Self-Monitoring Strategies for Use in the Classroom: A Promising Practice to Support Productive Behavior for Students With Emotional or Behavioral Disorders

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We begin this article by introducing you to Andy. He is a student that all teachers have probably encountered at one time or another. Andy is likable and engaging, but his behaviors pose some challenges for his teacher. He almost never completes his assignments, and when reminded to stay on task, or if scolded for off-task behavior, Andy gets angry and upset. It may seem counterintuitive, but Andy is the kind of student who needs to be given more responsibility for his own behavior. In this article, we will illustrate why and how that can be done.

Students who have emotional and behavioral disorders (EBD) encounter difficulties in the classroom with their teachers, on the playground and lunch area with their peers, and at home with their parents and siblings (Kauffman & Landrum, 2009; Walker, Ramsey, & Gresham, 2004). In the absence of proactive strategies that help them identify and manage their problem behaviors, these students often find it difficult to be successful in school. This is particularly evident in their low academic performance, low rates of academic engaged time during structured class activities, and high levels of negative social interactions with peers—all of which are characteristic of students with EBD (Geenen, Powers, & Lopez-Vasquez, 2001; Nelson, Benner, Lane, & Smith, 2004; Reid, Gonzalez, Nordness, Trout, & Epstein, 2004).

However, a variety of metacognitive strategies such as self-monitoring, self-evaluation, self-instruction, goal setting, strategy instruction, as well as combined strategies (e.g., goal setting and self-monitoring) can be effective tools in eliminating or minimizing maladaptive behaviors and increasing more desirable social and academic behaviors (Mooney, Ryan, Uhing, Reid, & Epstein, 2005). In this article, we focus predominantly on the strategy of self-monitoring and how it can be used to address a variety of behaviors, with an emphasis on academic outcomes given that students with EBD struggle in all content areas (Lane, 2004). Specifically, we introduce the concept of metacognition and provide an overview of a range of metacognitive strategies that are available for use in promoting academic outcomes with students with and at risk for EBD. We highlight some recent studies that show how such strategies have been used successfully to support academic outcomes for students with EBD across the K-12 continuum. Next, we delineate step-by-step procedures for designing and implementing self-monitoring procedures in your classroom, followed by one illustration of how this strategy can be applied in an elementary/middle school setting. Finally, we conclude with a list of tips to ensure successful implementation of self-monitoring procedures by avoiding some common challenges.

Metacognition Defined

Metacognition is an area of research that offers effective learning techniques for students who do not automatically reflect on, evaluate, and address breakdowns in their learning processes or behavior (Butler, 1998). Successful students have the ability to think about why something is not working and then deploy an action that helps them solve that problem. In other words, metacognition can be thought of as “thinking about thinking.” For example, when good readers do not understand something they have read, they go back and reread, or they might sort through the information in the text until they can make sense of it. However, poor readers do not automatically use such strategies. They do not consciously or spontaneously monitor their own cognitive processes. As a result, they have few resources to draw on when faced with a problem and may rely on maladaptive responses that are completely ineffective. For students with behavioral issues, a lack of attention, as well as reflection, can manifest as inappropriate responses in social situations, noncompliance, defiance, and low levels of academic engagement in school (Walker et al., 2004).

A variety of skills are considered to be metacognitive: planning for and executing a task, monitoring one’s actions, analyzing a problem, applying a strategy, maintaining attention, and evaluating or monitoring completion of an activity (Butler, 1998). All of these actions require that students actively think about the situation they are engaged in, evaluate it, and then decide on a course of action. Many of us do this automatically without much
conscious effort, but students with behavior challenges may have to explicitly be taught how to use metacognitive strategies to manage their conduct. There is considerable evidence to show that learning and using self-directed behaviors can positively affect students' behavior as well as their academic growth (Nelson, Smith, Young, & Dodd, 1991). In contrast to teacher-directed interventions, self-directed strategies allow students to be independent and take more responsibility for their actions. Students learn how to navigate troublesome areas without relying on the teacher to mediate it for them. For example, a typical difficulty encountered by students is returning homework. Students who may otherwise be successful in a class are apt to earn a low grade or even fail because they do not consistently turn in their assignments. A student may have even completed the homework and have it in his backpack but then neglect to hand it in. A teacher can efficiently and effectively help the student manage such a task through the use of a self-monitoring strategy. This allows the teacher to support the student without resorting to scolding, and it helps the student learn to become independent through scaffolded support. Initially, a teacher will monitor a student frequently in a systematic manner. Once the student begins to satisfactorily perform the task, the structured monitoring will no longer be needed.

