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Self-Management for Children With High-Functioning Autism Spectrum Disorders

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Supporting children with autism spectrum disorders in the general education classroom presents a unique challenge to the teachers and schools that serve them. This article addresses the utility of self-management as a proactive strategy for increasing the task engagement and compliant behavior of high-functioning students with autism. The author discusses the rationale for self-management, outlines the steps for developing an intervention plan, and presents a case vignette to illustrate implementation of a self-management procedure.

Keywords: behavior strategies; autism research/intervention; interventions for challenging behaviors; autism self-management/regulation; high-functioning autism; self-management skills; pivotal behavior; positive behavioral support; inclusive settings

The dramatic increase in the prevalence of children identified with autism spectrum disorders in our schools has created a critical need to design and implement effective practices and behavioral supports in the classroom

(Callahan & Rademacher, 1999; Kabot, Masi, & Segal, 2003; L. K. Koegel, Harrower, & Koegel; Kuncie, 2003). Although no single effective intervention exists, proactive strategies such as self-management have shown considerable promise in addressing the attention and concentration difficulties and

poor behavioral regulation often reported by teachers and parents (Callahan & Rademacher, 1999; R. L. Koegel & Frea, 1993; R. L. Koegel & Koegel, 1990; R. L. Koegel, Koegel, & Carter, 1999; Myles & Simpson, 2003; Wilkinson, 2005). This article illustrates the use of self-management as a positive and practical classroom strategy for enhancing the independence, self-reliance, and school adjustment of higher functioning students on the autism spectrum.

Self-Management

For the past 20 years, a great deal of research has accumulated that demonstrates the effectiveness of teacher-managed interventions in responding to children's learning and behavioral challenges. Research indicates that interventions involving the external manipulation of antecedents and consequences have, in general, been successfully applied to a wide range of classroom problems (Gresham, 2004; Stage & Quiroz, 1997). However, there are limitations to these management approaches. For example, teacher-directed programs focus more on controlling behavior than on helping students acquire the skills needed to self-regulate their behavior and achieve greater levels of independent functioning. In addition, these behavior management techniques tend to be intrusive and require teachers to expend valuable instructional time applying external contingencies (Shapiro & Cole, 1994).

Self-management strategies are gaining popularity as an alternative to teacher-managed contingency procedures for students with and without exceptionalities (Cole & Bambara, 2000; McDougall, 1998; Rock, 2005; Shapiro & Cole, 1994). They have been implemented effectively for children with attention-deficit/hyperactivity disorder (Barry & Messer, 2003; Hoff & DuPaul, 1998; Rock, 2005), learning disabilities (Shimabukuro, Prater, Jenkins, & Edelen-Smith, 1999; Todd, Horner, & Sugai, 1999), disruptive behavior disorders (Cancio, West, & Young, 2004; Crum, 2004; Lam, Cole, Shapiro, & Bambara, 1994; Shapiro, Miller, Sawka, Gardill, & Handler, 1999; Smith & Sugai, 2000), and autism spectrum disorders (Callahan & Rademacher, 1999; R. L. Koegel & Frea, 1993; L. K. Koegel et al., 1999; R. L. Koegel & Koegel, 1990; L. K. Koegel, Koegel, Hurley, & Frea, 1992; Lee, Simpson, & Shogren, 2007; Odom, Brown, Frey, Karasu, Smith-Canter, & Strain, 2003; Wilkinson, 2005).

Self-management generally involves activities designed to change or maintain one's own behavior. In its simplest form, students are instructed to

- observe specific aspects of their own behavior and
- provide an objective recording of the occurrence or nonoccurrence of the observed behavior (Cole & Bambara, 2000; R. L. Koegel, Koegel, & Parks, 1995; Shapiro & Cole, 1994).

This self-monitoring procedure involves providing a cue or prompt and having students discriminate whether they

engaged in a specific behavior at the moment the cue was supplied. Research indicates that the activity of focusing attention on one's own behavior and the self-recording of these observations can have a positive reactive effect on the behavior being monitored (Cole, Marder, & McCann, 2000).

