Linkert-type survey questions. The first question was “How was school today?” The average response was 3.4, between fair and not good. The second question was “Did using a planner help you pass in assignments on time?” The average response was 2, corresponding to the helpful response. The last question “Was self-monitoring
your progress helpful?” had an average score of 2.4, between the responses of helpful and no difference.

The researcher gathered the student’s grades at the beginning and ending of data collection. In the five mainstream classes, his grades increased by two to twelve points, however, two classes remained in the failing range. Please refer to Appendix B, Table 2 for the data.

Discussion

Before the start of my study, I was very hesitant to approach the student with the self-monitoring guide to be used in conjunction with his notebook planner because I was not confident he would agree. Fortunately, he did agree, and the study showed some positive trends including increased frequency of using the notebook in mainstream classes, improvement in his academic grades, and greater willingness to use the notebook as an organizational strategy.

Analysis of the Data

At the start of the study, the student filled in his notebook only in the Learning Center, but this strategy is not effective in remembering assignments. By the end of the study, the student was using the notebook in 50% of the mainstream classes, so that he did not have to depend on his memory, and the written information would more likely be correct.

The student’s grades did improve in every class, but the quarterly grades for two of the mainstream classes were extremely disappointing to the student. He failed science and English with grades of 51 and 58, respectively. When I reviewed these grades with the student, along with the notebook and the self-monitoring sheet, the student admitted that he had not been honest, so that he was not surprised that he had failed. He was angry with himself, but reviewing the self-monitoring guide helped him realize that he was responsible for the poor grade. On the
other hand, the student was very pleased with the progress he made in his history grade, improving from a 68 to an 80.

The three survey questions were revealing. The scores fluctuated on the first question, “How was school today?” He scored “fair” on three of the days, and “not good” on the days that he learned of his grades. Each day the student used the self-monitoring guides, and he reported that using the notebook was helpful. In comparison, the use of the self-monitoring guides had an average score between helpful and no difference.

Overall, the self-monitoring proved beneficial to the student. He became aware of his self-defeating behavior, and he reported that using a notebook for a planner is helpful. These attitudes may lead to additional initiatives in organization and continued progress in his mainstream classes.

**Strengths**

One strength of this study is that it combined aspects of a quantitative study with qualitative features. The study would not have been as constructive if it had not explored the student’s attitudes toward school and using his notebook and self-monitoring guide. An additional strength of this study is that the subject is an older high school student; historically, this group is not well examined. Furthermore, for a beginner researcher, this study had the advantage of only a single subject and a short duration. In the future, I can use this study as a foundation for a more encompassing venture.

**Limitations**

The limitations of this study are that there was only one subject, a male high school student in his junior year, and the results cannot be generalized beyond that one subject. With a different researcher and subject, this study may yield very different results. Another limitation is
the length of the study. I gathered baseline information for only one day, and I collected data for only four days. In addition, reliability issues are of serious concern. One section of the research regarding passed-in assignments was completely disregarded because the student frequently forgot the information or purposely omitted it. A different methodology would have to be devised in order to obtain accurate information. The reliability of the mainstream class grades can be accepted. The validity of the self-monitoring guide has not been examined, particularly in regard to the Linkert survey questions.

**Conclusion**

This study had three aims for the student: to improve his academic performance as reflected in his quarterly grades, to increase the frequency of his use of the notebook planner, and to evaluate whether his attitude toward school is affected by self-monitoring. The data clearly demonstrated an increase in grades and the frequency in using the planner. His attitude toward school did not clearly change, but the student was forced to face the direct impact his avoidance behaviors had on his grades for science and English.

In regards to my personal aims as an educator, this study was an excellent introduction to the principles of RTI, particularly in monitoring a student’s progress using data. Monitoring progress is standard practice in many schools and can be used in many areas including behavior, reading and writing skills, and math skills. I will be sharing the results of this study with my colleagues within the special education department, as well as some members of the administration. I will volunteer to be a resource as my school starts RTI initiatives in the fall.

'RTI is a paradigm change in education and some faculty will be vehemently opposed. My colleagues often discuss why RTI cannot be implemented at the high school level, which is not true. Further research at the high school level into data-driven strategies and interventions,
including the use of self-monitoring, will help eliminate the fear and misconceptions that many educators have.
References


Appendix A

Self-monitoring guide

DATE___________

This self-monitoring guide should be completed ten minutes before the end of the G-4 Learning Center (LC). Using “Y” (yes) or “N” (no) for the regular classes, indicate if you used the planner in that classroom. If you answered “No,” but filled in the planner for that class in the Learning Center, write “LC” next to the “N” for that class. For the blocks M-1, M-2 and G-4, indicate if you checked your planner at the beginning of the block using “Y” or “N”.

M-1 English _______ G-1 Cafe ______________
M-2 Learning center_______ G-2 Science_________
M-3 Math_______________ G-3 Computer apps______________
M-4 History______________ G-4 Learning center_________

List assignments that you passed in on time

List assignments that you passed in late or not at all

How was school today? Please circle

1 2 3 4 5
Excellent Good Fair Not good Awful

Did using a planner help you pass in assignments on time?

1 2 3 4 5
Terrific Helpful No difference Slows me down Much worse

Was self-monitoring your progress helpful?

1 2 3 4 5
Terrific Helpful No difference Slows me down Much worse
## Appendix B

### Table 1

Completion of Notebook in the Classroom compared to Learning Center (LC)

<table>
<thead>
<tr>
<th>Date</th>
<th>Times filled in academic class</th>
<th>Times filled in the LC</th>
<th>% filled-in academic class</th>
<th>% filled-in the LC</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/24</td>
<td>0</td>
<td>7</td>
<td>0%</td>
<td>87.5%</td>
</tr>
<tr>
<td>3/30</td>
<td>1</td>
<td>7</td>
<td>12.5</td>
<td>87.5</td>
</tr>
<tr>
<td>4/1</td>
<td>1</td>
<td>7</td>
<td>12.5</td>
<td>87.5</td>
</tr>
<tr>
<td>4/5</td>
<td>absent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/7</td>
<td>5</td>
<td>3</td>
<td>62.5</td>
<td>37.5</td>
</tr>
<tr>
<td>4/9</td>
<td>4</td>
<td>4</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

### Table 2

Baseline and Ending Grades for Academic Classes for a Junior in High School

<table>
<thead>
<tr>
<th>Academic Class</th>
<th>Grade on 3/22</th>
<th>Grade on 4/9</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>54</td>
<td>58</td>
<td>+7.4</td>
</tr>
<tr>
<td>Math</td>
<td>82</td>
<td>84</td>
<td>+2.4</td>
</tr>
<tr>
<td>History</td>
<td>68</td>
<td>80</td>
<td>+17.6</td>
</tr>
<tr>
<td>Science</td>
<td>45</td>
<td>51</td>
<td>+13.3</td>
</tr>
<tr>
<td>Computer Apps</td>
<td>75</td>
<td>80</td>
<td>+6.7</td>
</tr>
</tbody>
</table>

Table 1

Table 2
Graph 1

Percent of Filled-in Notebook in Mainstream Classes

Graph 1