Metacognition Strategies: A Range of Techniques

Metacognitive strategies such as self-monitoring, self-evaluation, self-instruction, and goal setting, as well as a combination of these strategies, can be used to support students who have difficulty managing their behavior. These are also referred to as self-regulation strategies (Harris & Graham, 1996). We briefly define each and then focus on self-monitoring.

**Self-Monitoring**

Self-monitoring is a two-stage process that involves observing and recording. The student needs to determine if the target behavior did or did not occur. Then, the student self-records some feature of the target behavior (Mace, Belfiore, & Hutchinson, 2001). He or she can either record the number of occurrences of a target behavior to be decreased (e.g., getting out of one's seat) or to be increased (e.g., time on task). Then the student and teacher together determine an acceptable number of occurrences and reinforcement for obtaining the agreed upon number. Sometimes the simple act of recording increases awareness enough to modify the behavior; in other cases, the reinforcer is critical in reducing or increasing the occurrence of a behavior. We will discuss this strategy in more detail in subsequent sections.

**Self-Evaluation**

Self-evaluation moves beyond the recording of a behavior to the evaluation of performance. Self-evaluation involves a student comparing his or her performance relative to a set criterion (e.g., completing 10 word problems with at least 90% accuracy). The criteria can be established by the teacher, the student, or in a collaborative fashion. Then, the student receives some form of reinforcement (e.g., a small break or a positive behavior support ticket) if he or she meets the criteria. For example, a student might review a homework assignment by looking for items such as name, date, and completeness and then decide whether he or she had done acceptable work. Self-evaluation is similar to self-monitoring in that both strategies require students to self-assess behavior and record their performance within specified intervals. Also, it should be noted that there are different types of self-evaluation: teacher mediated and peer mediated, with both being quite successful (DuPaul, McGoy, & Yugar, 1997).

**Self-Instruction**

Self-instruction is the use of self-talk to bolster performance. Namely, students use self-statements to direct their behavior (e.g., “This is a long assignment, but I can finish this work by breaking it into smaller chunks” ; Graham, Harris, & Reid, 1992). Students whisper statements to themselves that assist them in completing a task, solving a problem, or mediating a social situation. For example, Fish and Mendola (1986) used self-instruction training to increase the rate of homework completion by three elementary-age students with emotional disturbances. Miller, Miller, Wheeler, and Selinger (1989) used a combination of self-instruction and self-monitoring to increase academic performance and decrease inappropriate classroom behavior for two adolescents with behavioral disorders.

**Goal Setting**

Goal setting involves students setting a behavioral target (e.g., writing an essay). This goal is used to structure the students' effort, give information on how the student is progressing toward the goal, and motivate the student to complete the goal (Schunk, 2001). Smith, Nelson, Young, and West (1992) used goal setting in conjunction with self-evaluation to support eight students with either behavior disorders or learning disabilities. Results of a multiple-baseline across-settings design revealed (a) decreases in off-task behavior and (b) increases in the quantity and quality of academic work produced in the special education setting.