Advantages of Self-Management

One of the salient features often displayed by students with autism spectrum disorders is an absence of or a poorly developed set of self-management skills, such as difficulty directing, controlling, inhibiting, or maintaining and generalizing behaviors required for adjustment both in and outside of the classroom without external support and structure from others (Adreon & Stella, 2001; Myles & Simpson, 2002; Ozonoff, Dawson, & McPartland, 2002; Tantam, 2003). Many of these children do not respond well to typical top-down approaches involving the external manipulation of antecedents and consequences (Myles & Simpson, 2003). It is not uncommon for educators and parents to report that students focus on the consequences of their behavior only to the extent that they are considered sanctions that need to be removed (Jordan, 2003). Self-management interventions can help minimize the potential for the power struggles and confrontations often encountered with the implementation of externally directed techniques (Myles & Simpson, 2003; Simpson & Myles, 1998).

An important benefit of self-management is the focus on skill building to teach students to be more independent, self-reliant, and responsible for their own classroom behavior. By learning self-management techniques, students can become more self-directed and less dependent on external control and continuous supervision. Moreover, teaching students to engage in a positive behavior in place of an undesirable one can have the collateral effect of improving academic performance. Self-management also provides students with an opportunity to participate in the development and implementation of their behavior management programs, an important consideration for high-functioning students with autism spectrum disorders (Myles & Simpson, 2003). Shifting the responsibility for managing behavior from teachers and other external sources is well suited to these students who value locus of control and structure (Klin & Volkmar, 2000). Self-management is considered a pivotal skill that can generalize adaptive behavior, promote autonomy, and produce broad behavioral improvements across various contexts for many children with autism spectrum disorders (R. L. Koegel et al., 1999; Lee et al., 2007).

Designing a Self-Management Plan

The following steps provide a general guide for preparing and implementing a self-management plan in the

general education classroom. They should be modified as needed to meet the individual needs of the student.

Step 1: Identify preferred behavioral targets.

The initial step is to identify and operationally define the target behaviors by explicitly describing the behavior so that the student can accurately discriminate its occurrence and nonoccurrence (R. L. Koegel et al., 1995). For example, target behaviors such as “being good” and “staying on task” are broad and relatively vague terms, whereas “raising hand to talk” and “eyes on paper” are more specific. When developing operational definitions, it is also useful to provide exact examples and nonexamples of the target behavior. This will help students recognize when they are engaging in the behaviors.

Although self-management interventions can be used to decrease problem behavior, it is best to identify and monitor an appropriate, desired behavior rather than a negative one. Describe the behavior in terms of what students are supposed to do rather than what they are not supposed to do. This establishes a positive and constructive alternative behavior. Here are some examples of positive target behaviors:

- Cooperate with classmates on group projects by taking turns.
- Follow teacher directions and raise hand before speaking.
- Sit at desk and work quietly on the assignment.

Step 2: Determine how often students will self-manage their behavior.

Consider how often students will observe and record the target behaviors. An interval method is usually recommended for monitoring off-task behavior, increasing appropriate behavior and compliance, and decreasing disruptive behavior (Cole et al., 2000). Typically, the interval will depend on the student’s characteristics, such as age, cognitive level, and severity of behavior. Some students will need to self-monitor more frequently than others. For example, if the goal is to decrease a challenging behavior that occurs frequently, then the student will self-monitor a positive replacement behavior more often. Teachers may wish to establish interval lengths based on their students’ individual ability levels and degree of behavioral control.

Once teachers determine the frequency of self-monitoring, they decide what type of cue will be used to signal students to self-observe and record their behavior. In classroom settings, this generally involves the use of a verbal or nonverbal external prompt. Several types of

prompts can be used to signal students and help teachers monitor their own instructional time in the classroom:

- verbal cue;
- silent cue, such as a hand motion;
- physical prompt, such as a timing device with a vibrating function;
- kitchen timer;
- watch with an alarm function; or
- prerecorded cassette tape with a tone.

The type of cue will depend on the ecology of the classroom and students’ individual needs and competencies (Koegel et al., 1995). Regardless of the prompt selected for the student, it is important that it be age appropriate, unobtrusive, and as nonstigmatizing as possible.

Step 3: Meet with the student to explain self-management, identify goals, and establish preferred rewards contingent upon achieving those goals.

