Self-Monitoring

The vast majority of students, 75–80%, are likely to respond to primary prevention efforts, particularly when they attend schools implementing integrated tiered systems with clearly defined schoolwide expectations, universal reinforcement systems (e.g., schoolwide tickets), and classrooms in which teachers have strong proactive management skills (e.g., managing transitions and routines; teaching, practicing, and acknowledging expected behaviors; using low-intensity strategies; and providing engaging and differentiated instruction; Common et al., 2021). Yet, tiered systems such as the Comprehensive, Integrated, Three-Tiered (Ci3T) Models of Prevention are predicated on the notion not all students will respond to primary prevention efforts. That is, 10–15% of students may require secondary prevention efforts and 3–5% will require additional, more individualized and intensive interventions (Bruhn & McDaniel, 2021; Lane, Menzies, et al., 2020). Ideally, these supports will be targeted to address students' particular skill, fluency, or performance deficits (Gresham & Elliott, 2008). This level of response aims to match the intervention to students' specific academic, behavioral, and/or social and emotional well-being learning needs when Tier 1 efforts alone are insufficient to meet students' multiple needs (Bruhn & McDaniel, 2021; Lane, Menzies, et al., 2020). For school personnel who do not work at a site that uses a schoolwide approach such as Ci3T, the concept of using more intensive interventions for the most challenging behaviors is the same. It just may not be applied as systematically as in school systems in which tiered systems are in place.

In addition to behavior contracting (featured in Chapter 5) another low-intensity, secondary prevention intervention is self-monitoring (Bruhn, Fernando, et al., 2017). Like behavior contracts, self-monitoring interventions are effective and practical, which is why these interventions are often featured in district and school's Secondary (Tier 2) Intervention Grids in schools implementing Ci3T (Lane, Menzies, et al., 2020; see Figure 6.1 from www.ci3t.org/enhance). We begin this

Self-Monitoring Intervention Grid
Elementary School Example

Support	Description	Schoolwide data: Entry criteria	Data to progress monitor	Exit criteria
Self-monitoring	Students learn to observe and record their own behavior. Self-monitoring is implemented by the student and teacher to improve academic performance (completion and/or accuracy); academic enabling behaviors (e.g., engagement, study skills); social skills; or other target behaviors.	**Behavior:** ☐ SRSS-E7 score: Moderate (4–8) ☐ SRSS-I5 score: Moderate (2–3) *or* ☐ SRSS-E7 score: High (9–21) ☐ SRSS-I5 score: High (4–15) *or* ☐ 2 or more office discipline referrals (ODR) **AND/OR Academic:** ☐ Progress report: 1 or more course failures *or* ☐ AIMSweb: intensive or strategic level (Math or Reading) *or* ☐ Progress report: Targeted for growth in academic enabling behaviors	Work completion and accuracy of the academic, behavioral, or social and emotional area of concern named in the self-monitoring plan Passing grades on progress reports **Social Validity:** Intervention Rating Profile-15 (IRP-15; teacher and family) Children's Intervention Rating Profile (CIRP) **Treatment Integrity:** Implementation & treatment integrity checklist	**Behavior:** SRSS-E7 score: Low (0–3) SRSS-I5 score: Low (0–1) **Academic:** Passing grade on progress report or report card in the academic area of concern (or target behavior named in the self-monitoring plan)

Self-Monitoring Intervention Grid
Middle and High School Example

Support	Description	Schoolwide data: Entry criteria	Data to progress monitor	Exit criteria
Self-monitoring	Students learn to observe and record their own behavior. Self-monitoring is implemented by the student and teacher to improve academic performance (completion and/or accuracy); academic enabling behaviors (e.g., engagement, study skills); social skills; or other target behaviors.	**Behavior:** ☐ SRSS-E7 score: Moderate (4–8) ☐ SRSS-I6 score: Moderate (4–5) *or* ☐ SRSS-E7 score: High (9–21) ☐ SRSS-I6 score: High (6–18) *or* ☐ 2 or more office discipline referrals (ODR) **AND/OR Academic:** ☐ Report card: 1 or more course failures *or* ☐ Progress report: 2 or more missing assignments *or* ☐ AIMSweb: intensive or strategic level (Math or Reading) *or* ☐ Below 2.5 GPA	Work completion and accuracy of the academic, behavioral, or social and emotional area of concern named in the self-monitoring plan Passing grades on progress reports **Social Validity:** Intervention Rating Profile-15 (IRP-15; teacher and family) Children's Intervention Rating Profile (CIRP) **Treatment Integrity:** Implementation & treatment integrity checklist	**Behavior:** SRSS-E7 score: Low (0–3) SRSS-I6 score: Low (0–3) **Academic:** Passing grade on progress report or report card in the academic area of concern (or target behavior named in the self-monitoring plan)

FIGURE 6.1. Examples of Secondary (Tier 2) Intervention Grid within Ci3T Implementation Manuals. From Ci3T Project ENHANCE Research Team. (2023, August). Reprinted with permission of Ci3T Strategy Leadership Team, www.ci3t.org/enhance.

chapter with an introduction to self-management strategies (Briesch et al., 2019) and then provide an in-depth discussion of self-monitoring—one type of self-management strategy. Self-monitoring is a versatile intervention that can be used to address behavioral, social, or academic needs. In addition, it is relatively simple to implement. We provide directions on to how to conduct self-monitoring in the classroom and offer an overview of the benefits and challenges associated with its use. We also provide an overview of the supporting research on improving academic outcomes for elementary, middle, and high school students with challenging behaviors in a range of environments.

Self-Management: An Overview

Over the course of the regular school day, all students—including those who have or are at risk for emotional and behavioral disorders (EBD)—need to meet certain expectations. These expectations are important for academic, behavioral, and social success in the classroom, as well as helping students become well-rounded, lifelong learners. For example, students are expected to attend to and participate in instruction, produce quality work in a timely manner, work cooperatively with others, and manage conflict situations with peers and adults (Cooper & Scott, 2017). Students also are expected to engage in a wide range of self-determined behaviors that enable them to live a high-quality life and assume responsibility for a variety of life activities (Carter et al., 2011). Self-determined behaviors encompass a range of skills: (1) choice making, (2) decision making, (3) problem solving, (4) goal setting and attainment, (5) self-management and self-regulation, (6) self-advocacy and leadership, (7) self-awareness, (8) self-knowledge, and (9) self-evaluation (Wehmeyer & Field, 2007). Unfortunately, many students with and at risk for EBD struggle in these exact areas, needing additional support to develop the skills sets needed to act strategically to successfully negotiate teacher and student relationships and ultimately experience academic success (Carter et al., 2011; Shogren et al., 2017).