Thus, there is a range of strategies available for use in shaping students' performance. Before using self-monitoring, self-evaluation, self-instruction, or goal setting, it is important to determine whether a strategy is appropriate for a given student.
Table 1  GUIDELINES FOR USING SELF-MONITORING

<table>
<thead>
<tr>
<th>A self-regulation technique can be used if you can answer yes to each of the following questions:</th>
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Prerequisite Components

Before using any of the above strategies to address a behavior concern, a few issues must be considered (see Table 1). First, it must be determined whether a student understands and can perform the desired behavior (or knows how to suppress undesirable ones). If he or she cannot, this is considered an acquisition deficit, and the first step is to instruct the student in how to eliminate the negative behavior or produce the appropriate prosocial behavior. If a student knows how to perform a behavior but does not do so, this is a performance deficit and can be addressed with a self-regulation strategy. Yet if the desired behavior (e.g., computing three-digit multiplication problems) is not in the student’s repertoire, this is an acquisition deficit: a can’t-do problem (Gresham, 2002). In contrast to a performance deficit, acquisition deficits require explicit instruction in the new skill rather than immediately focusing on self-regulation strategies (Elliott & Gresham, 1991).

Second, it must be determined whether the student is able to control the problem behavior. Out-of-control behavior will initially require more intensive intervention than a self-regulation strategy. Concerns about student safety may mean that it is not possible to take the time to teach and have the student practice a self-regulation strategy. For example, a student exhibiting high rates of disruptive or aggressive behavior may be better served in the short term by a functional assessment-based intervention. Then, once behaviors are more in control, one can move toward self-regulatory-type interventions.

Third, the behavior must occur frequently. If the behavior is a low-frequency behavior, then self-monitoring may not be the most appropriate strategy. The occurrences may be too far apart for a student and teacher to see meaningful, immediate changes in behavior. Although low-frequency behaviors can be extremely disruptive, other intervention procedures (e.g., differential reinforcement schedules) may be necessary.

Finally, the behavior must be readily observable and easily recorded by the student. Prior to monitoring the behavior of interest, the behavior must be operationally defined, with clear presentation of examples and nonexamples to eliminate any ambiguity. Also, it is important that the recording system be both reliable and feasible.

In the following section, we will focus more on self-monitoring. We will briefly review contexts in which this strategy has been used successfully in shaping students’ behavior. Then, we provide a step-by-step set of procedures for conducting a self-monitoring intervention.

A Focus on Self-Monitoring: Step-by-Step Procedures

Self-monitoring has the advantage of being relatively simple to implement as well as effective. Several studies have shown that self-monitoring has been highly effective for students in a variety of settings (e.g., self-contained and inclusive settings) and different academic content areas (e.g., math, spelling, and reading). Self-monitoring can also be used in combination with other metacognitive strategies, such as self-instruction or goal setting. In short, self-monitoring is a highly promising practice to support the academic performance of students with EBD.

There are many ways to structure self-monitoring interventions (e.g., Vanderbilt, 2005). In the sections that follow, we offer one five-step approach to conducting a self-monitoring intervention that emphasizes a balance between scientific rigor and feasibility within the classroom context.

Step 1: Identify and Operationally Define the Behavior of Concern

The first step in setting up a self-monitoring intervention is to identify the target behavior. A common example is calling out. The teacher and student discuss and even role-play what the behavior looks like—yelling aloud to the teacher, shouting out an answer before being called on, or raising a hand, but not waiting to be called on—to be sure they both agree to the description. Teachers and students will also want to role-play the appropriate replacement behavior (e.g., raising your hand).

When evaluating a target behavior for use in a self-monitoring program, it is vital to determine whether the behavior occurs as a result of an acquisition deficit or performance deficit as we defined previously. If the target behavior selected is the result of an acquisition deficit, the student must be taught a new skill first and then learn how to self-monitor the use of the skill (Project REACH, 2008).

We encourage teachers not to focus exclusively on reducing problem behaviors (e.g., reducing
SELF-Monitoring Strategies for Use

Step 2: Design the Self-Monitoring Procedures, Including a Monitoring Form

The teacher should create a simple self-recording data sheet that indicates the blocks of time to be monitored (see Figure 1). There are many advantages to breaking the day up into smaller chunks. For one, it makes the task less daunting, and the student can be rewarded if he or she is successful in at least one of the time periods. It also provides information about when the behavior is most likely to occur, enabling the teacher to better support the student with prompts or reminders.

