Ms. Madden, a fourth-grade teacher at Sunset Elementary, has some concerns about one of her students. Olivia is a student with autism spectrum disorder (ASD), and she is part of a population of students that is increasingly being served primarily in general education classrooms (de Bruin, Deppeler, Moore, & Diamond, 2013; Dorminy, Luscre, & Gast, 2009). Students with ASD often struggle with deficits in executive functioning skills, leading to problems with sustaining attention, inhibiting responses, setting and pursuing goals, and planning (Dorminy et al., 2009; Zingerevich & LaVesser, 2009). Consequently, teachers and other classroom staff are responsible for taking the time to ensure students with ASD engage in appropriate classroom behaviors, such as completing and turning in work and staying on task (Dorminy et al., 2009).

Olivia is very intelligent but struggles with staying on task during math, which she has reported is her least favorite subject. This is particularly true during the independent work period, when students are expected to complete a certain number of problems from their textbooks following the whole-group lesson. Ms. Madden has found that she is constantly redirecting Olivia—who will talk to other peers, doodle on her paper, or stare off into space—to focus back on her work. Ms. Madden is frustrated with the amount of time and effort it is taking to prompt Olivia to finish her assignment each day, especially given that there are 30 other students in the class who also need attention. Mr. Rodriguez, a special education teacher, spends 2 hours per week in Ms. Madden’s classroom to provide organizational assistance and behavior support to Olivia, but Olivia requires consistent help to stay on task when he is not there. Ms. Madden and Mr. Rodriguez are looking for a solution to help Olivia stay on task independently. Given her difficulty with sustaining attention during this period of the day, Olivia may be a good candidate for a self-management procedure to help her stay focused and complete her independent math work. Mr. Rodriguez wants to support Ms. Madden in developing a self-management system that will help keep Olivia on task during her math block.

Self-management is a set of procedures that students can be taught to apply to their own behaviors to change them (Cooper, Heron, & Heward, 2007). In self-management, students are taught to observe, assess, and modify their own behavior. These procedures include such things as self-identifying and observing a target behavior and setting a goal to change it. Self-management procedures have been used effectively with students with ASD to improve academic, social, and other classroom behaviors (see Carr, Moore, & Anderson, 2014; Southall & Gast, 2011). Self-directed interventions promote student independence, competence, self-reliance, and self-awareness (Briesch, Briesch, & Mahoney, 2014; Menzies, Lane, & Lee, 2009). Despite evidence of its efficacy, the use of self-management procedures in general education settings remains limited (King-Sears, 2008; Reynolds, Gast, & Luscre, 2013), though this trend may be improving (Carr et al., 2014). Self-management strategies have the potential to support the needs of students with disabilities in general education settings who have come to rely on general education teachers, special education teachers, or paraprofessionals to participate fully in their classroom settings.

In self-management, students are taught to observe, assess, and modify their own behavior.

Self-management encompasses a range of procedures to promote behavior change in a student. These include self-monitoring, goal setting, self-instruction, and self-graphing. These strategies can be used in isolation but most often are used in conjunction with at least one other strategy (Briesch & Chafouleas, 2009). For example, a student may use a self-monitoring strategy to help herself stay on task, set a goal in conjunction with this strategy (e.g., to stay on task at least 80% of the math period), and graph her progress.
Each day of the week to monitor her movement toward this goal.

**Prerequisite Steps**

An important prerequisite to any of these self-management strategies is to ensure that the student is able to perform the target behavior. If the student’s behavior is the result of a skill deficit, then explicit teaching of the skill is the appropriate intervention (Menzies et al., 2009). Once it is established that the student is able to engage in the target behavior, the first step is to identify and clearly describe the behavior (Busick & Neitzel, 2009). This is a critical piece of any self-management system because the student and teacher must be on the same page about the behavior being managed. Self-management procedures can be used to decrease challenging behaviors, but it is recommended that these strategies be used instead to increase a positive behavior (Wilkinson, 2008).

Ms. Madden would like to increase Olivia’s on-task behavior. It is important for her and Olivia to come to an agreement about what this looks like. Based on the off-task behaviors that Ms. Madden and Mr. Rodriguez are seeing and on the expectations that Ms. Madden has for all students during independent work times, Olivia and her teachers agree that “on task” (for independent math work) includes eyes on her paper, pencil in hand, and having a quiet mouth. Ms. Madden also has an expectation that the math assignment will be completed by the end of the period.

Instead of asking Olivia to monitor when she is off task, Olivia’s teachers ask her to pay attention to and record when she is on task, or engaging in the positive, expected behavior. Ms. Madden also plans to teach Olivia to track the number of math problems that she completes during independent work time. Focusing on these positive behaviors will help Olivia recognize when she is doing what she is supposed to do and potentially increase her feelings of self-efficacy.