Self-Management Strategies

To date, a number of self-management strategies to help students become more successful learners have been studied. These strategies may also be referred to as *self-regulation strategies* (Carter et al., 2011). In this section, we discuss self-evaluation, self-instruction, goal setting, and self-monitoring, as well as combinations of the strategies (e.g., self-monitoring and goal setting combined). Students who effectively use self-management strategies such as these are more likely to experience greater academic and social success in the school setting (Briesch & Briesch, 2016; Bruhn, Gilmour, et al., 2022).

Self-Evaluation

This strategy, also referred to as self-assessment, helps a student compare their performance to a benchmark or standard. This standard could be determined by the teacher or the student, or the two could work together to decide on a standard acceptable to them both. Parents can also be involved in establishing goals; in fact, it is encouraged! For example, let us say Everett and his mom are concerned about his performance in Language Arts. In looking over his most recent writing assignment, a five-paragraph essay, Everett scored poorly according to the rubric provided by his teacher. While Everett has creative ideas, he struggles with basic writing conventions like punctuation and capitalization, as well as neatness. Since the teacher sends the grading rubric home in advance, Everett and his mom come up with a plan for Everett to use the rubric to assess each draft of his next writing assignment. Before he gets started writing, they read the rubric criterion scores and definitions. Then, when he completes a draft, Everett reads it and evaluates it according to the rubric. The goal is for Everett to self-evaluate accurately and turn in a draft that meets 90% of the criterion.

Students also can self-evaluate behaviors such as engagement or participation. For instance, a student might self-evaluate their performance by determining whether engagement occurred for 80% of the time—a standard determined by the teacher and the student.

There are other types of self-evaluation strategies, such as teacher-mediated and peer-mediated approaches (DuPaul et al., 1997). In teacher-mediated approaches, the teacher trains the student on behavioral expectations and assists the student in self-evaluation or also records behavior to compare it with the accuracy of student self-evaluation. In peer-mediated approaches, peers are included as intervention participants with the target student. For example, a designated peer may share responsibility for discussing and completing the self-evaluation form with the target student or may independently rate the target student's behavior to serve as a comparison to the student's self-evaluation reports. This allows the target student to obtain more attention, allows the teacher to focus on classroom instruction, and promotes generalization and maintenance of the skill. As shown by DuPaul and colleagues (1997), teacher-mediated approaches can be faded effectively using peer mediation as the student gains competence in self-evaluating behavior.

In each case, the student receives a predetermined reinforcer (e.g., positive behavior support ticket, a free homework pass, or extra points on the next quiz) when they meet criteria. It is important that the reinforcer be sufficiently motivating to the student. Avoid assuming that what is reinforcing to one student is reinforcing to all students (Cooper et al., 2020; Umbreit et al., 2024).

Self-Instruction

Another self-management strategy is called self-instruction, or self-talk, that is used to improve performance and change existing thought patterns (Feeney et

al., 2023). For example, in reading this text right now, you might be considering a break. But because you have so much reading to do tonight, you would like to have a certain amount completed before you stop. If you use a self-instruction strategy to direct your behavior, you might say something like:

> "I have a lot to do tonight, so I am going to finish this by dividing the chapter into sections. Right now I am going to read until I get to the section titled 'Self-Monitoring.' Then I am going to take a quick break and get a soda and some chips before I continue with the chapter."

The same strategy has been used with school-age students to teach them how to direct their own behavior (e.g., "This is a long assignment, but I can finish this work by breaking it into smaller chunks"; Graham et al., 1992). In brief, students are taught statements (academic, behavioral, or social) to think or whisper to themselves that may encourage them to stay on task, solve a problem, remain calm, or complete work (see Buckman et al., 2025; Harris & Graham, 1996a). When students use self-talk effectively, it can help them stay focused, reduce anxiety, and reach goals. Self-talk is often used in conjunction with goal setting (see the next section). Feeney and colleagues (2023) examined the impact of self-talk with goal setting and monitoring on 12-year-old students' target behaviors (e.g., shouting out, out-of-seat) and work completion. Students not only learned positive self-talk strategies, but they also monitored how often they used the strategies and reflected on their progress toward goals. All four students showed significant improvement in their target behaviors, and three of the four also improved their work completion.

Goal Setting

Goal setting is a strategy whereby students determine a desired behavior and a criterion for improvement (Estrapala et al., 2022). This could be an academic goal that results in a product, such as writing a story or completing a worksheet. Or, it could be an academic goal that does not yield a product, such as reading a book, participating in a class discussion, or being engaged during an independent work assignment. Goals can also target behaviors that facilitate instruction but are not academic in nature (e.g., using positive social initiations with peers). The intent of establishing a goal is to structure the student's effort, motivate the student to move toward goal completion, and provide progress-monitoring information to the student (Menzies et al., 2009). It is important to note that students are more likely to attain their goals when they are involved in the goal-setting procedures (Bruhn et al., 2016), as they should be active participants in identifying both the behaviors to target and the criteria for achievement. Goal-setting strategies can be used in conjunction with other self-management strategies, and in fact, goal setting can enhance the impact of strategies like self-monitoring. In a systematic review of 66 studies, authors found self-monitoring interventions that included a goal-setting component led to substantially higher student engagement compared

to self-monitoring alone (Bruhn, Gilmour, et al., 2022). Importantly, goals should be adjusted throughout an intervention depending on students' progress toward attainment. Students who are not meeting goals may need to lower their goals—not to lower expectations, but to increase the likelihood of success. Conversely, students who are consistently meeting goals can have them raised slowly over time to help maintain improvements in behavior (Bruhn, Fernando, et al., 2017).

Self-Monitoring

When teaching a student to improve self-monitoring, two processes must occur: observing and recording. The observation component requires that a student be able to think about and determine whether a given behavior (e.g., engagement) occurred. This requires the student to be very clear as to the exact definition of the required behavior. In the behavioral literature, this is referred to as an *operational definition*, and it includes a label and definition, as well as examples and non-examples to provide clarity (Cooper et al., 2020). In a classroom, the operational definition for engagement may be that students are paying attention and completing assigned tasks. The operational definition of engagement refers to actively attending to group instruction, assigned academic tasks and group activities, or relevant materials. Examples may include looking at the teacher or the person who has permission to talk while they are talking, working on the assigned task, and requesting assistance appropriately (e.g., raising one's hand). Non-examples may include any activity other than attending to the teacher-assigned task, such as disruptive (e.g., audible vocalizations inappropriate to the assigned task, talking to peers about extracurricular activities) and off-task (e.g., walking around the classroom, looking around the room away from work) behaviors.

