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The *What, Why, and How* of Improving Executive Function Growth

What Is Executive Functioning?

Over the past several years, knowledge about executive functioning (EF) and executive function skill training has become a forefront topic in education. Why? Because sound executive function skills are essential for any student to excel in both the academic and social-emotional arenas. Strosnider and Sharpe (2019a) define *executive functioning* as “a group of processes that allows individuals to self-regulate the ways in which they can successfully interact with their environment across a variety of settings” (p. 6). These skills develop and improve throughout childhood and into young adulthood. Executive function skills provide the foundational platform for preparing a student’s readiness and ability to learn. Without a good foundation in executive function skills, all the learning interventions in the world may not help a student who is experiencing academic and social-emotional difficulties. This lack of readiness to learn often creates a *downward spiral* (Strosnider & Sharpe, 2019a) for the student in which the student focuses on their lack of success and subsequently refuses to take risks when it comes to learning new academic skills and/or participating in social interactions. Actions such as learned helplessness, showing a lack of interest, and refusing to try or even attend class often become a coping mechanism. It is extremely difficult to escape this downward spiral, and the results can be catastrophic. Therefore, it is important to prevent students from entering a downward spiral and experiencing the academic and social-emotional repercussions of this spiraling effect. Secondary school is our last chance in preschool–Grade 12 to provide effective interventions for executive function problems. For students with disabilities, EF goals in individual family service plans (IFSPs), individual education programs (IEPs), and transition plans are necessary as students navigate from preschool through secondary school for transition to postsecondary education. This book provides strategies for everyday use that can help students avoid and/or escape the downward spiral. The strategies include explicit instruction accompanied by strategy support reminder sheet (SSRS) templates. These sheets were developed based on the 7-step model (Strosnider & Sharpe, 2019a) for teaching executive function skills and incorporating best practices. As educators, it is important to take a proactive and preventive approach through explicit instruction of executive strategies (rather than a reactive one) to prevent students from entering the

downward spiral. This will support academic and social-emotional growth and, most importantly, will provide an executive function skill set from which the student can call upon and build on for a lifetime.

What Is the Rationale for Teaching Executive Function Skills Through Metacognitive Learning Strategies?

Let's look at the research supporting executive function skill training. Research findings have proven the benefits of teaching executive function metacognitive learning strategies. Although the research on this topic continues to expand, listed below are some very important findings:

- Howard and Vasseleu (2020) found that self-regulation and executive function can predict advanced learning as early as preschool.
- Meltzer et al. (2007) stated, “While the end product of learning is important, it is evident that students do not retain all the content they are taught from year to year. Therefore, it is even more important to teach students the executive function skills that will carry over from elementary school to middle school to high school to college” (pp. 186–187).
- In the U.S. Department of Education publication *Executive Function: Implications for Education* (2017), Zelazo et al. stated, “Children who arrive at school with well-practiced executive function skills may learn more easily, and this may initiate a positive cascade of indirect effects, such as liking school and being motivated to work hard. In contrast, poor executive function skills may interfere with children’s own (and others’) learning and may lead to behavior problems, suspension, expulsion, or being held back” (p. 19). They further stated, “Research shows it [executive functioning] can be improved by relatively brief interventions that allow opportunities to practice at increasing levels of challenges” (p. 38). They also found that executive function training is helpful in cases of academic impairments, predictions for mathematics and reading comprehension, differentiated instruction, interventions, and individual progress monitoring.
- A longitudinal study, *Executive Functions Deficits in Kindergarten Predict Repeated Academic Difficulties Across Elementary School*, was conducted by Morgan et al. (2019). The study tracked 11,000 kindergarten students through the third grade. A major finding of this research was that children who exhibited executive function difficulties in kindergarten—regardless of their race, socioeconomic level, or academic abilities—continued to experience academic difficulties in later years (Barshay, 2018).
- Diamond and Lee (2011) found that executive function skill training not only improved school readiness but positively impacted academic success in students ages 4–12. Executive function skills also continue to predict reading and math aptitude throughout a student’s school and life experiences.