It is also important that the self-monitoring form be age appropriate. For example, when working with very young children or students with limited reading skills, it may be wise to use clip art in place of text. When working with adolescents, it is prudent to make sure the forms are commensurate with the reading level and do not draw unwanted attention from classmates.

Step 3: Teach the Student the Self-Monitoring Procedures

Students will need instruction on how to complete the form. Consider using modeling, coaching, and role-play when explaining the process to the students (e.g., Lane, Weisenbach, Little, Phillips, & Wehby, 2006). The student should be reminded at the beginning of each time period to be aware of the target behavior. If a student is recording a behavior to be decreased (e.g., calling out), it is not helpful to draw a student's attention to it in an accusing or negative manner while the behavior is occurring. Self-monitoring is not a punishment; it is a tool that can help a student become more aware of his or her actions.

One option is to use a reinforcement contingency in conjunction with self-monitoring. For example, you may want to structure an intervention in which the student earns breaks from nonpreferred activities (negative reinforcement) or access to preferred activities (positive reinforcement) contingent upon meeting prespecified goals that he or she monitors (e.g., Umbreit, Ferro, Liaupsin, & Lane, 2007). In this case, it is important to use behavior-specific verbal praise to reinforce...
appropriate behavior or academic effort (Vanderbilt, 2005). Then, in collaboration with the student, set a goal and select the reinforcement—a gentle reminder of what a student is working for can be used to redirect the student when necessary. When selecting reinforcers, it is important to consider the function of the behavior to be decreased. Determine what is accessed or avoided (such as attention, an activity or task, or a sensory experience) when undesired behavior is performed by the student. Then, for maximum effect, address that same function with reinforcement when the desired behavior occurs (Umbreit et al., 2007).

Step 4: Monitor Student Progress

Use the data collected before and during the self-monitoring process to track student progress. Before starting the intervention, it is important to measure the student’s baseline status using the recording sheets created for self-monitoring (see Figure 2). This objectively illustrates the magnitude of the problem.

Likewise, during implementation, the teacher can use the form and compare it to the student’s completed form to check and reward accuracy in recording (matching; McLaughlin, Burgess, & Sackvill-West, 1981). These data can then be compared with baseline and other previous data points to assess progress. This also makes it apparent to the teacher when parts of the plan are in need of modification (Vanderbilt, 2005).

It is also important to have the student track his or her own progress. Self-graphing has been proven to be helpful in increasing desirable behaviors during self-monitoring because of the visual stimulus it provides. The data collected can also be used to provide documentation toward meeting individualized education plan (IEP) goals. It also promotes intrinsic reinforcement when the student can see concrete evidence of his or her own improvement (Carr & Punzo, 1993). A student may be tempted to make his or her behavior appear better by not being truthful when collecting his or her own data. In this case, there are a couple of options for addressing the problem. Sometimes just talking with the student about the importance of being accurate will help. It is also important to be sure that the beginning reinforcers are easy enough to obtain so that the student will feel successful and will not resort to being untruthful. However, it may be that the teacher will have to double-check the student’s data to ensure accuracy.

Step 5: Maintenance and Follow-Up

Once the student has successfully used self-monitoring on a consistent basis and it has resulted in improved academic and/or behavioral performance, self-monitoring should be gradually faded (Vanderbilt, 2005). Ultimately, the student should maintain the desired behavior independently. This fading can occur in many ways, such as lengthening self-monitoring intervals (e.g., going from 5-minute check points to 10- or 15-minute check points), matching less frequently (McLaughlin et al., 2007).
behavior. Because he enjoys hearing about
his
troubles with work completion. Andy is not successful in class
because he rarely completes his
assignments. Andy has two
techniques he uses to avoid doing work. First, he tends to talk and
socialize rather than focus on the
assignment. Andy is masterful at
effect.giving the teacher a host of
questions or visiting with the
students who sit next to him. Other
times, Andy gets frustrated and
angry, and then withdraws. He sits
and sulks and ignores his teacher's
pleas to begin working. Both of these
strategies allow Andy to avoid
completing the assigned task.