Depending on the type of self-monitoring intervention, students are expected to decide the extent to which they met the identified behavior at the end of a predetermined interval (e.g., every 2 minutes). Using "in the moment" self-monitoring, students record a simple "yes" or "no" if they were performing the target behavior at that exact moment (Bruhn & Wills, 2018). The student asks themself, "Am I engaged right now?" Then, the student marks the answer on a Self-Monitoring Form (see Figure 6.2). In "retrospective" self-monitoring, the student considers their behavior for the entire length of the interval, "Was I engaged over the last 2 minutes?" In this type of monitoring, it may be more appropriate to use a scale (e.g., 1–5) rather than a simple yes/no (Bruhn & Wills, 2018).

In addition to coming to a consensus on the definition of the behavior to be monitored, it is important for the teacher and student to (1) develop a Self-Monitoring Form, (2) set a goal for the criteria to be met, and (3) establish the reinforcement for meeting such a goal. Figure 6.3 shows an example of a self-monitoring checklist to address work completion and accuracy for math instruction. Using this Self-Monitoring Form, the student, Nathan, would evaluate his performance on a specific task (e.g., a system of equations math worksheet). At the end of the time allotted for the task or after Nathan determined that he was done, he would take

Am I engaged right now?	Yes	No
2:00	X	
4:00		X
6:00	X	
8:00	X	
10:00		X
12:00	X	
14:00	X	
16:00	X	
18:00	X	
20:00		X
Total	**7**	**3**
Percent engagement	**7/10 = 70%**	

FIGURE 6.2. Self-Monitoring Form.

Name: _____ Date: _____

Subject	Task	Did I complete my assignment?	% Accuracy
	1.		
	2.		
	3.		
	4.		
	Homework		
	Percentage of assignments completed	%	
	Accuracy of assignments	%	

FIGURE 6.3. Self-Monitoring Form: Work completion and accuracy—Math instruction.

REFLECTIONS AND TIPS FOR SUCCESS 6.1. ***PreK–12 Practitioners: Self-Monitoring—Empowering Students to Take Ownership of Their Learning***

By using our schoolwide data to identify learners needing more intensive tiered interventions, our staff has found that implementing self-monitoring plans as a Tier 2 support equips students with essential skills to track their own progress. This empowers them to internalize and regulate their behavior while taking ownership of their learning. As a building leader, it is immensely gratifying to directly witness the joy and success of our learners and the growth of our professionals as they engage in professional development and build capacity within our community with the support that Ci3T models of prevention provides.

DONNA
Principal and Associate Director of Student Services

out this self-monitoring checklist and ask himself the designated questions, marking the appropriate response. If class procedures included regular scoring assignments, Nathan would also be able to record his accuracy.

Some students may require an external reinforcer that meets the function of the behavior. This concept is discussed in greater detail in Chapter 8. In brief, people engage in behaviors to either obtain (positive reinforcement) or avoid (negative reinforcement) attention, activity, or sensory experiences (Umbreit et al., 2024). For other students, the act of monitoring and recording their behavior is reinforcing enough to increase the future probability of the target behavior occurring (e.g., accurate completion of the math worksheet). However, research has shown that including reinforcement and feedback to students for following self-monitoring procedures, meeting goals, or matching teachers' monitoring of the same behaviors can significantly enhance improvements in behavior resulting from self-monitoring (Bruhn, Gilmour, et al., 2022). For schools and districts implementing Ci3T, self-monitoring interventions are often featured in some of the Tier 2 interventions listed in the school's Secondary (Tier 2) Intervention Grid (see Figure 6.1, ci3t.org/enhance; also Reflections and Tips for Success 6.1).

In many instances, these interventions are included given the feasibility and effectiveness of self-monitoring interventions, with schoolwide data entry criteria providing direction for how to review schoolwide data to look for students who might benefit from this targeted intervention.

Prerequisite Components for Using Self-Management Strategies

Before developing and using self-management strategies in the classroom, we recommend consideration of the following issues. First, it is necessary to determine whether the desired replacement behavior is part of the student's repertoire. In

other words, does the student understand the desired behavior and is the student capable of performing the desired behavior? For example, if we ask a student to be engaged during silent reading, we begin by checking if they can read. If the student (1) can perform the behavior but does not do so fluently (fluency deficit; student is a slow reader) or (2) is not motivated to perform (performance deficit; student does not wish to read the assigned book), self-management strategies are appropriate for both types of deficits. Yet, if the student has an acquisition deficit, meaning they simply do not have the skills necessary to perform the task (the book is beyond the student's Reading level), then intervention efforts will need to first focus on teaching the desired behavior (Elliott & Gresham, 1991).

Second, once you have determined self-management strategies are appropriate, the next step is to make certain the behavior is clearly defined, readily observable, and reasonable for the students to record. For example, if you are asking students to be academically engaged, you would provide clear direction that includes examples and non-examples of engagement and disengagement for the context and task of interest (see Figure 6.4 for a definition of academic engagement during silent reading). Also, it is important for recording procedures to be reliable and feasible so that accurate information is recorded and interpreted. If the measure suffers from poor reliability, then it is possible changes in data patterns as graphed may result from measurement error, rather than true changes in student behavior (Cooper et al., 2020).

Third, the behavior must occur at a sufficiently high frequency to allow it to be monitored. For example, if the behavior is completion of long-term assignments, then it may not be appropriate to self-monitor that specific behavior because the occurrences are too far apart to see meaningful changes. Instead, it might be wise to self-monitor a more incremental target behavior that—if performed over a sufficient period of time—leads to the longer-term goal.

Fourth, if you elect to have a student self-monitor an undesirable behavior (e.g., tantrums or episodes of extreme verbal aggression) that has a low rate of occurrence (hopefully!), then other behavioral interventions such as differential reinforcement schedules or functional assessment-based interventions may need to be employed before beginning with metacognitive strategies (e.g., self-evaluation). This is especially true if the problem behavior poses safety issues for the student of

Academic engagement refers to the amount of time spent actively engaged in silently reading appropriate material. Examples include looking at the book or other reading materials, looking away (e.g., to think about material) for a duration of less than 10 seconds, appropriately asking the teacher about a word. Non-examples include any activity other than reading the appropriate material, such as disruptive (e.g., audible vocalizations inappropriate to the assigned task, stomping feet) and off-task (e.g., walking around the classroom, looking away from the book for more than 15 seconds, reading an unapproved video game manual).