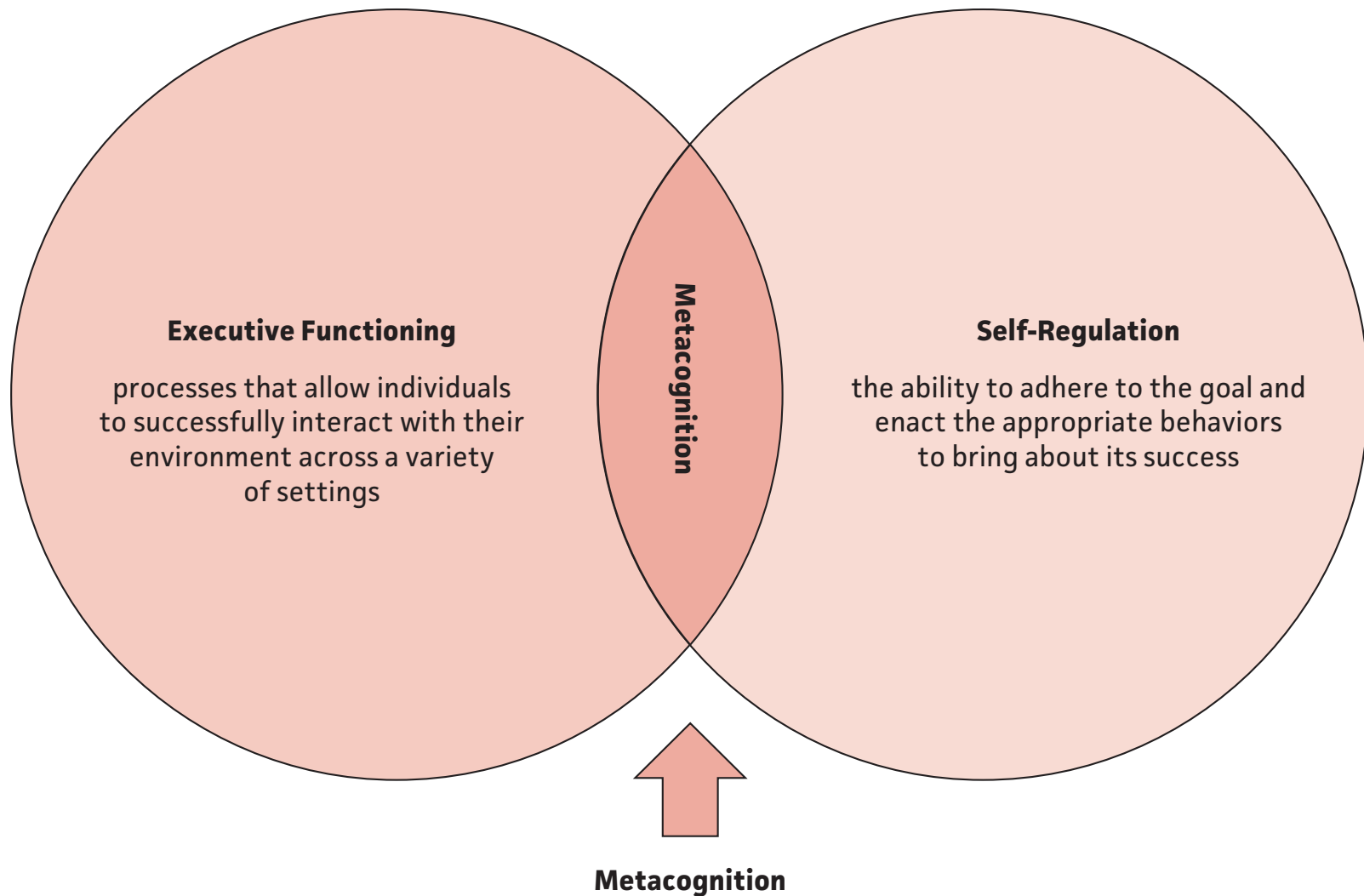
- Durlak et al. (2011) conducted a meta-analysis of 213 studies that incorporated over 270,000 students and addressed social-emotional learning and the impact it had on academic achievement. Of the 213 studies, 120 of them were conducted at the elementary level. The study revealed that students receiving social-emotional skill training showed an 11% gain in academics, appropriate behaviors, and the ability to handle stress.
- All students should be taught EF skills such as setting goals, planning, time management, self-regulation, and so on. Case et al. (1995) found self-regulated strategy development (SRSD) effective in the success of students with learning disabilities (LD) in writing. The strategy teaches students to follow a process that involves setting goals and learning how to apply learning strategies by self-monitoring, self-instructing, and self-regulating.
- Although multiple elements of executive function can contribute to low achievement in mathematical problem solving, current research points to three specific domains that are most clearly associated with poor performance: attention, working memory, and mental flexibility (Carey & Koriakin, 2015).

What Is the Connection Among Executive Functioning, Metacognition, and Self-Regulation?

To successfully teach EF skills, it is important to understand the vital connection among executive functioning, metacognition, and self-regulation. Many times, a strategy is deemed unsuccessful in facilitating student learning because this vital connection was not considered during the teaching of the strategy.

Figure 1.1 shows the connected relationship among EF, metacognition, and self-regulation. Through this connected relationship, the student manages their executive functions by using metacognition to think about their goals, developing a plan that includes the selection of strategies for completing a task, monitoring their progress, and evaluating their success. Self-regulation enables the student to adapt and interact appropriately with their environment as they complete a task. These three components (executive functioning, metacognition, and self-regulation) are dependent upon each other to promote student success.

FIGURE 1.1 Connection Among Executive Functioning, Metacognition, and Self-Regulation



teaches the student to think about what they are doing as they plan for and complete a task. The emphasis in metacognition is not only on *what* but also *how*. Self-talk is a tool that is successful in teaching a student the metacognitive process.

What Behaviors Do Students With Good Executive Function Skills Exhibit?

In order to identify areas of EF in students where difficulties may exist, it is important to first look at a positive reference point of behaviors exhibited by students having sound executive function skills. There are two reasons for this positive frame of reference approach. First, students need a positive model for acceptable academic and social-emotional behaviors. Second, students can learn executive function skills starting as early as preschool through an approach known as *explicit strategic instruction*. The teaching of executive function skills appears later in more detail in this chapter when our 7-step model is discussed. Listed below are some positive examples of appropriate executive function skills exhibited by students.

The student

1. raises their hand and waits to be recognized before speaking,
2. locates necessary papers, assignments, projects that are stored in their backpack, notebook, locker, and so on in a timely manner,
3. starts working after receiving directions in a timely manner,
4. remembers and follows routines on a daily basis,
5. remains focused on the task at hand until the task is completed,
6. maintains their materials, workplace, locker, and so on in an organized manner,
7. demonstrates flexible thinking and accepts change,
8. recalls previously learned information and makes connections with this previously learned information to learn new information,
9. thinks before they act or speak so actions or responses are appropriate,
10. prioritizes tasks and manages time to meet assignment and project deadlines, social engagement timeframes, team practice schedules, and home responsibilities such as chores,
11. verbally communicates their needs in a clear and appropriate manner, and
12. writes in a clear, cohesive manner.

As you read this list, you may picture opposite actions exhibited by students not demonstrating appropriate executive function skills. You may picture the faces of these students as well. Think about the amount of instructional time that is wasted because students lack well-developed executive function skills. Also consider the impact of these executive function skill deficits on other students, the classroom environment, and you.