Before creating any self-management system, it is critical to choose a data collection system. This allows the teacher to take baseline data on the student’s behavior and to monitor the behavior after the system has been implemented to look for improvement (Busick & Neitzel, 2009). The decision about what type of data collection system to use is dependent on the behavior targeted for change. For example, if a teacher is monitoring how often a student raises her hand, or some other discrete behavior that can be easily counted, an event- or frequency-recording system will be the best choice. In this system, the teacher or paraprofessional would mark on a form each time the student raised a quiet hand. At the end of the self-monitoring period, the teacher would count the total number of times the student raised her hand. See Figure 1 for an example of a data form for event recording.

**Self-management procedures can be used to decrease challenging behaviors, but it is recommended that these strategies be used instead to increase a positive behavior.**

For some target behaviors that occur at very high rates or for behaviors that are more ongoing, such as time on task, a time-sampling procedure is a good option. To use a time-sampling system, the teacher chooses a period of time (e.g., the 50-minute Math block) and divides it into smaller intervals (e.g., 5-minute “chunks”). For momentary time sampling, the teacher observes the student at the end of each 5-minute interval. The teacher notes a plus on the data form if the student is engaged in the target behavior at that moment or a minus if the student is not. The teacher can then calculate the percentage of time that the student demonstrated the target behavior by dividing the total number of pluses by the number of total intervals and multiplying by 100.

Mr. Rodriguez has been taking data on how often Olivia is on task each day in math. He uses a momentary time-sampling data form (see Figure 2) to do so. He finds that her time on task is currently 40% of the observation intervals on most days. He is hopeful that the self-management system can help Olivia improve that percentage.

**Self-Management Strategies**

**Self-Monitoring**

Self-monitoring is the most commonly used self-management intervention with students with ASD and has been used to improve on-task behavior, task engagement, academic productivity, and various social behaviors, such as social initiations (Carr et al., 2014). Self-monitoring typically includes two components: self-observation, where a student examines his or her own behavior, and self-recording, where the student marks down whether the target behavior occurred (Briere & Simonsen, 2011). Self-monitoring is best for behaviors that are frequent, so that change can be detected immediately, and that are observable, so a student can easily track the behavior (Menzies et al., 2009).

**Figure 1. A Data Collection System for Event Recording**

<table>
<thead>
<tr>
<th>Behavior: Raising a quiet hand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>10:00-10:30</td>
</tr>
</tbody>
</table>
Step 1: Design the form. The self-monitoring form should be designed with the type of target behavior in mind. For example, if the student is monitoring how often she raises a quiet hand rather than blurting out, she may make a tally each time she raises her hand. She can total those tallies at the end of each period (see Figure 3 for an example). If she is monitoring her time on task, a time-sampling system wherein she is cued at certain intervals to check her behavior may be a better design. When students use time-sampling systems for self-monitoring, interval length should be based on the student’s age, ability, and frequency of behavior (Wilkinson, 2008).

For Olivia, a form that divides the math period into smaller chunks is a good fit. According to the data that Mr. Rodriguez has been taking, Olivia typically disengages every 3 to 5 minutes. In the system he has designed for her, Olivia will mark every 5 minutes if she is on task (see Figure 4). Olivia’s teachers want her to be able to focus for longer periods of time, and they believe that a procedure where she is monitoring herself at specific intervals throughout the math period will help promote her ability to stay engaged.

Age appropriateness and skill level should also be taken into account when designing a form for a student to use. For example, a younger student or a student with reading difficulties should have a form that includes visuals to indicate the appropriate behavior, whereas an older student may want a more understated form so as not to draw attention to it (Wilkinson, 2008).

Step 2: Choose a cue. For students using a time-sampling system, a cue will be needed to alert the student to each interval. This could include a signal from the teacher (verbal or gestural), a timer, a CD with a prerecorded tone, or an electronic device, such as a MotivAider (www.habitchange.com), that vibrates to cue the student at each interval. A student’s age, skill level, and the level of obtrusiveness of the cue should be taken into account when determining what signal to use (Wilkinson, 2008).

Olivia is sensitive about having a system that would make her “stand out,” so Ms. Madden will provide her with a MotivAider that will vibrate every 5 minutes to prompt her. This device is small and can be worn unobtrusively.

Step 3: Teach the student the system. Once the system is created, the teacher should teach the student to use this system using modeling, using role-play, and providing at least one opportunity (preferably more) for the student to practice using the system (Busick & Neitzel, 2009). Teaching the system involves modeling both the behavior that the student should be monitoring and how to use the system to self-observe and self-record. School staff should also reinforce this modeling by asking the student to role-play the behaviors and giving performance feedback. It is also important to do a “test run” of the system by having the student self-monitor while the teacher simultaneously takes data. The two data sheets can then be compared.