FIGURE 6.4. Academic engagement during silent reading: An operational definition.

interest or their classmates. In this case, one option is to begin by designing, implementing, and evaluating a functional assessment-based intervention (see Chapter 8). In this way, the motive (or function) of the target behavior can be determined first. Then the corresponding intervention is linked to the maintaining function, and the student is taught more reliable, efficient methods (which may include metacognitive strategies) of meeting their needs. Then, once interfering behavior problems (which could include externalizing [aggression] and/or internalizing [anxiety or depression] behaviors) are better controlled, efforts can shift toward self-management interventions.

Should you decide you want to implement self-monitoring or other self-management procedures with selected students in your classroom, we encourage you to weigh the following benefits and challenges associated with these procedures.

Benefits and Challenges of Self-Monitoring Interventions

When we think about self-management skills, we are generally talking about being able to plan and carry out a task (e.g., writing a book report), to monitor one's behavior (e.g., how many words one wrote), to analyze a problem ("I'm not blocking out enough time to write"), to apply a strategy ("I'll work on my report as soon as I get home from school"), to maintain attention ("I'll turn off my music and eat a healthy snack before I start working"), and to evaluate or monitor completion of an activity ("I'll look at my work carefully before I turn it in to my teacher"; Butler, 1998). Collectively, these skills steps are integral to students being active participants in their learning experience, as well as competent citizens who can regulate themselves in and out of school.

One particular benefit of conducting self-management interventions is these strategies, when learned and applied, can positively affect behavior (e.g., engagement), productivity (e.g., work completion), and accuracy, which collectively lead to improved academic performance (Briesch & Chafouleas, 2009; Mooney et al., 2005). A second benefit is that students become more independent and self-sufficient in their ability to regulate themselves in different environments (see Reflections and Tips for Success 6.2). In comparison to teacher-directed interventions, self-directed strategies empower students and shift responsibilities from teachers to students. Yet, as we mentioned previously, it is important to recognize these strategies are not appropriate for all behaviors. They are not recommended for use with acquisition deficits or for potentially self-injurious or aggressive behaviors requiring more immediate behavior changes.

Once you have (1) considered prerequisite skills, (2) weighed benefits and challenges of conducting these procedures, and (3) determined appropriateness of self-management strategies to facilitate improvements in students' metacognitive abilities and behavior, we encourage you to consider the different self-management

REFLECTIONS AND TIPS FOR SUCCESS 6.2. ***From PreK–12 Practitioners: Self-Monitoring—Encouraging Student to Take Responsibility***

Self-monitoring encourages students to take responsibility for their actions. I've observed teams use the self-monitoring strategy to increase desired behaviors and to reduce inappropriate behaviors. The Ci3T model provides the research behind, and all the resources needed, to implement this Tier 2 intervention successfully.

HOWARD
Elementary Principal

strategies available for use. Because we believe self-monitoring is easy to implement, effective for a variety of students, and easily adaptable to either behavioral or academic interventions, we continue with more information on this strategy.

Supporting Research for Self-Monitoring Interventions

Before launching into any intervention, it is important to determine whether the practice is supported as either an evidence-based or a promising practice. Fortunately, many systematic reviews of self-management interventions have found them to be effective across a range of skills, behaviors, and students (with and without disabilities; e.g., Briesch & Chafouleas, 2009; Bruhn, Gilmour, et al., 2022; Mooney et al., 2005; Smith et al., 2022). Smith and colleagues (2022) recently conducted a vast and rigorous meta-analysis of 79 studies involving 658 students with challenging behavior in K–12 schools. They analyzed impacts of self-management interventions on classroom behaviors and academic outcomes, and found that these interventions resulted in significant improvements in students' (1) ability to follow directions, (2) disruptive behavior, and (3) pro-social behavior. Importantly, self-management interventions also helped students improve their work completion and academic achievement.

Results of this review are particularly encouraging given students with and at risk for EBD struggle in their ability to attend to instruction and to act strategically to foster productive work environments (Walker et al., 2004). They struggle to manage their own academic behavior. Fortunately, self-management procedures such as self-monitoring strategies implemented in isolation or with other self-management strategies (e.g., self-evaluation) have met with success.

In this section, we provide information on a few of the studies included in the Smith and colleagues (2022) review to illustrate how these strategies can be applied across the K–12 grade span. We encourage you to see Table 6.1 for a summary of several studies included in the review.

TABLE 6.1. Self-Monitoring Interventions for Students with Challenging Behavior

Reference	Students	Instructional setting	Intervention	Dependent variable	Design
Lloyd, Bateman, Landrum, & Hallahan (JABA, 1989)	*N* = 5; 2 girls, 3 boys; ages: 10–11; school level: elementary	Special education resource classroom	Self-monitoring	Math performance, on task	Alternating treatment
McDougall & Brady (JJER, 1995)	*N* = 3, boys; ages: 5–8; school level: elementary	Special education summer school adaptive behavior program	Self-monitoring	Spelling performance, on task	Multiple baseline
Levendoski & Cartledge (BD, 2000)	*N* = 4; boys; ages: 9–11; school level: elementary	Self-contained classroom	Self-monitoring	On task, academic productivity	Withdrawal: ABABC
Gureasko-Moore, DuPaul, & White (SPR, 2007)	*N* = 6; ages: 11–12; school level: middle	General education classroom	Self-monitoring + Self-evaluation	Classroom preparation, homework behavior	Multiple baseline
Rock & Thread (JBE, 2007)	*N* = 5; 4 boys, 1 girl; ages: 10–14; school level: elementary	Inclusive general education classroom	Self-monitoring	Academic engagement, productivity, accuracy	Multiple-treatment reversal
Bruhn & Watt (BD, 2012)	*N* = 2; girls; school level: middle	Targeted reading intervention classroom	Self-monitoring	Academic engagement, disruptive behavior	Withdrawal
Wills & Mason (JBE, 2014)	*N* = 2; boys; ages: 14–15; school level: high	General education remedial level science classroom	Technology-based self-monitoring	On-task, disruptive behavior	Withdrawal
Vogelgesang, Bruhn, Coghill-Behrends, Kern, & Troughton (JBE, 2016)	*N* = 2; 1 boy, 2 girls; age: 11, school level: elementary	Inclusive general education math classroom	Technology-based self-monitoring	Academic engagement	Withdrawal

Note. BD, *Behavioral Disorders*; JABA, *Journal of Applied Behavior Analysis*; JBE, *Journal of Behavioral Education*; JJER, *Journal of Educational Research*; SPR, *School Psychology Review.*

Elementary School

As you can see in Table 6.1, most self-monitoring interventions among students with or at risk for EBD were conducted with elementary-age students. One particularly noteworthy study was conducted by Levendoski and Cartledge (2000). Whereas most of the early studies examining self-monitoring of academic behaviors focused on drill and practice, this study focused on students' self-monitoring their behavior while practicing newly taught skills. Also, this study was quite feasible in the sense that students monitored their behavior with the use of minimal auditory (two tones) and visual (one card) cues. Students included four boys attending a self-contained class located in a general education elementary school. Students were between 9 and 11 years old, and all received free or reduced-price lunches. There were five other students in the self-contained class, but the intervention was focused on the four students mentioned because they had very low levels of on-task behavior. The study took place from 10:00 to 11:20 A.M. each day, during math period.