Active student participation is a necessity because it increases proactive involvement in the plan (Myles & Simpson, 2003; Shapiro & Cole, 1994). Once the target behavior and frequency of self-monitoring are identified, the teacher discusses the benefits of self-management, behavioral goals, and specific rewards or incentives for meeting those goals with the student. Providing the student with a definition of behaviors to increase and decrease, as well as commenting on the benefits of managing one’s own behavior, will increase the likelihood of a successful intervention. Teachers might tell students, “Self-management means being responsible for your own behavior so that you can succeed in school and be accepted by others.” Teachers also ask students to select from a menu of reinforcers or identify at least three preferred school-based activities to ensure that the incentives are truly motivating and rewarding.

Step 4: Prepare a student self-recording sheet.

The most popular self-management recording method in school settings is the creation of a paper-and-pencil checklist or form. This form lists the appropriate academic or behavioral targets students will self-observe when they are cued at a specified time interval. For example, a goal statement such as, “Was I paying attention to my seatwork?” would be a question to which the student records a response. When developing the form, it is important to consider each student’s cognitive ability and reading level. For students with limited reading skills, pictures can be used to represent the target behaviors or


Name: _____		
Date: _____		
My Self-Monitoring Form		
Today in class . . . 	Was I paying attention to my assigned work?	Y N
	Was I following the classroom rules?	Y N
	Was I paying attention to my assigned work?	Y N
	Was I following the classroom rules?	Y N
	Was I paying attention to my assigned work?	Y N
	Was I following the classroom rules?	Y N
	Was I paying attention to my assigned work?	Y N
	Was I following the classroom rules?	Y N
Total number of Y (yes) = _____ My Goal = _____		
Signed: _____ <div style="display: flex; justify-content: space-around; width: 100%;"> Student Teacher Parent </div>		

FIGURE 1. Student's self-monitoring form.

response to the goal statement/question. Figure 1 provides an example of a self-recording sheet with behavioral goal questions.

Step 5: Model the self-management plan, and provide the student with an opportunity to practice the procedure.

Using modeling, practice, and performance feedback is critical in training students to self-manage their behaviors (Cole et al., 2000; Koegel et al., 1995). After the target behaviors and goals are identified, frequency of self-monitoring determined, and the data recording form developed, teachers demonstrate the self-management process for students by modeling the procedure and asking students to observe while the teacher simulates a classroom scenario. Encourage students to role-play both desired and undesired behaviors at various times during practice and to accurately self-observe and record these behaviors. The teacher also practices rating the target behavior to become familiar with the self-monitoring form and make students aware that others are checking their monitoring. Teachers determine accuracy by comparing

student ratings with those the teacher made on the same self-recording form. Give students feedback on their progress and when necessary, give them further opportunity to practice. Students practice until they demonstrate mastery of the procedure by meeting a minimum criterion for accuracy (e.g., 80% accuracy for two out of three consecutive instructional sessions).

Step 6: Implement the self-management plan.

Once reliability with the self-monitoring procedure is firmly established, students rate their behavior on the self-recording sheet at the specified time interval in the natural setting. For example, students might be prompted (cued) to record their behavior at 10-min intervals during independent or small-group instruction in their general education classroom. When cued, the student responds to the self-observation question (e.g., Was I paying attention to my seat work?) by placing a plus "+" (yes) or minus "-" (no) on the recording sheet. Students may also be required to maintain a designated level of accuracy (e.g., no more than one session per week with

less than 80% accuracy) during implementation of the self-management procedure. If the level is not maintained, conduct booster sessions to review target behavior definitions and the self-monitoring process (Cole et al., 2000).

Step 7: Meet with the student to determine whether the behavioral goals were attained.

Hold a brief conference with the student each day to determine whether the behavioral goal was met and compare teacher and student ratings. Reward students from their reinforcement menus or with the agreed upon incentives when the behavioral goal is met for the day. If the behavioral goal is not reached, tell students they will have an opportunity to earn their reward during the next day's self-monitoring session. When the students' ratings agree with their teacher's (e.g., 80% of the time), the teacher verbally praises them for accurate recording. Accuracy checks can occur more frequently at the beginning of the intervention and be reduced once the target behavior is established.

It is important to remember that the teacher's ratings are always the accepted standard. It is not unusual, especially at the beginning of a self-management plan, for the teacher and student to have honest disagreements about the accuracy of the ratings. If this occurs, it is best to initiate a conference with the student to help clarify the target behavior and attempt to resolve the conflict. Occasionally, students may continue to argue with the teacher about the ratings. If this problem persists, then the self-monitoring procedure is discontinued, as it is unlikely to be an effective intervention.