There are many executive function skills, and in order to organize them into common groups, we have placed these skills into categories. The Strosnider and Sharpe model (2019a) has five categories. The strategies presented here are used to improve EF and require students to use metacognition and self-regulation. In Table 1.1, you will find these categories and a brief descriptor of some of the executive function skills performed within each category.

TABLE 1.1 Strosnider and Sharpe Executive Function Categories

WORKING MEMORY	PRIORITIZING, ORGANIZING, SEQUENCING, MANAGING TIME, AND PLANNING	ATTENDING, INITIATING, AND FOCUSING	SOCIAL-EMOTIONAL AND INHIBITING	COMMUNICATING, COGNITIVE FLEXIBILITY/SHIFTING
storing information in mind for a task	determining what should be completed first	paying attention	self-regulating thoughts and behaviors	stating needs appropriately in both verbal and written form
retrieving previously learned information	keeping things organized	starting a task when a directive is given	exhibiting appropriate behaviors across a variety of settings	displaying body language that matches the message
using previously learned information to learn new concepts	remembering the order of things	processing what is required for a task and working until the task is completed	recognizing, labeling, understanding, and managing emotions	accepting change in thoughts and actions
using new concepts and skills to solve problems	meeting deadlines and arriving to appointments on time			respecting the opinions of others even though they may not agree

What Is Metacognition? What Role Does Metacognition Play in Student Learning and Behavior?

Mannion (2018) defines *metacognition* as “monitoring and controlling your thought processes.” A student’s metacognition improves as the student learns social norms and has experiences that facilitate executive function growth. When that development does not occur, the student will need instruction to learn metacognitive strategies for executive function growth. The emphasis in metacognition is not only on the *what* but also on the *how*. Using metacognition, the student learns to plan, monitor, and evaluate their work. This process has proven highly successful in increasing students’ willingness to start a task because they have a goal and plan in mind as well as in decreasing frustration that students

experience when they do not have a goal and plan in mind (Meltzer, 2010; Strosnider & Sharpe, 2019a). Students with a goal and plan can use self-evaluation and make changes when needed. It is important to note that early intervention is key, and students in early childhood through young adulthood can experience success using the metacognitive process.

Metacognition is a process that teaches the student to think about what they are doing as they plan for and complete a task. This process has an important role in supporting and facilitating learning because it helps students think about the course of action they will take to plan, monitor, and evaluate their work as they complete a task.

What Is the Task and How Can the Teacher and Student Work Together for Success?

The teacher and student both assume responsibility when it comes to the metacognitive process. In teaching the process, it is the responsibility of the teacher to make informed decisions based on background information such as observations, record reviews, conversations with instructional team members, and so on. Consider these questions in determining how best to meet the student's needs:

1. What are the student's learning strengths and needs? **NOTE:** When identifying a student's strengths and needs, it is important to consider and respect cultural diversity in areas such as code-switching, social interactions, and so on.
2. What is needed in terms of the instructional plan that will support the notion of how the student learns best?
3. What steps can be taken to modify the instructional plan to facilitate the student's learning success?
4. What executive function strategies can the student use to support the learning process?
5. What steps can be taken to modify the instructional plan to facilitate the student's learning success?
6. What executive function strategies can the student use to support the learning process?

The student's responsibility for using metacognition when completing a task should include thinking about these questions:

1. What am I learning? What is my learning goal?
2. What am I being asked to do for this task? What should the final product look like?

3. How do I complete the task?
4. In what order do I need to complete the steps so that I can complete the task?
5. What parts of the task might be difficult and where will I get help for these parts?
6. What strategies can I use if I need help?
7. Did I successfully complete the task? Why or why not? If not, what changes do I need to make in my plan and what other steps can I take next time?

Self-talk is a necessary method for both teacher and student to use in the meta-cognitive process. For younger students, talking to a prop such as a puppet or a picture of a superhero makes learning the metacognitive process easier. Once the student has learned how to use metacognition, the prop is removed. Older students are taught to whisper to themselves or listen to the voice inside their head. This tool needs to be modeled by the teacher as they demonstrate their thinking by talking aloud multiple times during instruction. The student also needs multiple opportunities to practice self-talk.

What Is Self-Regulation? What Role Does Self-Regulation Play in Student Learning and Behavior?

While metacognition is thinking about one's thinking, *self-regulation* is thinking about one's interaction with their environment. In both cases, students are self-monitoring; however, the emphasis is more on cognitive activity in metacognition and social-emotional behaviors (getting along with others and feelings) and actions (behaviorally and academically) in self-regulation.

Mannion (2018) further describes *self-regulation* as monitoring and controlling your emotions and behavior. Do not, however, assume that metacognition is for controlling learning and self-regulation is for controlling behavior. Students need both metacognition and self-regulation to use metacognitive strategies and successfully learn. Combining metacognition and self-regulation together is a win-win for students and can result in strategic learning.

How Do Self-Regulation and Executive Functioning Work Together?

When the components of EF come together to determine behavior, this is called *self-regulation*. Simply put, self-regulation is the ability to stop, think, and make a choice before acting. Children use self-regulation by stopping at a traffic crossing, thinking about whether it is safe to cross, and acting on the decision they make. Academically, children use self-regulation by stopping and thinking before writing an answer, thinking about whether the answer in their mind is

their best one, and then writing that answer. Research shows that children with strong self-regulatory skills are better prepared for school (Ciccarelli, 2015) and have stronger social and academic outcomes than their peers who struggle to master these abilities.

The good news is that research shows that EF (with metacognition) and self-regulation can be practiced and improved! We can teach students to learn. Once they learn how to learn, we can move on to what they learn.

Why Use Explicit Instruction and Metacognition When Teaching a Strategy?