Step 4: Check in with the student. A student should get feedback after each self-monitoring session. School staff should use specific praise that names the positive

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**Figure 2. A Data Collection System for Time-Sampling**

**Target behavior:** On-task

**Definition:** Student has her eyes on her assignment, her pencil is in hand, and her mouth is quiet.

**Instructions:** At the end of each 5-minute interval, mark a + if the student is engaged in the target behavior. Mark a – if the student is not engaged in the target behavior. Divide the number of times the student was engaged (+) by the total number of intervals and multiply by 100.

**Start time:** 10:05  
**End time:** 10:55  
**Activity:** Math Period

<table>
<thead>
<tr>
<th>+</th>
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<th>–</th>
<th>+</th>
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<td>–</td>
<td>–</td>
<td>–</td>
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</tr>
</tbody>
</table>

**Percentage of intervals student was engaged in the target behavior:** 4

**Total number of intervals:** 10

\[
\frac{4}{10} \times 100 = 40\% 
\]

**Figure 3. Example of a Self-Monitoring Form With an Event- or Frequency-Recording System**

When I raise a quiet hand, I make a mark the box below:

My goal is 10 tally marks during math

Olivia is a strong reader and has expressed that she does not want to appear “different” from her peers. As such, Mr. Rodriguez will design a form that is understated and uses words rather than visual representations of the behavior.
behavior observed (e.g., “Great job staying on task. Your pencil was moving the whole time!”). A reinforcement system may or may not be attached to the self-monitoring system (Cooper et al., 2007). If it is, the reward should be delivered based on agreed-upon criteria.

Olivia is ready to use her self-monitoring form. Her teachers have agreed that Olivia will receive five tokens if she marks that she is on task for at least five of the seven intervals, or approximately 70% of the time, during the independent math work period each day. Given that this reward is contingent on Olivia’s data, periodic “spot checks” are also beneficial to ensure Olivia is recording her behavior accurately.

**Step 5: Fade the system.** Finally, it is important to have a systematic plan to fade the system and promote independence once the positive behavior is established. The decision to fade a system should be based on teacher data rather than the student’s self-recording data. Fading can be accomplished by gradually increasing the length of the intervals or the session length in general and then removing materials completely and providing verbal check-ins (Busick & Neitzel, 2009; Stahmer & Schreibman, 1992). In order to determine the criteria for fading, school staff can use typical peers as models. For example, if most students in the class are on task 85% of the time on average, this is a reasonable goal for a student on a self-management system.

Once Ms. Madden’s data indicate that Olivia is successfully on task at least 85% of the time for 5 consecutive days, she will increase the length of the interval to 10 minutes. If her data indicate that Olivia’s behavior continues to improve, or is maintained, as interval length increases, Ms. Madden can consider removing the materials and providing verbal reminders at the beginning of each class period for what it means to be on task and praising her for demonstrating those behaviors.

**Goal Setting**

In goal setting, the student sets a target for behavior change. Setting this target helps motivate the student and structures progress toward the goal (Mooney, Ryan, Uhing, Reid, & Epstein, 2005). Goal setting has been successfully used to increase the number of words written and the inclusion of story elements with students with ASD who struggle with writing due to deficits with organization, planning, and task persistence associated with executive functioning (Asaro-Saddler & Saddler, 2010; Delano, 2007).

**Step 1: Establish baseline performance.** In order to effectively use goal setting, teachers should first determine how the student is performing on the particular skill (Delano, 2007). For example, when given a list of sight words, how many can the student read? How many sentences or words does a student produce when given a writing prompt? How often does the student remain focused during the 30-minute independent math block? This information informs the next steps in the goal setting process.

**Step 2: Choose a goal.** Once baseline performance is established in areas of need, a goal or goals should be chosen to target those areas. This could include the completion of a certain number of tasks in a day, increasing the number of words written in an essay, or a longer goal that culminates in completion of a larger assignment, such as a research project.

**Step 3: Choose criterion.** Once the goal is established, performance criterion should be set by the student (i.e., what will the final product look like?). Criterion is often based on the most recent performance of the student such that the goal is a reasonable next step (Delano, 2007). For example, if a student has completed 50 out of 100 math facts correctly during a 2-minute timing, a reasonable goal for the next timing may be to get 60 out of 100 math problems correct.
Step 4: Make a plan with the student to reach that goal. Certain goals, such as completing a writing project, require a specific series of steps to accomplish. Planning these steps may require adult support (Asaro-Saddler & Saddler, 2010). The general education or special education teacher can work with the student to plan these steps, provide encouragement for persistence through the task, and establish a target date for completion (see Figure 5).

