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, & Huchinson, 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, McGoey, & 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.

A self-regulation technique can be used if you can answer yes to each of the following questions:
Yes/No   Can the student perform the expected behavior?
Yes/No   Can the student control the problem behavior?
Yes/No   Does the behavior occur frequently?
Yes/No   Can the behavior be readily observed and recorded?

Adapted from IRIS Center (n.d.). *SOS: Helping students become independent learners.* Retrieved from http://iris.peabody.vanderbilt.edu/index.html

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 (a won't-do problem), 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

Figure 1 ANDY'S DAILY SELF-MONITORING FORM

Name:		Date:	
Subject	**Assignment**	**Completed**	**Not-Completed**
Language Arts	1.		
	2.		
Mathematics	1.		
	2.		
Social Studies	1.		
Science	1.		
Other	1.		
	Percentage of Assignments Completed		

talking out, noncompliance, or verbal aggression) but also to focus on improving academic performance. If students are academically engaged and learning meaningful skills, they will be less likely to engage in undesirable behaviors to escape too easy or too difficult tasks (Lane, 2004; Umbreit, Lane, & Dejud, 2004). The self-monitoring procedure can positively affect both the quality and quantity of students' work (Smith et al., 1992), not just their classroom behavior. Consider a self-monitoring package that includes monitoring of academic productivity or accuracy to maximize academic success in conjunction with improved behavior (Lam, Cole, Shapiro, & Bambara, 1994).

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

Figure 2 ANDY'S OUTCOMES IN WORK COMPLETION: BASELINE AND INTERVENTION PHASES
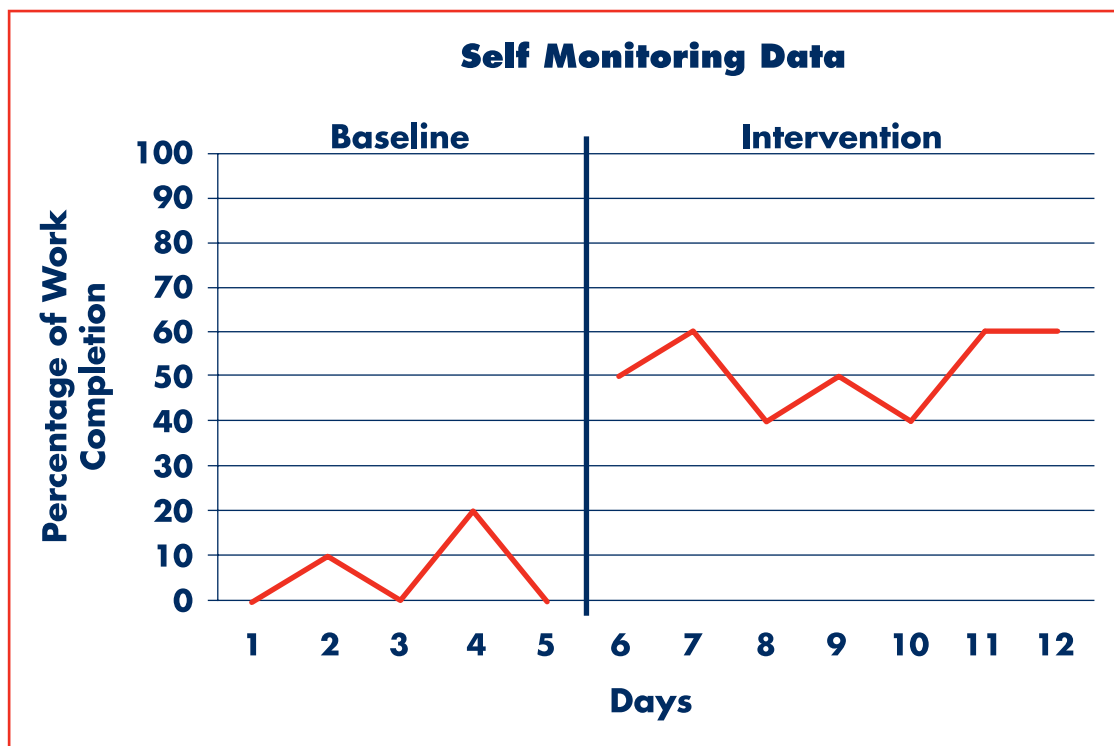
appropriate behavior or academic effort (Vanderbilt, 2005). Then, in collaboration with the student, set a goal and select the reinforcement—a gentle reminder of what a student is working for can be used to redirect the student when necessary. When selecting reinforcers, it is important to consider the 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.,

1981), or self-monitoring for fewer periods during the day or only one time per day, until self-monitoring is no longer occurring at all and behavior is maintained across settings. Intermittent, specific verbal praise and some reinforcement should still be used when a student performs appropriately, especially after self-monitoring is no longer in effect.