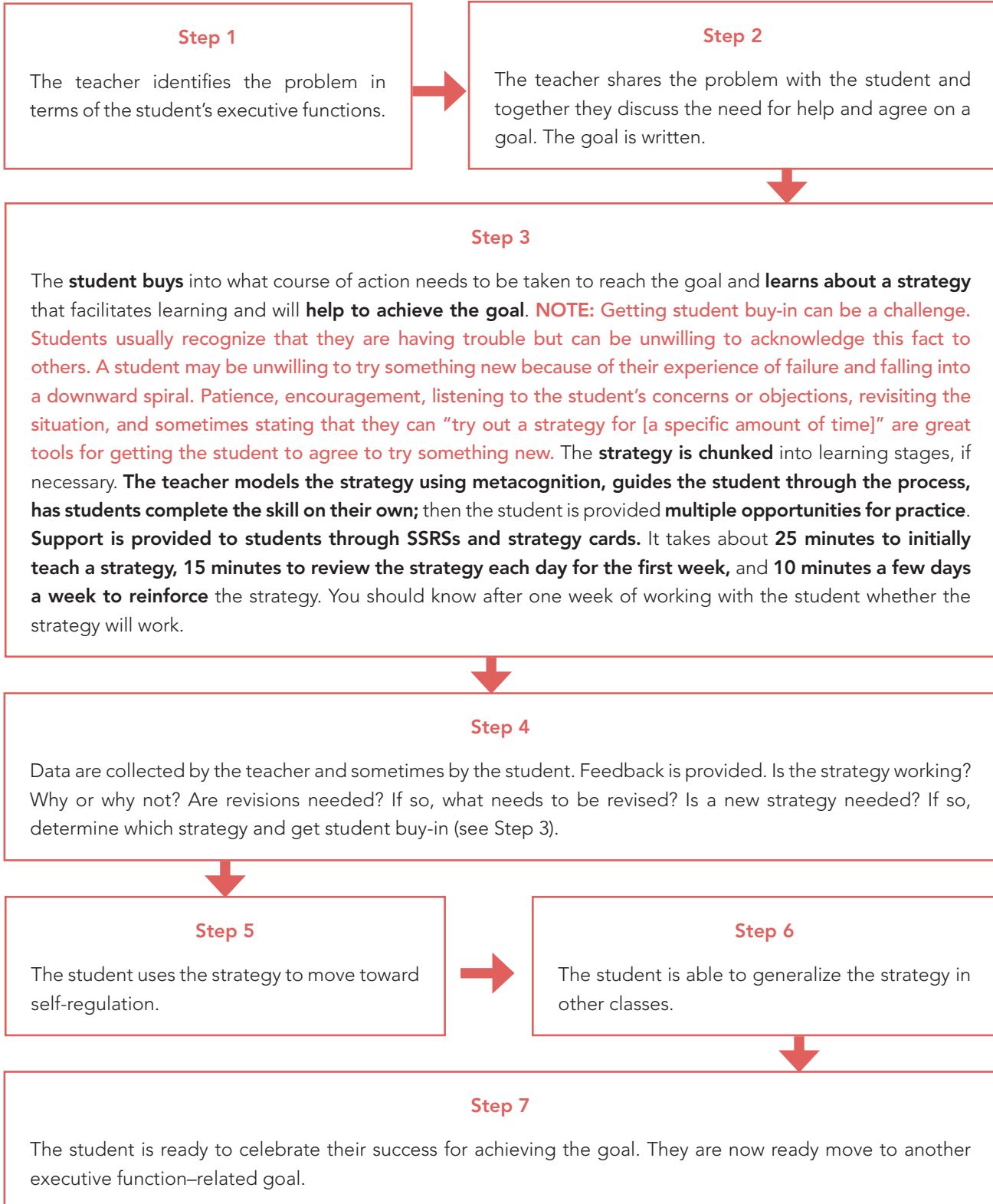
In addition to metacognition and self-regulation, it is vital to use an explicit instructional approach when teaching a strategy. Why? Because this approach provides a scaffolded framework that facilitates and supports student learning. Often, a strategy is deemed unsuccessful because it has not been taught using explicit instruction. According to Hughes et al. (2019), “Explicit instruction is comprised of a group of research-supported instructional elements used in concert to design and deliver instruction in ways that provide sufficient support needed by students to successfully engage during an explicit lesson” (p. 215). Using the process of explicit instruction helps students to better manage the initial stages of learning information and lessens the cognitive load for the student. Explicit instruction benefits both students with and without disabilities.

An explicit instructional model includes the following components:

1. a clear, objective, concise goal for the student
2. scaffolding
3. engagement (student buy-in to what is being learned)
4. metacognition *and* self-regulation
5. chunking when needed
6. modeling
7. data collection and analysis
8. multiple opportunities for practice
9. ongoing feedback
10. flexibility to adapt to student needs

Strosnider and Sharpe's (2019a) 7-step model includes explicit instruction. This model addresses the student's background data through observations and student records, informal assessments, learning strengths and needs, and student-initiated academic and self-regulation goals. The 7-step model has been found to be highly effective in executive function skill training. Figure 1.2 outlines the steps of the Strosnider and Sharpe 7-step model, with an emphasis on teaching the strategy explicitly in Step 3. Although the process to explicitly teach a strategy may appear time consuming, the explicit teaching of a strategy to a student or students will lead to an increase in instructional delivery time and a decrease in reteaching and redirecting since many disruptive student actions decrease and students' attention can increase as a result of calling upon a learned strategy.