Step 8: Provide the rewards when earned.

An important component of self-management is the presence of a reward. Although self-monitoring can be effective without incentives, goal-setting and student selection of reinforcement makes the intervention more motivating and increases the likelihood of positive reactive effects (Shapiro & Cole, 1994). Therefore, it is critically important that the agreed upon incentives be provided when students have met their daily behavioral goal.

Step 9: Incorporate the plan into a school-home collaboration scheme by sending the self-recording sheet home for parent review.

Parents play an essential role in developing and implementing behavior management plans for high-functioning children with autism (Kunce, 2003; Moore, 2002; Ozonoff et al., 2002). Send home the self-recording sheet each day for a parent's signature to ensure that the student receives positive reinforcement across settings. It's usually best to have a phone or personal conference with parents before beginning the intervention to discuss the purpose of self-monitoring and explain how they can positively support

the intervention at home (such as using their child's special interest as a reward).

Step 10: Fade the intervention by increasing the length of intervals between self-monitoring cues.

The procedure may gradually be faded once the desired behavior is established to reduce reliance on external cueing. This typically involves extending the interval between prompts or reducing the number of intervals. Continuously monitor the target behaviors to determine compliance with the procedures and the need to readjust the fading process. The ultimate goal is to have students self-monitor their behavior independently and without prompting (Shapiro & Cole, 1994). Once students achieve competency with self-management, they can apply their newly learned self-regulation skills to other situations and settings, thereby facilitating generalization of appropriate behaviors in future environments with minimal or no feedback from others (Koegel et al., 1995).

Case Study: Matthew

Matthew was an 8-year-old student with a history of behavioral problems in school and a diagnosis of Asperger syndrome. Although a loving child, Matthew was not sensitive to many nonverbal social cues and frequently misread the communication of others. He also relied on rigid routines at home and was often overly focused on his favorite interests. Problematic behaviors reported by his teacher included frequent off-task behavior, arguing with adults and peers, temper tantrums, and noncompliance with classroom rules. Few children wanted to sit or work with Matthew due to his frequent intrusive and disruptive classroom behavior. Although capable in many academic areas, Matthew's off-task and noncompliant behavior significantly interfered with his learning and adjustment. Several interventions had been tried but without success, including verbal reprimands, time-out, and loss of privileges. Matthew's teacher decided to implement the following self-management procedure in an effort to reduce his challenging classroom behavior.

Behavior ratings completed by Matthew's teacher prior to implementation indicated that Matthew was disengaged and noncompliant more than 60% of the time during independent seatwork and small-group instruction. On-task behavior and compliance with classroom rules were identified as the target behaviors. The self-management procedure consisted of two primary components: (a) self-observation and (b) self-recording. Self-observation involved the covert questioning of behavior (e.g., Was I paying attention to my assigned work?) and self-recording the overt documentation of the response to this prompt on a recording sheet. Matthew was told, "Self-management means accepting responsibility for managing and controlling

your own behavior so that you can accomplish the things you want at school and home.” He was also given an example of the target behaviors to be self-monitored. *On-task behavior* was defined as (a) seated at own desk, (b) work materials on desk, (c) eyes on teacher, board, or work, and (d) reading or working on an assignment. *Compliant* was defined as following classroom rules by (a) asking relevant questions of teacher and neighbor, (b) raising hand and waiting turn before speaking, (c) interacting appropriately with other students, and (d) following adult requests/instructions. Matthew was trained to accurately self-observe and record the target behaviors. His teacher read the goal questions on the self-recording form and provided examples of behavior, indicating their occurrence or nonoccurrence. She also modeled the behaviors Matthew needed to increase and demonstrated how to use the self-recording form to respond to the behaviors observed. Matthew then practiced self-monitoring the target behaviors until he demonstrated proficiency with the procedure.