Mr. Valdez met with Ms.
Macmillan to figure out how to
support Andy in finishing his class
work. Ms. Macmillan suggested that
self-monitoring might be an effective
tool for Andy as noncompletion of
assignments is an easily observed
behavior and occurs frequently.
However, Mr. Valdez must evaluate
whether the academic tasks are ones
that Andy can complete independently.
Self-monitoring for
work completion will be effective
only if the tasks are academically
appropriate for Andy. If they are too
difficult or have not been adequately
taught, it is unreasonable to assume
that Andy can work through them
without assistance. Mr. Valdez must
also decide if Andy has the ability to
complete an assignment on his own
even if the academic task is
appropriate. It is the case that some
students' attentional problems are so
severe that they physically may not
be able to concentrate long enough to
finish a given task.

After talking together, Mr. Valdez
and Ms. Macmillan agreed that self-
monitoring would be a good strategy
for Andy to try. They collected data
each day for 1 week to determine the
percentage of assignments that Andy
completed each day and graphed this
information (see Figure 2). This was
done to determine the Andy's
baseline levels of performance.

The next step in the intervention
is to design the self-monitoring
procedures. Mr. Valdez needed to
create a monitoring chart that would
help Andy track the assignments he
was responsible for completing. He
and Ms. Macmillan designed a daily
chart that included the academic
subjects taught each day, a space for
writing in each day's assignments,
and a box in which Andy would
check off whether or not he
completed the assignment (see
Figure 1).

The third step is to explain and
teach the self-monitoring procedures,
so the plan was introduced to Andy.
Mr. Valdez explained to Andy that
completing his daily assignments is an
important part of getting good grades
and that he and Ms. Macmillan had
thought of a way to help Andy get his
work finished. Mr. Valdez showed
Andy the chart and explained that he
(Mr. Valdez) would write in each
assignment (as they were introduced)
and then Andy would concentrate on
finishing the assignment. Once Andy
was done with it, he would check it off
in the box labeled completed. If he did
not finish the assignment by the end of
the class, he would check off the box
labeled not-completed. At the end of the
day, Mr. Valdez and Andy would sit
down and calculate the percentage of
assignments completed that day. They
together they would determine the
percentage of assignments completed
each day. Because Andy currently
finishes few or no assignments (see
Figure 2), Mr. Valdez decided to begin
with a completion rate of 50%. He
planned to increase the rate once Andy
experienced enough success to be
motivated to work more
independently.

Some students might also require
that accuracy be monitored as well.
For example, Mr. Valdez could have
stipulated that Andy complete 50% of
his assignments with 80% accuracy or
better. This is an important
consideration for students who may
be inclined to rush through their
work just to meet the completion
benchmark. However, Mr. Valdez felt
that in the beginning, it would be
necessary only to monitor for
completion.

Mr. Valdez knew that Andy
really enjoyed socializing, so he asked
Andy if he wanted to work for a teacher-hosted lunch. Mr. Valdez and Ms. Macmillan would invite Andy and another student of his choosing to eat lunch with them. Andy especially loved pizza day at school, so Mr. Valdez would treat to pizza on the designated day. Once Andy completed 50% of his assignments in 6 nonconsecutive days, he would be rewarded with the teacher-hosted lunch. Mr. Valdez was careful to structure the completion rate in such a way that Andy was extremely likely to encounter rapid success.