Each student had his own self-monitoring card (a 5 × 8-inch index card) that contained one question: "At this exact second, am I doing my work?" Also, the card contained the words *yes* (with a happy face) and *no* (with a sad face). The instructional tasks were math worksheets designed for each student's instructional level. Two behaviors were monitored: percentage of time on task during independent math practice and percentage of math problems completed. In brief, the study contained five phases: baseline, intervention, return to baseline, return to intervention, and fading. Results suggested that for three of the four students, on-task behavior increased, as did academic productivity. Further, the students indicated they liked using the self-monitoring procedure and that it helped them to stay on task and finish their math problems. One limitation of this study was that academic accuracy was not addressed; however, this outcome has been addressed in other studies, such as the one highlighted in the next section.

Middle and High School

Self-monitoring procedures have also been successful with older students. For example, Clemons and colleagues (2016) examined the effects of I-Connect, a self-monitoring app, on the on-task behavior of three high school students with disabilities. Two students were male—one had a learning disability and the other autism. Like the male students, the female student received special education services, but for an intellectual disability. The study took place in a rural, public high school, with data collection occurring in general and special education settings.

Students used a handheld tablet with a 3 × 5-inch touchscreen to access the I-Connect app. At fixed intervals (either 1 minute or 30 seconds), the screen flashed with a prompt asking students, "Are you on task?" Students then selected "yes" or "no" on the screen. A researcher was present in the room and followed the same procedures. This was done so the students could compare their results to the

researcher's. If the student's recording agreed with the researcher's recording for 80% of intervals and the student was on task for 80% of the time, the student could select a reinforcer from the reinforcement menu (i.e., a document with 10 pictures of different items).

The behavior of all three students improved dramatically when they were using I-Connect compared to baseline when they were not using it. Students went from 45, 58, and 36% on-task behavior in baseline to 92, 97, and 92%, respectively. When considering what that equates to in minutes, think of being on task for 9 minutes instead of 4 minutes during a 10-minute period. Importantly, the students reported high satisfaction with the self-monitoring app, while the teachers reported students' academic productivity improved while self-monitored. In the next section, we will provide further information about how technology can support self-monitoring procedures.

Summary

Several methods exist for designing, implementing, and evaluating self-monitoring interventions in elementary, middle, and high school settings. We encourage you to find an approach that works best for you and your student. In Chapter 9, we provided additional resources to support the design, implementation, and evaluation of self-monitoring interventions. In the next section, we provide step-by-step instructions on how to create a self-monitoring intervention.

Implementing Self-Monitoring Interventions in Your Classroom

As you can see, self-monitoring is a feasible and potentially highly effective practice to support the academic and behavioral performance of students, including those with and at risk for EBD. Self-monitoring interventions can be structured and implemented in a variety of ways. In this section, we offer one research-based approach to conducting a self-monitoring intervention within the classroom context (Menzies et al., 2009) and provide you with a step-by-step set of procedures for designing, implementing, and evaluating self-monitoring procedures in your classroom. We also include an illustration of how to apply these procedures in the high school setting (see Box 6.1).

Step 1: Establish Prerequisite Conditions

As discussed earlier, before implementing any self-management strategy, the teacher should identify whether the student is capable of replacing the target behavior with a more appropriate one. If a student knows how to perform acceptable classroom behavior but does not do so, this is considered a *performance deficit*, which can be remediated through self-monitoring. In contrast, if the problem or challenging behavior results from an *acquisition deficit*, meaning the replacement

BOX 6.1. Self-Monitoring Illustration

Mrs. Wheeler was a fourth-grade teacher in a general education classroom that included students with high-incidence disabilities alongside typically developing students. She consistently implemented Ci3T—the integrated tiered system implemented by her district PreK–12—as seen in the procedures for teacher, reinforcing, and monitoring shared by her district. Mrs. Wheeler maintained a structured daily schedule, rich with authentic behavior-specific praise often accompanied by a schoolwide ticket that students exchanged in the student store, as well as for activities in her classroom. She had many years of successful classroom experience, and she did an excellent job of integrating teacher-delivered, low-intensity strategies (e.g., precorrection, instructional choice, and increased opportunities to respond) that—coupled with her classroom organization strategies—allowed her to maintain a well-behaved inclusion class. This year, most students responded well to her management style, but she was concerned about three students who frequently engaged in off-task and challenging behaviors. They continued to have problems with academic engagement and work completion despite her best efforts at correction using her Tier 1 and low-intensity classroom management strategies. One student received special education services for emotional disturbance, and two students received no extra services but were clearly in need of additional behavioral support.

Mrs. Wheeler asked the special education teacher to help her identify some new strategies for her students to improve their classroom behavior and performance. After discussing the situation, observing the classroom, and considering how busy Mrs. Wheeler's days already were in meeting the varying needs of all 25 students in her inclusionary class, the special education teacher recognized that Mrs. Wheeler required a strategy that was effective but required minimal teacher effort. Together, they looked at the Secondary (Tier 2) Intervention Grid in their school's Ci3T Implementation Manual. They reviewed the entry criteria and decided a self-monitoring intervention might be a good option. Mrs. Wheeler reached out to her students' families and set up a time to touch base to gather their, along with their children's, input. She hosted individual meetings for each student, with one of their caregivers present. After learning more about the self-monitoring intervention, the caregivers agreed it might be a good option to explore for their children especially since the self-monitoring intervention had the potential to build a sense of agency.