Following 3 days of training, the self-monitoring procedure was incorporated into Matthew’s daily classroom routine. A self-recording form was taped to the upper right-hand corner of his desk. Because he was the only student who was self-monitoring in the class and other students might be disturbed by a verbal cue, his teacher physically cued Matthew by tapping the corner of his desk at 10-min intervals during approximately 50-min of independent and small-group instruction. When cued, Matthew covertly asked himself, “Was I paying attention to my assigned work?” and “Was I following my teacher’s directions/classroom rules?” He then marked the self-recording sheet with a “plus” (yes) or “minus” (no), indicating his response to the questions regarding the target behaviors. Matthew and his teacher then held a brief meeting to determine whether his behavioral goal was met for that day, compare ratings, and sign the self-recording sheet. Matthew was provided with the agreed upon rewards when he met his behavioral goal and provided with verbal praise for accurately matching his teacher’s ratings. When he met his daily behavioral goals, Matthew could make a selection from a group of his preselected incentives such as additional computer time and access to a preferred game or activity before school dismissal. The self-recording sheet was then sent home for his parent’s signature, so they could review Matthew’s behavior and provide a reward contingent upon meeting his behavioral goals. The self-monitoring intervention continued for approximately 3 weeks during which time Matthew’s teacher continued to collect performance data.

When his teacher determined that Matthew’s task engagement and compliant behavior had increased to 90%, the procedure was slowly faded by increasing the intervals between self-monitoring cues (e.g., 10 min, 15 min, 20 min). Matthew’s teacher continued to monitor the target

behaviors to determine whether additional support was needed to maintain his performance. The goal of the plan’s final phase was to eliminate the prompts to self-monitor and instruct Matthew to keep track of his own behavior. Home-school communication continued via a daily performance report to help maintain his self-management independence and positive behavioral gains. Periodic behavioral ratings by Matthew’s teacher indicated that task engagement and compliant behavior remained at significantly improved levels several weeks after the self-monitoring procedure was completely faded.

Cautions and Caveats

Despite the potential uses and benefits of self-management, this intervention strategy is not without its limitations. Self-management procedures are intended to complement, not replace, positive reinforcement strategies already in place in the classroom. They are not considered static and inflexible procedures, but rather a framework in which to design and implement effective interventions (Shapiro & Cole, 1994). For example, the self-monitoring plan described in Matthew’s case vignette represents only one of the many possible ways that self-management procedures can be used in the classroom. Teachers are encouraged to use their creativity in applying the components of self-management to their own classroom situations.

Shifting from an external teacher-managed approach to self-management can present some obstacles. As with other interventions, self-management strategies can fail due to student and teacher resistance, poor training, or a lack of appropriate reinforcement (Cole et al., 2000). Successful implementation of self-management procedures requires that students be motivated and actively involved in the self-monitoring activities. Likewise, teachers considering implementing a self-management intervention will need to invest the requisite time to identify behavior needs, establish goals, determine reinforcers, and teach students how to recognize, record, and meet behavioral goals. In order for self-management to be an effective intervention, the procedures must be acceptable to all parties and implemented with integrity. If not fully supported, it is better to focus on a more suitable behavior management approach.

Lastly, self-management interventions are not appropriate for every child. Some procedures will meet the needs of individual students better than others. For example, seriously challenging behaviors may require a comprehensive approach using multiple intervention techniques. Teachers may also find that students react differently to self-management procedures. A number of students will find being in control a motivating and reinforcing activity. For others, self-management procedures may actually prove to be a time-consuming distraction (Cole et al.,

2000; Shapiro & Cole, 1994). As with any behavioral intervention, a thorough understanding of the student's problem and needs should precede and dictate selection of a specific behavior management strategy.

Concluding Comments

Supporting children with autism spectrum disorders presents a significant challenge to the classroom teacher. Many students can make progress and adapt to the classroom setting if provided with the appropriate interventions and behavioral supports (Jordan, 2003; Kunc, 2003; Moore, 2002). This article describes a strategy with the potential to help higher functioning children with autism practice and learn the classroom/life rules that most of their neurotypical peers acquire intuitively. Self-management procedures are cost efficient and can be especially effective when used as a component of a comprehensive service delivery approach involving functional assessment, social groups, curricular planning, sensory accommodations, and parent-teacher collaboration (Koegel et al., 1999; Kunc, 2003; Myles & Simpson, 2003). Although the research on the effectiveness of intervention strategies for children with autism is still in a formative stage, self-management is an emerging and promising technology for fostering independence and self-control in high-functioning students with autism spectrum disorders (Callahan & Rademacher, 1999; Koegel & Frey, 1993; Lee et al., 2007; Wilkinson 2005).

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