FIGURE 1.2 Strosnider and Sharpe 7-Step Model



The I Do, We Do, You Do Approach and How to Use It

Explicit instruction is listed as one of the best practices included in *High Leverage Practices for Inclusive Classrooms* (McLeskey et al., 2019) and discussed by Hughes et al. (2019). The I Do, We Do, You Do approach is not new; however, it has gained new attention with its prominent role in explicit instruction. Also known as *gradual release of responsibility*, the approach includes demonstration or modeling, prompting or guided practice, checking for understanding during practice, and independent practice. The teacher has the major responsibility in the *I Do* phase, with students taking on some of the responsibility in *We Do*, and finally, with students taking full responsibility during the *You Do* phase. A lesson plan template based on using explicit strategic instruction and the I Do, We Do, You Do approach is illustrated in Figure 1.3. This template serves as a quick guide and does not require a lot of detail. Simply noting what steps will be taken for each area listed on the template will support explicit instruction and the I Do, We Do, You Do approach. A blank template that can be completed online and downloaded may be located at this book's companion website: <https://resources.corwin.com/EverydayExecutiveFunctionStrategies>

According to McCoy (2011), the I Do, We Do, You Do approach levels the playing field when students are learning a skill. Students have multiple opportunities to learn the strategy as the teacher guides them through the process.

Now that you can identify the steps for teaching a metacognitive strategy using explicit instruction, let's look at a lesson plan template. The purpose of Figure 1.3 is to guide your thinking about the elements you need to incorporate when explicitly teaching a strategy. It also encourages you to think about the time-frame you will implement when teaching the strategy. Initially, a strategy takes about 25 minutes to teach. Practicing the strategy for a little as 10 minutes a few times a week leads to mastery.



You may access the lesson plan template by visiting <https://resources.corwin.com/EverydayExecutiveFunctionStrategies>

FIGURE 1.3 Lesson Plan for Teaching a Strategy

Lesson Plan for Teaching a Strategy

Executive Function Skill Area Need:

Background Information About the Student(s):

Behaviors Observed Leading to the Identification of the Need:

Strategy Selected and Why:

Strategy to Be Used for the (please check response[s]):

- Whole Class
- Group
- Individual

Steps to Teach the Strategy:

- I explain the need for the strategy by
- I will help the student(s) develop a goal that says
- I will provide strategy sheets and cards and opportunities for practice by
- I will encourage student(s) to agree to try the strategy by
- I will teach the strategy to the student(s) during
- I will explicitly teach the strategy using metacognition and the I Do, We Do, You Do approach by
 - I Do:
 - We Do:
 - You Do:
- Prior to instruction, I provided SSRSs or cards useful for practice. Yes No
- I will collect data on the progress of the student(s) by noting
 - the length of time for data collection:
 - adaptations that I need to make:
 - whether the student can generalize the strategy into other settings. Briefly explain:

We will celebrate the success of the student(s) by

A completed sample of a Lesson Plan for Teaching a Strategy will be presented later in this book (elementary school may be found in Chapter 2, middle school in Chapter 3, and high school in Chapter 4).

Whole Class Versus Individual or Small Group Instruction of Strategies

Executive function growth is important to all students, and explicitly taught metacognitive learning strategies are especially helpful to students when learning a new concept. Most strategies are designed for whole class or individual use; however, explicit instruction of a metacognitive learning strategy with the whole class may result in one or more students who need more intense instruction. This may require individualized follow-up to help the student acquire the knowledge and skill in the strategy. When this happens, this can be addressed as you address any situation in which you may need to reteach a skill. The strategy may simply need to be adapted for the student and not require reteaching.

For instance, when students are first introduced to multiplication in elementary school, the skip counting learning strategy is helpful as a support. The entire class can learn the strategy with the teacher using an *I Do, We Do, You Do* approach and apply it as they are learning the concept of multiplication. Choral skip counting (the *We Do*) is important for working memory and changes with each new multiplication fact. Processing speed differs among students in a classroom, and choral skip counting can be powerful in helping students achieve automaticity. Students who possess strong working memory may not need to skip count to remember the tables for a long time, but for others, this may be the tool they need to move ahead. As students move into the *I Do* section of the process, they will need multiple opportunities for meaningful practice to make certain they maintain the skill prior to generalizing it in different situations. For a student in fifth grade still struggling with remembering math facts, an independent or small group approach may be required. If the student has not learned skip counting, it can be taught now. If there are other students who experience difficulty with math facts, a small group can be formed. It is important to remember that all students need executive function support, but some will need more support for a longer period. (For specific steps in planning for executive function skill training to support student executive function growth within a whole group, small group, or individual setting, please refer to Chapter 5, Question 3.) The takeaway is that a whole class approach to learning metacognitive strategies is helpful when a new concept is taught or at the beginning of the year, when rules and procedures are taught. Individual or small group instruction is preferred for those students who need additional metacognitive learning strategies to learn skills needed to progress in the general curriculum. Both the whole class and individual approach to explicit instruction of metacognitive learning strategies are based upon best practices such as Universal Design for Learning (UDL) and personalized learning.

What Is a Strategy Toolbox and How Is It Used?

Strategies taught through explicit instruction become valuable tools to facilitate student learning. As students learn strategies, they need support in terms of multiple opportunities for practice, and Strategy Support Reminder Sheets

(SSRSs) and strategy cards can serve as reminders of how to use a strategy. Not all strategy toolboxes will look alike; they will reflect the strategies each student has learned to that point. Some students will use SSRSs and others will use strategy cards, so some boxes will contain both. Note that both SSRSs and strategy cards can be individualized to meet the needs of students.

The SSRS template is available online. The template provides a framework for the student and can be adapted for different age groups and individual needs.