In the section that follows, we offer one illustration of how these steps can be applied. Specifically, you will read about an application of a self-monitoring strategy conducted with an early adolescent who struggles with work completion.

Self-Monitoring to Increase Work Completion: An Illustration

Andy is a sixth-grader in Mr. Valdez's general education classroom. Andy qualifies for special education because of a learning disability, with a secondary diagnosis of an emotional disturbance as determined by a multidisciplinary team. Andy has had an IEP since the first grade. Mr. Valdez consults with the special education teacher, Ms. Macmillan, to modify and adapt the core curriculum for Andy. Andy has an engaging personality and loves to talk with peers and adults. His listening comprehension skills are excellent, and he is especially interested in social studies class because he enjoys hearing about different countries and cultures. He is always ready with a question or an opinion. However, Andy is significantly below grade level in language arts and mathematics. Because of problems with reading comprehension, he also has difficulty in social studies and science.

The first step in implementing a self-monitoring strategy is to identify and define the behavior you want addressed. Despite the fact that Mr. Valdez provides Andy with tasks that are mostly at his instructional level, 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 engaging the teacher with 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. 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-

Table 2 TIPS FOR SELF-MONITORING: DURING DEVELOPMENT, IMPLEMENTATION, AND EVALUATION

Time	Tips
Development	• If possible, train and implement at the beginning of a school year or semester (Glomb & West, 1991). • Address one positive behavior at a time. Select the behavior earliest in the chain (Vanderbilt, 2005). For instance, monitor academic productivity instead of time on task (a student must be on task to be academically productive). • Use the positive of the behavior (often the replacement behavior); instead of having a goal to decrease time off task, have the student monitor time on task (www.Lehigh.edu/projectreach/teachers/self-management/sm-implement.htm). • Consider a preintervention functional assessment for a full understanding of underlying interactions between behaviors and environment to increase efficacy (Dunlap et al., 1995). • Create a package that can be used along with instead of replacing existing classroom management practices (Dunlap et al., 1995).
Teaching the student	• Secure buy-in on the part of the students. The more a student buys in, the more likely her or she will be to use it (Dunlap et al., 1995). • Use the student's strengths and examples of his or her performance of desirable behavior to describe the procedure (Vanderbilt, 2005). • Have a student-friendly definition of the behavior being monitored on hand. Be sure to use observable terms and include examples and nonexamples (Vanderbilt, 2005).
Implementation	• Give consistent, behavior-specific verbal praise. • Student materials should be inconspicuous and age appropriate, with teachers using the least cueing possible (Carr & Punzo, 1993). • Use data to monitor and reward honesty of self-recording as well as improved performance (Project REACH, 2008; Dunlap et al., 1995). • Use self-graphing or weekly charts (Carr & Punzo, 1993). • Provide high levels of support/prompting at the start of implementation and then fade for generalization.

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

Butler, D. L. (1998). Metacognition and learning disabilities. In B. Wong (Ed.), *Learning about learning disabilities* (pp. 277–307). San Diego, CA: Academic Press.

Carr, S. C., & Punzo, R. P. (1993). The effects of self-monitoring of academia accuracy and productivity on the performance of students with behavior disorders. *Behavioral Disorders, 18*(4), 241–150.

Dunlap, G., Clarke, S., Jackson, M., Wright, S., Ramos, E., & Brinson, S. (1995). Self- monitoring of classroom behaviors with students exhibiting emotional and behavioral challenges. *School Psychology Quarterly, 10*, 165–177.

DuPaul, G. J., McGoey, K. E., & Yugar, J. M. (1997). Mainstreaming students with behavior disorders: The use of classroom peers as facilitators of generalization. *School Psychology Review, 26*, 634–650.

Elliott, S., & Gresham, F. M. (1991). *Social skills intervention guide*. Circle Pines, MN: American Guidance.

Fish, M. C., & Mendola, L. R. (1986). The effect of self-instruction training on homework completion in an elementary special education class. *School Psychology Review, 15*, 268–276.

Geenen, S., Powers, L. E., & Lopez-Vasquez, A. (2001). Multicultural aspects of parent involvement in transition planning. *Exceptional Children, 67*, 265–282.

Glomb, N., & West, R. P. (1991). Teaching behaviorally disordered adolescents to use self-management skills for improving the completeness, accuracy, and neatness of creative writing homework assignments. *Behavioral Disorders, 15*, 233–242.