Step 1: Establish prerequisite conditions

After obtaining permission from the families and students to move forward, the two teachers worked together to determine whether a self-monitoring intervention was likely to be effective for the challenging behaviors Mrs. Wheeler was seeing. The special education teacher asked Mrs. Wheeler whether the three target students were able to perform appropriate on-task behavior during some activities. She wanted to make sure the interfering challenging behaviors were not due to a skill deficit. Because all three had demonstrated on-task behavior and adequate work completion at times, had tested within grade-level limits in both mathematics and reading, and were able to complete the work they were assigned, the teachers determined the behavior was a performance deficit. Thus, this condition was met. Next, the special education teacher wanted to make sure the challenging behaviors occurred frequently for all the students. Mrs. Wheeler assured her they did and silent reading or other independent work were the most problematic activities. The special

(continued)

education teacher decided to observe the class for several days during silent reading and confirmed that all three students displayed below-average levels of academic engagement time (in fact, below 50%). For each student, the special education teacher conducted several observational probes to establish a baseline level of performance. This would allow Mrs. Wheeler to evaluate whether the intervention improved student behavior. Because academic engagement is a readily observable behavior students and teachers could easily identify and record, along with other established prerequisite conditions, both teachers were confident a self-monitoring intervention was an appropriate strategy and had an optimum probability for success.

Step 2: Identify and operationally define the behavior of concern

Because the primary behavior of concern for all three students was off-task behavior, sometimes disruptive in nature and sometimes just off-task, the teachers identified the problem behavior as off-task behavior to include both. They agreed that the appropriate behavior would be academic engagement. After the teachers discussed their classroom experiences and observations, they operationally defined the problem and replacement behaviors (as shown in Figure 6.4).

Step 3: Design the self-monitoring procedures, including a monitoring form

Next, the teachers designed a self-monitoring sheet for the students to use. They decided to begin the intervention during silent reading, a problematic time during the day for all three students. Because the silent reading block lasted for 20 minutes each day, they decided to break the period into four 5-minute segments at first. Later, other activities could be added, or the segments could be lengthened as the students mastered the skill. The teachers considered the appropriate reading level, kept the form simple, and added icons for novelty and interest. They also kept the form short so it could be printed on a small sheet of paper (3″ by 5″) that would be inconspicuous to other students to prevent potential embarrassment or jealousy and also be unobtrusive in the student's workspace. The daily self-monitoring form looked like this:

Name: _____ Date: _____		
At this exact second, am I reading on task?	**Yes** ☺	No ☹
Bell 1		
Bell 2		
Bell 3		
Bell 4		

The teachers also decided to provide reinforcement opportunities in conjunction with the self-monitoring procedures to enhance their effectiveness. Their Ci3T implementation plan included a reinforcement system in which students could earn tickets for achieving specific behavioral expectations and then exchange the tickets for privileges or prizes. Because they had worked successfully as reinforcers for each of the three students in the

(continued)

past, tickets were chosen as the reinforcer. Both teachers agreed that, to start, students would have the opportunity to earn a ticket each day by accurately checking three of four "yes" options on their self-monitoring forms.

Step 4: Teach the student the self-monitoring procedures

Mrs. Wheeler met with the three students in a small group after arrival one day to explain the self-monitoring procedures. First, she informed them they were going to try something that might help them stay on task and do better in school, as well as avoid getting into trouble. She introduced the challenge and the off-task behaviors that she had identified and gave them specific examples of what not to do. She then explained the behavior that was expected, academic engagement, and provided an example of what that looks like. To ensure that the students understood the definitions, she first modeled examples and non-examples of academic engagement. Then she had students role-play each behavior. Next, she explained the self-monitoring form and procedures to the students and showed them all the materials, including the form and the kitchen timer that she would set to ring every 5 minutes to cue them to complete the form. She modeled how to fill out the form and then asked each student to practice completing it, using the kitchen timer as a prompt for completion. Finally, she explained to students that they would have the opportunity to earn a ticket each day for checking three "yes" options. She informed them she would be making sure the data they kept were accurate by also taking periodic data herself. She asked the students if they had any questions about what was expected and discussed their concerns with them. She also let them know she would continue to connect with their families to let them know how the self-monitoring intervention was going, as well as get their input along the way.

Step 5: Monitor student progress

To help Mrs. Wheeler objectively determine whether the intervention was improving student behavior, the special education teacher agreed to record and graph academic engagement data for each student. She decided she would use duration, or a "real-time," recording of each student for three 2-minute sessions, twice per week, and designed a simple data collection sheet (see Figure 6.5). After the intervention had been in place for 3 weeks, the two teachers met to review the data for each student. See Figure 6.6 for an example of one of the graphs that the special education teacher made, which allowed them to determine if the intervention was working. Data were similar for the other two students, and Mrs. Wheeler was excited to share the visual display of behavioral progress with each of them as well as their families. This helped the students maintain behavioral improvement and momentum for generalizing their new skills.

Step 6: Consider maintenance and follow-up

After showing the students their data, Mrs. Wheeler told them they would be trying these procedures for more activities throughout the day. She introduced the Self-Monitoring Form for independent math work and independent science/social studies, and she increased the intervals to 10 minutes. Now students would have the opportunity to earn one ticket for achieving behavioral criteria across all three activities each day (or six of eight

(continued)

sessions now in each day). As time went on, Mrs. Wheeler continued to extend the intervention to new activities (e.g., whole-group instruction). By spring, she was able to start gradually fading the intervention, eventually taking only random probes throughout the school day. Around the end of the year, the special education teacher let Mrs. Wheeler know that she was most pleased with the outcomes and, together, they shared the progress made during one of their monthly faculty meetings, highlighting the effectiveness of this very practical intervention. A couple of their colleagues mention they planned to try the self-monitoring intervention with some students in their classes who might benefit from it.

behavior is not in their repertoire, the student must first become proficient in the skill before a self-monitoring strategy will be successful. In this case, the teacher must provide the student with explicit instruction in the new skill (Elliott & Gresham, 2008).

The teacher must also determine whether the student can control the problem behavior. It is unlikely a self-monitoring intervention will be sufficiently intense to remediate student behavior that has reached out-of-control levels (e.g., extreme aggression). If it is determined the student cannot control the problem behavior, a higher-intensity intervention must first be implemented to bring the problem behavior under control (e.g., Functional Assessment-Based Intervention [FABI; Umbreit et al., 2024]; see Chapter 9). Once behaviors are under more control, a self-monitoring strategy can be employed—or even incorporated into a FABI.