- **The steps to follow when using this strategy.** This section lists the steps students will take when using the strategy. While middle and high school steps are presented in written language, early childhood and elementary students might need pictorial steps.
- **A description of how the strategy can help the student/s.** This step can describe how the strategy will help the class or how it will help an individual student. This is where the student buy-in for use of the strategy occurs.
- **Example of where and when to use the strategy.** In this step, a general example of an action that affects all members of the class or an example that meets an individual need is used.
- **Ideas on how to practice the strategy and keep track of success.** This is the point at which teachers will make suggestions for practice and students will use the strategy independently when needed. Some of the practice will be independent and some will be teacher led. After receiving brief instruction on how to keep the data on the checklist, students will make a mark each time they use it until recording becomes automatic. Teachers will check in to compare records and discuss future use of the strategy and/or the data sheet.

Examples of completed SSRSs are provided in each chapter, and two from each chapter are available to download as models at <https://resources.corwin.com/EverydayExecutiveFunctionStrategies>

Strategy cards are helpful reminders, and each strategy has its own card. These strategy cards support students as they learn and successfully interact with their environment across a variety of settings. For students in elementary school, the strategy card is created using a 3" × 5" index card. The name and a picture of the strategy (if appropriate) goes on the front of the card and the steps the student needs to follow to successfully use the strategy go on the back. Each card is hole punched at the top right corner so that the cards may be placed on a binder ring. This ring is then attached to the student's binder or backpack so that the strategies are readily available. The strategy card for older students is different in design and more age appropriate in that a business card is used. The name of the strategy is placed on the front of the card and the steps the student needs to follow to use the strategy successfully are found on the back. A separate

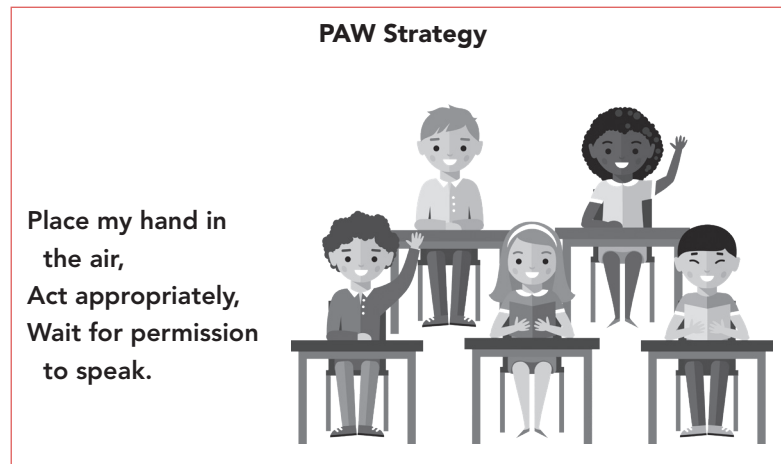
business card is used for each strategy. These strategy cards become the tools needed to help the student complete a task, follow a directive, meet deadlines, and so on. The multiple strategy cards are then placed in a transparent business card holder sheet and these filled card holder sheets become part of the tangible strategy toolbox. Older students can discreetly retrieve the business card sheet and needed strategy.

It is important that strategy cards and SSRSs are placed in students' strategy toolboxes so they are readily available when needed. Students are taught that each strategy is a tool to help them. The toolboxes serve as an important reminding warehouse for the student. There are two types of strategy toolboxes: tangible (strategies placed on a binder ring or in a transparent business card holder or SSRSs placed in a folder or binder) or virtual (online).

Completed SSRSs, organized in a tangible folder or binder, are useful for both younger and older students. SSRS templates may be downloaded from this book's companion website and completed by the teacher. Samples of completed SSRSs for selected strategies are presented in Chapters 2, 3, and 4 of this book. Select sample SSRSs and can be downloaded and printed from the provided link.

It is important that the student practice always placing the tangible strategy toolbox in a specific location in the binder or folder so that it is easily found. Posters, strategically located around the classroom, may also serve as a tangible tool.

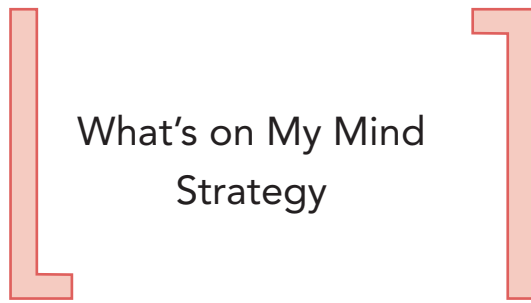
The virtual strategy toolbox is available wherever there is internet access. With the onset of COVID-19, instruction platforms changed. Teachers, parents, and students were required to rely on virtual platforms, and most were not prepared for this change. Before the COVID-19 pandemic, most students only had a tangible toolbox; but now it is vital that students have both a virtual and a tangible toolbox due to the various instruction platforms the student may use. Completed SSRSs posted on the teacher's website or Google Classroom are accessible for students (or the class) to review by using a link to their virtual toolbox. By using a computer, iPad, or cell phone, the student, teacher, or parent can click the link and review a strategy or strategies in school or in the virtual classroom from the virtual strategy toolbox. The virtual toolbox is also readily available to instructors, students, tutors, and parents via the internet when and where these resources are needed. Each strategy is placed on an individual SSRS template. For younger students, the SSRS template uses a superhero theme. All virtual strategies become part of the virtual strategy toolbox, which never gets lost or left in school or at home!

IMAGE 1.1 Strategy Card for Younger Students Using a 3" x 5" Index Card

1. When I am in class and have an answer or comment to share, I will use the PAW Strategy.
2. I use the PAW Strategy so that I give my peers a chance to share their ideas.

IMAGE 1.2 Tangible Strategy Toolbox for Younger Students

IMAGE 1.3 Strategy Card for Older Students and Business Card Sheet



A sample virtual strategy is shown in Figure 1.4.

FIGURE 1.4 Sample Virtual Strategy Support Reminder Sheet (SSRS) for a Middle School Student

Stop, Wait, Talk (SWT) Strategy

You may use this reminder as part of your virtual toolbox or print this reminder and place it in your tangible toolbox.