Step 5: Reinforce completion. It may improve the effectiveness of the system to reinforce the student’s use of the self-instruction. This can include verbal praise from the teacher or the delivery of a predetermined reward (Asaro-Saddler & Saddler, 2010).

Olivia’s teachers have observed that, typically, she completes only about half of the assigned math problems on any given day without extensive cuing because of her off-task behavior. Olivia’s goal will be to complete 75% of her math problems during the next independent math work session. If Olivia meets this goal, both Ms. Madden and Mr. Rodriguez will praise Olivia and will provide her with extra free-choice time at the end of the day.

Self-Instruction
Self-instruction involves having a student verbalize (overtly or covertly) the steps of a task she needs to complete. That is, the student uses self-statements to prompt herself and promote behavior change, often through a series of tasks. For example, students with ASD may be taught to verbalize planning (e.g., “What is the next step?”) or coping statements (“I can do this. I’m doing a great job.”) to promote task completion and support task persistence (Asaro-Saddler & Saddler, 2010).

Step 1: Define the task. If self-instruction is being used to complete a set of tasks, a sequence of events, or a series of steps in a behavior chain, each of those steps must be defined for the student (Meichenbaum & Goodman, 1971). For example, a student must know each step involved in solving a math problem if self-instruction is a strategy that will be used to improve academic accuracy.

Step 2: Teach the system. When teaching a self-instruction system to a student, key components include modeling and guided practice (Meichenbaum & Goodman, 1971). For example, the teacher should first model and verbalize completion of each step in the task (Asaro-Saddler & Saddler, 2010). Next, the student should be asked to engage in the task while the teacher or other school professional verbalizes each step. Then, the student is responsible for verbalizing the steps while completing the task, and the teacher can whisper the steps along with the student. Finally, the student is expected to verbalize and perform the steps independently.

Step 3: Reinforce use of the system. Teachers can reinforce the student’s use of the self-instruction with verbal praise or with the delivery of a predetermined reward.

Because Olivia struggles with focusing her efforts during independent math time, her self-instruction reflects the steps she needs to complete: “First, I need to take out my math notebook. Then, I need to check the board to see what my math assignment is. I need to open my book to page 35 and answer Questions 1 through 10. Then, I raise my hand and tell Ms. Madden that I am ready to have her check my work.” When Ms. Madden hears Olivia engaging in self-instruction, she praises her.

Self-Graphing or Self-Charting
In self-graphing or self-charting, a student is responsible for graphing her behavior regularly in order to visually monitor progress on her behaviors (Briesch & Chafouleas, 2009; Sutherland & Snyder, 2011). This type of self-management procedure is often combined with self-monitoring and goal setting (DiGangi, Maag, & Rutherford, 1991; Trammel, Schloss, & Alper, 1994). Self-graphing has had positive effects when added to self-monitoring systems for students with disabilities, including increasing time on task, homework output, and academic productivity and accuracy (DiGangi et al., 1991; Sutherland & Snyder, 2007; Trammel et al., 1994).

After establishing a self-monitoring procedure wherein the student observes and records her own behavior, a system is created for the student to be able to graph the results of her recording. Gunter, Miller, Venn, Thomas, and House (2002) outlined procedures to establish computer-based self-graphing for students. These include creating a folder on the desktop of a school computer for each student and then creating an Excel file for each behavior or academic area with a continuous graph embedded to place within those folders. The student can then easily enter her data, and the graph will change with the updated entries. The student can then immediately see her progress. A trend line can be added as well to underscore progress made (Gunter et al., 2002). Students can also plot the data using paper and pencil in a bar graph or a continuous graph (DiGangi et al., 1991).
To add another component to Olivia’s self-management program, Ms. Madden asks her to self-graph the number of boxes in which she indicates that she is on task each day or help her figure the percentage of intervals she is on task during each self-monitoring session (see Figure 6).

Conclusion

With the increase in number of students diagnosed with ASD being included in the general education setting, it is critical to ensure that teachers and other school professionals are using effective practices to support the social and academic growth of these students (de Bruin et al., 2013; Southall & Gast, 2011). Self-management is a set of procedures with a strong evidence base that can promote skill development and independence in these students, especially given the nature of the deficits that students with ASD often grapple with, such as problems with organization, sustained attention, and task persistence.

Self-management is a set of procedures with a strong evidence base that can promote skill development and independence in these students, especially given the nature of the deficits that students with ASD often grapple with, such as problems with organization, sustained attention, and task persistence.

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