Another prerequisite condition for a self-monitoring intervention to be successful is the problem behavior must occur frequently. Though high-intensity, low-frequency behaviors can be detrimental to classroom activities, these behaviors may be better addressed through alternative intervention strategies (e.g., adjusting rates of reinforcement using differential reinforcement schedules; Cooper et al., 2020). Self-monitoring strategies are unlikely to be sensitive enough to address and reinforce infrequent behavior problems sufficiently to produce meaningful, immediate behavior change and are better used for behaviors that occur frequently.

Finally, the problem behavior and the preferred replacement behaviors need to be readily observable and easy for the student to record. Likewise, the recording system chosen needs to be reliable and feasible for student use. Before starting the intervention, a baseline estimate of the student's level of performance needs to be collected using this recording system. This baseline objectively illustrates the magnitude of the problem and allows later comparison to evaluate the success of the self-monitoring system and modify it if necessary. When given the option of monitoring the preferred replacement behavior (e.g., on task) or the problem behavior (e.g., off task), we encourage you to focus on the former—focus on the positive!

Once prerequisite conditions are established, a teacher can feel confident self-monitoring is an appropriate strategy. The next 5 steps can be used to implement a self-monitoring procedure with an optimum likelihood of success.

Step 2: Identify and Operationally Define the Behavior of Concern

To initiate a self-monitoring intervention, the problem behavior must first be identified and operationally defined. The teacher will explicitly communicate the target behavior and operational definition to the student through discussion and role play. Examples of the problem behavior should be clear so the teacher and student agree on exactly what the problem behavior looks like. Thus, examples of the replacement behavior need to be discussed or role-played. This is especially important because the focus of self-monitoring should not be exclusively on reducing problem behaviors, but also on improving academic and behavioral performance by ensuring the student exhibits more appropriate behaviors. The more proficient and successful a student becomes at demonstrating appropriate behavior, the less likely they will be to engage in challenging behaviors. With continued appropriate behavior, the student will have increased access to instruction, will learn more meaningful skills, and will be less apt to engage in undesirable behaviors to escape too easy or too difficult tasks (Umbreit et al., 2004). This is particularly true for self-monitoring interventions focused on academic engagement or work completion, which can also result in improved quality and quantity of students' work, as well as classroom behavior (Smith et al., 1992).

Step 3: Design the Self-Monitoring Procedures, Including a Monitoring Form

After operationally defining the behaviors, the teacher will create a simple data-monitoring sheet for the student. The day can be broken down into segments appropriate for the situation and the student. Specifically, the self-monitoring session needs to be of an appropriate length to encompass times when problem behavior is likely to occur, allow the student the opportunity to attain success or reinforcement for at least one segment, be age-appropriate, and aligned with the daily schedule. Also, the data-monitoring sheet needs to be age-appropriate in other ways. For example, it should reflect the students' reading level, using some symbols and simple sentences for a very young student and more complex text for an older, proficient reader. Also, the form may be more discreet for an older student who might be embarrassed using a self-monitoring technique in front of their peers. Goal behaviors or items on the self-monitoring sheet should be clear and explicit, as well as easy to identify and record.

Alternatively, you may consider using technology instead of a paper-based form. Excel spreadsheets on cloud servers are an option for recording. More recently, mobile apps like MoBeGo (Bruhn & Wehby, 2024) and I-Connect (Wills, 2021) have been developed as an innovative and efficient way for leveraging technology to deliver intervention (Bruhn, Woods-Groves, et al., 2017). These apps provide audio or visual prompts for students (and teachers if completing parallel procedures) to input their behavior. Some apps also provide graphs of student

progress to aid in data-based decision making, as well as serving as a touchstone for teachers to provide students with feedback (Bruhn, Wehby, et al., 2022).

In addition to providing feedback about a student's performance, teachers may consider using a reinforcement contingency. One such example is to design the self-monitoring intervention so the student can earn schoolwide tickets (if available) to exchange for breaks from nonpreferred activities (negative reinforcement) or access to preferred activities (positive reinforcement) contingent upon meeting the predetermined goals that they monitor (e.g., Umbreit et al., 2024). Be sure to set realistic goals allowing the student to be successful and carefully select the type of reinforcer in collaboration with the student (e.g., what are they working toward?). For the reinforcer to have the best effect, consider the function of the problem behavior to be decreased or the reason it is occurring. After determining what the student accesses or avoids (e.g., attention, activity or task, or sensory experience) by engaging in the problem behavior, a reinforcer meeting the same function can be identified and used as a part of the self-monitoring system. Contingencies can then be adjusted so reinforcement is obtained only when the student meets predetermined goals for performing the appropriate replacement behavior, according to self-monitoring data (Umbreit et al., 2024).

Step 4: Teach the Student the Self-Monitoring Procedures

Just as the student should be explicitly taught the desirable and undesirable behaviors that are the focus of self-monitoring, they need to be taught how to use the self-monitoring form. It is important to convey to the student that self-monitoring is not a punishment. Instead, it is a tool that the student can use to become more aware of their actions and be more successful in learning and behavioral outcomes (e.g., obtaining rewards, building motivation, increasing learning). Ideally, teachers will use discussion, modeling, coaching, and role play when explaining how to use the form (e.g., Lane, Eisner, et al., 2009; Lane, Weisenbach, et al., 2006). As the student completes the form independently, the teacher will remind them at the beginning of each time period to be aware of the target behavior (remember precorrection from Chapter 4?) and should gradually fade the frequency of this support. When redirecting a behavior to be decreased, explicitly remind the student to instead demonstrate appropriate behavior and avoid engaging in an argument. Also, reinforcers may be used to teach the procedures and increase the likelihood that the student will complete the Self-Monitoring Forms.

Step 5: Monitor Student Progress

To determine if the self-monitoring intervention is working, data collection procedures should be in place. It is important for the recording procedures to be reliable and feasible so that accurate information is recorded and interpreted. In Figure 6.5, we include an example of a Data Collection Form for a duration or *real-time* recording system. Figure 6.6 presents a graph depicting student performance, with data

collected using the form provided in Figure 6.5. Comparing data collected during the self-monitoring process with the student's previously established baseline level of performance allows the teacher to objectively evaluate whether the intervention is working, to assess student progress, and to determine whether modifications should be made (Vanderbilt, 2005). You will see the graph includes a brief withdrawal and subsequent re-introduction of the intervention to make sure it is the self-monitoring intervention—and not something else—responsible for the change in students' performance (see Ledford & Gast [2024] to learn more on how to test an intervention's effectiveness with an individual or just a few students).