This strategy helps me think about whether I should say the thought that pops into my head before speaking the thought out loud. It gives me time to think about whether I should say what I am thinking.

I will follow these steps:

1. Wait and think about the message that pops into my head and ask myself if what I want to say is appropriate.
2. If the message is not appropriate, I rethink how I can make my response appropriate.
3. Once I have an appropriate response, I talk and share it. If I cannot think of an appropriate response, I say nothing at all.

How does this strategy help you?

It helps you think about the responses that pop into your head before you say them. Thinking about what you want to say before you talk allows you to say something that is appropriate or maybe not say anything at all if it is not appropriate. When you blurt out things and interrupt the class or hurt people's feelings, you are truly sorry and feel sad. Even when you say that you are sorry, you know that your teachers and friends sometimes remain upset. You want to be liked by everyone. Using this strategy will help you not to get in trouble with your teachers and friends because you will think about what you want to say and make sure that what you say is appropriate. It will also help you not to interrupt the teacher and class.

Example of when and where to use the strategy:

I can't see the poster on the front board to help me remember the mathematics algorithm I need to solve a problem because the teacher is standing in front of the poster. I want to call out in class and say, "I can't see the math poster because you are blocking it!" Then, I remember the **Stop, Wait, Talk (SWT) Strategy** and stop, wait, and think about the first thought that popped into my head. I realize that saying the words that first popped into my head would not be appropriate, so while waiting, I rethink my response so that it is appropriate and then

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(continued)

I talk. This keeps people from becoming upset with me because I am now saying something that does not bother others or hurt others' feelings.

How can I remember to do this? Practice and keep track of success.

You have a lot of control over what you do, and you need to take responsibility for your learning. Using strategies to help you is part of taking responsibility for your actions and becoming a more independent learner. Sometimes something pops into your head that might hurt the feelings of others. Using SWT, you have time to think about what you are going to say and decide if it is appropriate. You will practice the **SWT Strategy** until you can do it automatically. Use self-talk over and over while you practice. If you have trouble, let your teacher know. Use your record sheet to keep track of the number of times you use this strategy.

How Can Instructors and Students Assess Outcomes of Explicit Strategic Instruction?

When teaching a strategy, it is important to collect data throughout the process to make sound decisions regarding the student's comfort level in using the strategy, how the strategy is working, what revisions are needed (if any), and so on. The data collection process does not need to be time consuming or cumbersome. Instructors and students (when applicable) can devise simple checklists for recording student outcomes and analyzing these data. When students are given the responsibility of collecting data on their strategy usage, it gives them ownership of their learning progress. See sample checklists for teachers and students in Chapters 2, 3, and 4.

It is the choice of the student and instructor as to whether they use the tangible strategy toolbox, the virtual strategy toolbox, or both. There are no set rules other than the student needs to be comfortable with the chosen format. Since the goal of learning a strategy is to use it automatically and without prompting, students need to periodically revisit the strategies that they have learned. Revisits can be conducted by using supports and game platforms, including the following:

- Posters of the strategies placed throughout the classroom
- Building strategies into daily routines in both the academic and social environment and having the student identify the strategy
- Concentration (a game in which the strategy is matched to the description)
- Jeopardy (a game in which the strategy description or scenario is provided and the student names the strategy that fits best)
- Bingo (a game in which the student matches the strategy name or the strategy description)
- Solve the Problem (a game in which the student is provided a scenario and they state the strategy that would be the best solution and why)

Just be creative!!

What Are Some Frequently Asked Questions?

1. Do *all* students have strengths and weaknesses in their executive functions?

Yes; some strengths and weaknesses are more overt and some are easy to identify. While some people assume that only students with identified disabilities experience executive function difficulties, in fact, any student may experience difficulty in one or more executive functions. It is important to note that executive function skill deficits are not recognized as a disability and therefore are not accepted as the sole criteria for the development of an IEP or the receiving of special education services. These deficits may be addressed under the umbrella of an identified disability such as a learning disability, traumatic brain injury, or autism. However, a student with a documented disability and executive function skill deficits may qualify for 504 Plan accommodations following an evaluation. It is important to remain cognizant of the need to support executive function growth of all students. Executive function strengths and weaknesses can be internal and external. Internal executive functions have more to do with thinking while external executive functions have more to do with behaviors. Weaknesses in either area can impede a student's learning. Executive function skills are not innate and need to be taught. Also, an executive function skill deficit does not disappear with age and maturity. Usually, these deficits exacerbate as time passes and the academic and social-emotional demands and expectations increase. Teaching executive function metacognitive learning strategies early is an important measure to prevent academic and social-emotional executive function skill-related problems in the future. For example, we all know adults who (1) constantly forget things they need to do because they do not use EF strategies such as making lists, setting alarms, or writing notes to themselves; (2) are chronically late because of poor time management skills; (3) do not think before they speak or act, resulting in hurting others' feelings and embarrassing themselves; (4) become overwhelmed when having to multitask; and so on.

2. How can I plan for integrating metacognitive learning strategy instruction into my routine without detracting from instructional time?

An appropriate response to this question is a series of questions you need to ask yourself:

How much instructional time do I lose by having to

- *repeat directions numerous times?*
- *address inappropriate student behaviors?*
- *remind students to note the time allocated to complete an assignment?*
- *remind students to start an assignment?*
- *remind students to remain focused?*

You can easily personalize this list to mirror what you observe in your classroom. When you think about it, you lose a lot of instructional time throughout the school year when dealing with the above behaviors.

Now, think about this: *Would it be worth spending time initially to teach executive function metacognitive learning strategies if this would increase instructional time for the year?* The key is to take preventive measures by teaching executive function skills early in the year so that students do not continue to lose instructional time all year long.