Next, progress is monitored. This includes the baseline information previously collected, as well as data collected during the intervention. Andy was eager to try out the strategy (as was Mr. Valdez!), and they began the next day. Mr. Valdez sent a note home to Andy’s parents explaining the new strategy and said that each day Andy would bring home his daily monitoring sheet to share with his parents. In the beginning, Mr. Valdez took extra time to prompt Andy to fill out his self-monitoring chart, which was kept on Andy’s desk. At the end of the class period, he would check in with Andy and ask him how it went. When Andy did complete an assignment, Mr. Valdez gave him a thumbs up, and when he didn’t, Mr. Valdez simply said, “I think you will be able to complete the next assignment.” As a result of implementing the strategy, Mr. Valdez also became more aware of skill deficits that sometimes made it harder for Andy to work independently. When that was the case, Mr. Valdez would touch base with Ms. Macmillan to see how he might further adjust or modify the curricular task. In addition, Mr. Valdez was less likely to get irritated with Andy, and rather than scolding him simply reminded Andy that he was working toward a goal. The first couple of days actually required more of Mr. Valdez’s time and attention, but by the end of the week, he had to spend considerably less time prompting Andy than he did before implementing the strategy. In addition, his interactions were positive rather than reactive, even when he had to note that Andy had not completed a task. When he and Andy met at the end of each day, it was more of a coaching interaction than a disciplinary one. Andy’s parents were also helpful in making the strategy work. They praised Andy verbally when his daily chart showed he had completed 50% of his assignments. When he didn’t reach the 50% benchmark, they urged him to work harder the next day.

The final part of the self-monitoring intervention is maintenance and follow-up. It is Mr. Valdez’s plan that once Andy has reached 80% task completion, he will begin to lower the reinforcement rate. He and Ms. Macmillan hope that eventually Andy will no longer even require the scaffolding that daily charts provide. Once Andy has internalized the strategy and adopted it as his own, he will be able monitor his behavior without the use of any external supports.

Tips for Developing Effective Self-Monitoring Programs

In Table 2, you will find a set of tips for different phases of the self-monitoring process: development of the self-monitoring package, introduction of the package to the student and student training, and implementation of the self-monitoring package. These tips are derived from limitations of various studies of the effects of self-monitoring on students with EBD, as well as observations based on those studies (Mooney et al., 2005).

Specific tips regarding the development of a self-monitoring plan for an individual student address the issue of personalization. A self-monitoring package must be matched to a student’s individual needs, with attention to their strengths and weaknesses (Dunlap et al., 1995). These tips include several ways to ensure that the plan developed has the highest potential for benefiting the student in terms of improving academic achievement and behavior.

Second, student training is an important part of the self-monitoring process. If a student does not recognize the value of the self-monitoring program, the student will not find it intrinsically reinforcing and will not adhere to the guidelines (Dunlap et al., 1995). Likewise, a student must learn the procedures to mastery before beginning the self-monitoring intervention (Vanderbilt, 2005). These tips are geared toward making the benefits of the plan clear and evaluating whether the student is capable of self-monitoring.

Third, implementation of the self-monitoring package must avoid drawing unwanted attention to the student. It must also include generalization and maintenance of the self-monitoring skills (Carr & Punzo, 1993; Vanderbilt, 2005). The tips in this category are intended to help the student assimilate as much as possible within their least restrictive environment and to self-monitor as independently as possible.

Summary

Students with EBD often struggle behaviorally, socially, and academically. Fortunately, there are a variety of metacognitive strategies such as self-monitoring, self-evaluation, self-instruction, goal setting, and strategy instruction as well as combined strategies that can be used to improve both academic and behavioral performance (Mooney et al., 2005). In this article, we focused on the application of self-monitoring strategies to meet the multiple needs of students with EBD (Lane, 2004; Nelson et al., 2004). Specifically, we introduced the notion of metacognition, providing a brief introduction to a range of metacognitive strategies. Then, we focused on self-monitoring strategies, providing step-by-step procedures for designing and implementing self-
monitoring interventions in the classroom setting. We offer a vignette to illustrate how self-monitoring might look in an elementary/middle school setting. Finally, we conclude with a list of tips to ensure successful implementation of self-monitoring procedures by avoiding some common challenges.

REFERENCES