The teacher can also monitor (and reward) accuracy of the student's self-recording by completing the form during the same intervals and comparing teacher and student results (matching; Bruhn, Wehby, et al., 2022). If this comparison reveals that the student is not being accurate or truthful when collecting their own data, the teacher may need to address this by (1) discussing the discrepancy with the student, (2) modifying the contingencies so the student is more likely to achieve success or obtain reinforcement, and/or (3) simply continue monitoring the accuracy of the student's self-recording.

Student: _____

Observer: _____ **Date:** _____

Session 1

Time Start: _____ Time Stop: _____

_____ / _____ = _____ × 100 = ___%
seconds on stopwatch | length of session | AET

Session 2

Time Start: _____ Time Stop: _____

_____ / _____ = _____ × 100 = ___%
seconds on stopwatch | length of session | AET

Session 3

Time Start: _____ Time Stop: _____

_____ / _____ = _____ × 100 = ___%
seconds on stopwatch | length of session | AET

Inter-Observer Agreement: Session _____

_____ / _____ = _____ × 100 = ___%
seconds on stopwatch | length of session | IOA % IOA (>90%)

FIGURE 6.5. Data Collection Form—duration recording.

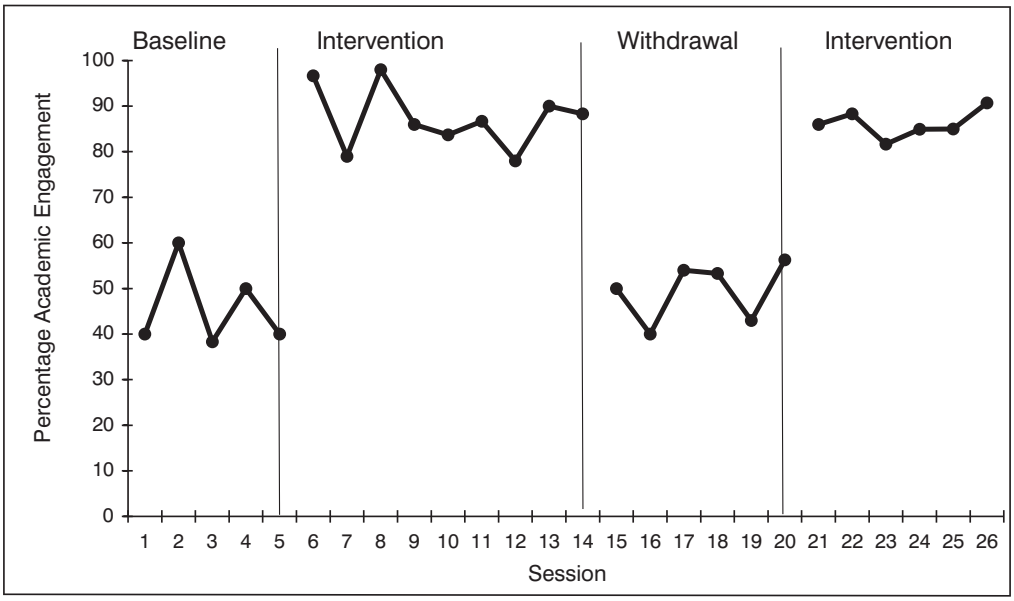

FIGURE 6.6. Students' academic engagement overtime—performance during silent reading: Impact of self-monitoring intervention.

Students can be taught to graph their self-monitoring data to illustrate their behavior over time. Graphing may increase intrinsic reinforcement by providing concrete evidence of changes in behavior (Carr & Punzo, 1993). Graphs can also be used to share outcomes with other stakeholders such as parents or other teachers, or to demonstrate progress on goals, including goals specified in an Individualized Education Program (IEP) for students receiving special education services under IDEA.

Step 6: Consider Maintenance and Follow-Up

The self-monitoring system can be gradually faded once the student has successfully and consistently used it and demonstrated improved and acceptable academic or behavioral performance (Vanderbilt, 2005). The ultimate goal is for the student to demonstrate and maintain appropriate behavior independently. Successful fading can occur by lengthening the intervals the student is monitoring, fading teacher support (e.g., decreased matching), gradually increasing session goals until a terminal goal is met, or by having the student self-monitor for a shorter duration or during fewer activities during the day (Bruhn, Wehby, et al., 2022). Ideally, fading would gradually decrease until self-monitoring is no longer formally occurring and the replacement behavior is maintained across settings. Yet, intermittent behavior-specific praise or reinforcement continues as necessary to support appropriate behavior, particularly when the self-monitoring system is completely faded.

To assist you in implementing self-monitoring interventions, we provide a detailed illustration that begins with defining the target behavior and moves

you through the process, ending with evaluation (see Box 6.1). As you read this illustration, we encourage you to look at how this process moved through the six steps described above. We hope you find it helpful! To further support you in your planning efforts, we refer you to an article by Menzies and colleagues (2009) that appears in *Beyond Behavior*. This article contains many of the key concepts presented in this chapter and offers teachers, administrators, and other school-site personnel another step-by-step approach to designing, implementing, and evaluating self-monitoring procedures for students who require more than primary prevention efforts.

Summary

This chapter provided an overview of five common self-management interventions: self-evaluation, self-instruction, goal setting, strategy instruction, and self-monitoring, as well as combinations of these strategies (e.g., self-monitoring and goal setting). Then we provided additional information on self-monitoring, one of the most commonly used strategies. We offered an overview of the benefits and challenges associated with self-monitoring, as well as information on the research that supports its use as an effective technique. We concluded this chapter with (1) directions on how to design, implement, and evaluate self-monitoring interventions in your classroom; (2) an illustration to use as a guide; and (3) resources to assist teachers, administrators, and other school-site personnel in using this strategy. In Chapter 9, we provide additional resources to help inform your planning and implementation efforts.

In the next chapter, we introduce another Tier 2 strategy, one that can also be used as a measurement tool: Direct Behavior Ratings (DBR; Chafouleas et al., 2009). DBR has an extensive knowledge base supporting the utility of DBR as a progress-monitoring tool for measuring students' performance (e.g., engagement and acting out behavior). In addition, DBR has been used as an intervention, similar to other self-monitoring interventions and Check-In/Check-Out (CICO; Hawken et al., 2007, 2011; see Box 7.2 in Chapter 7). Further, DBR intervention inquiry has also been expanded, leading to Daily Behavior Report Cards (DBRCs; Lahey et al., 1977; LeBel et al., 2013). In the next chapter, we offer an overview of DBR and DBRC. We provide implementation guidance; explain benefits and challenges; review representative research with DBR and DBRC; and provide a step-by-step process for implementation, including an illustration in an elementary classroom.