Executive function skill training can take place in a variety of settings:

- During a morning meeting
- As part of positive behavior support plan (PBSP) interventions
- During specific content instruction, such as the Skip Counting Strategy noted in this chapter
- In a resource room setting
- During a skills class
- With a small group of students needing additional support

3. How do we get student buy-in?

Student buy-in differs in a whole class or individual lesson. Student buy-in for the whole class with reinforcement that appeals to the majority of people in the room looks different from individual student buy-in. Students, as a whole, may buy in simply because the skill is being taught, but there will be some who do not buy in and see it as a waste of time. To appeal to the class as a whole, share the benefits to all, such as higher grades, an easier time finishing a group of tasks, beginning and finishing assignments on time, and remembering where to find items.

Individual student buy-in also works in a whole class that is differentiated and where students are accustomed to having their individual needs met. That buy-in can be personalized and more specific to the student's needs. To appeal to an individual, the teacher and student communicate regarding the student's current situation, what is going well, what is giving them a problem, and what they would like to fix. The Digi Poem Strategy (see Chapter 4, page 131) and/or the Self-Advocacy Strategy (see Chapter 3, page 94) are helpful to students as they communicate their strengths and needs to teachers and others. Knowing how to explain their need to use a strategy, use an e-book, have a paper copy of the class notes, and so on gives the student confidence to seek help when confused or in a no-win situation. These advocacy skills will prove helpful in post-secondary education and the workplace as well.

4. How do I revisit strategies to reinforce them without losing instructional time?

Finding time in the already busy school day to revisit previously learned executive function strategies may appear to become a roadblock. Here are a few suggestions that will help to reinforce learned strategies while not interfering with instructional time:

- Review a strategy during morning meeting.
 - Incorporate strategies into the school's PBIS—School Wide.
 - Have students play games that test their strategy knowledge.
 - Incorporate a learned strategy into the lesson, such as the Teach It Strategy, to check for student understanding of the content learned.
 - Teach students multiple uses for a strategy they have learned. The strategies are versatile in that often, one strategy can be easily adapted to meet needs in many of the executive functions. Once students learn the variety of uses for each strategy, they can begin to capitalize on this and determine where and how they will use a particular strategy to meet their individual needs (Strosnider & Sharpe, 2019b).
- 5. I have a student with several executive function skill needs. How do I prioritize in which order to address them?**

Executive function skill needs typically do not exhibit as singular in nature. It is highly unlikely that a student only has one executive function skill deficit. More likely than not, students may exhibit multiple executive function skill deficits and some needs may be more intense than others. For example, if a student has a working memory deficit, they will often have a deficit in initiating because they cannot remember what they were directed to do. Our basic recipe for determining which executive function skill deficit should be addressed first is simple in nature. Choose the EF skill deficit that is most pronounced, most disruptive, and most detrimental to the student's academic and/or social-emotional well-being. Once you determine which EF skill deficit to address first, make a goal, choose a strategy that the student will buy into, and immediately celebrate the student once they achieve mastery of the goal and subsequent strategy. Then move on to the next noted EF skill deficit.

This process then transitions to the student assuming responsibility for prioritizing their learning needs. Setting priorities is difficult for students who are experiencing executive function issues. Setting priorities does not come naturally for them. Many look at activities and base their priority setting on which task they think of first or prefer to do. It is important to teach students prioritization explicitly using, for example, the Big Rocks, Little Rocks Strategy (see Chapter 2, page 48). This includes examples of priority setting. The buy-in from students for this skill is difficult because it requires them to change a habit. They may not even know that they should be setting priorities; they may be going from task to task without identifying which task is the most important. It is important to convince students to set priorities when faced with multiple tasks to complete. This skill is directly related to time management. Students need a general idea of how long a task takes in order to set priorities among the tasks. In other words, students need to analyze the tasks before them, determine which are the most important and how long each task will take, and determine the order in which they will complete them. With student buy-in and mastery of task analysis, time estimation, and the ability to determine priorities, students will gain confidence in facing a list of tasks to complete.

6. How many strategies can I teach at one time?

Data gathered on each strategy presented in this book show its positive impact on executive function skill training and subsequent student success. Those data also point to the practice of teaching no more than two new strategies at one time. You might try two for the whole class to start and then move on to individual strategies. The reason behind this is that students need time to learn, practice, and generalize the strategy across settings. Also, you want the student to experience success when introduced to a strategy. Experiencing success is the best support for encouraging the student in learning new strategies. As the student learns the strategy, it becomes part of the tangible toolbox, virtual toolbox, or both. The toolbox is a great vehicle for the student to revisit periodically to reinforce the learned strategy. As mentioned above in the answer to Question 4, the versatility of the strategies allows them to be used for more than one executive function skill.

7. How many times should I adapt a strategy before selecting a different strategy?

If a strategy is not working for the student as presented, do not assume it is the wrong strategy. Strategies can be adapted. Strosnider and Sharpe have adopted the two-adaptation rule when adapting a strategy. After two adaptations, the student becomes discouraged because they are not experiencing success. Before the first adaptation, discuss with the student where the breakdown is. Does using the strategy seem too difficult or does it simply not work for this student? If the strategy has promise of effectiveness for the student, then make the adaptation using the feedback provided by the student and your observations. Strategies are not one-size-fits-all, and if the adaptations did not result in student success, you may need to find a different strategy.

8. How do I encourage the student to assume responsibility for using the strategy?

Students use self-monitoring and collect data. Prior to assigning students data collecting and recording privileges, it is important to teach data collecting explicitly. When a student sees that a strategy is helping them achieve, they are more inclined to take responsibility for it. It is important to teach fidelity in data collection and to explain that there is no penalty for recording what actually occurs, even if it does not show successful use of the strategy. Tell your students that these strategies are designed to help them. If one is not working, it may need some changes.