Graham, S., Harris, K. R., & Reid, R. (1992). Developing self-regulated learners. *Focus on Exceptional Children, 24*, 1–16.

Gresham, F. M. (2002). Social skills assessment and instruction for students with emotional and behavioral disorders. In K. L. Lane, F. M. Gresham, & T. E. O'Shaughnessy (Eds.), *Interventions for children with or at risk for emotional and behavioral disorders* (pp. 242–258). Boston: Allyn & Bacon.

Harris, K., & Graham, S. (1996). *Making the writing process work: Strategies for composition and self-regulation* (2nd ed.). Cambridge, MA: Brookline Books.

Kauffman, J. M., & Landrum, T. J. (2009). *Characteristics of emotional and behavioral disorders of children and youth* (9th ed.). Upper Saddle River, NJ: Merrill Prentice-Hall.

Lam, A. L., Cole, C. L., Shapiro, E. S., & Bambara, L. M. (1994). Relative effects of self-monitoring on-task behavior, academia accuracy, and disruptive behavior in students with behavioral disorders. *School Psychology Review, 23*, 44–58.

Lane, K. L. (2004). Academic instruction and tutoring interventions for students with emotional/behavioral disorders: 1990 to present. In R. B. Rutherford, M. M. Quinn, & S. R. Mathur (Eds.), *Handbook of research in emotional and behavioral disorders* (pp. 462–486). New York: Guilford Press.

Lane, K. L., Weisenbach, J. L., Little, M. A., Phillips, A., & Wehby, J. (2006). Illustrations of function-based interventions implemented by general education teachers: Building capacity at the school site. *Education and Treatment of Children, 29*, 549–671.

Mace, F. C., Belfiore, P. J., & Huchinson, J. M. (2001). Operant theory and research on self-regulation. In B. J. Zimmerman & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theoretical perspectives* (2nd ed.) (pp. 29–65). Mahwah, NJ: Lawrence Erlbaum Associates.

McLaughlin, T. F., Burgess, N., & Sackville-West, L. (1981). Effects of self-recording and self-recording +

matching on academic performance. *Child Behavior Therapy, 3*, 17–27.

Miller, M., Miller, S. R., Wheeler, J., & Selinger, J. (1989). Can a single-classroom treatment approach change academic performance and behavioral characteristics in severely behaviorally disorders adolescents: An experimental inquiry. *Behavioral Disorders, 14*, 215–225.

Mooney, P., Ryan, J. B., Uhing, B. M., Reid, R., & Epstein, M. H. (2005). A review of self-management interventions targeting academic outcomes for students with emotional and behavioral disorders. *Journal of Behavioral Education, 14*, 203–221.

Nelson, R., Benner, G., Lane, K., & Smith, B. (2004). Academic achievement of K-12 students with emotional and behavioral disorders. *Exceptional Children, 71*, 59–73.

Nelson, J. R., Smith, D. J., Young, R. K., & Dodd, J. M. (1991). A review of self-management outcome research conducted with students who exhibit behavioral disorders. *Behavioral Disorders, 16*, 169–179.

Project REACH. Retrieved December 10, 2008, from http://www.lehigh.edu/projectreach/teachers/self-managemnt/sm-implement.htm

Reid, R., Gonzalez, J. E., Nordness, P. D., Trout, A., & Epstein, M. H. (2004). A meta-analysis of the academic status of students with emotional/behavioral disturbance. *Journal of*

Special Education, 37, 130–143.

Schunk, D. H. (2001). Social cognitive theory and self-regulated learning. In B. J. Zimmerman & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theoretical perspectives* (2nd ed.) (pp. 125–151). Mahwah, NJ: Lawrence Erlbaum Associates.

Smith, D. J., Nelson, J. R., Young, K. R., & West, R. P. (1992). The effect of a self-management procedure on the classroom and academic behavior of students with mild handicaps. *School Psychology Review, 21*, 59–72.

Umbreit, J., Ferro, J., Liaupsin, C., & Lane, K. (2007). *Functional behavioral assessment and function-based intervention: An effective, practical approach*. Upper Saddle River, N. J.: Prentice Hall.

Umbreit, J., Lane, K. L., & Dejud, C. (2004). Improving classroom behavior by modifying task difficulty: The effects of increasing the difficulty of too-easy tasks. *Journal of Positive Behavior Interventions, 6*, 13–20.

Vanderbilt, A. (2005). Designed for teachers: How to implement self-monitoring in the classroom. *Beyond Behavior, 15*, 21–24.

Walker, H. M., Ramsey, E., & Gresham, F. M. (2004). *Antisocial behavior in schools: Evidence-based practices* (2nd ed.). Florence, KY: Wadsworth/Thompson Learning.