Welcome to our video for HLP #14: Teach cognitive and metacognitive strategies to support learning and independence.

There are 22 High Leverage Practices for students with disabilities spread across four domains. Teach cognitive and metacognitive strategies to support learning and independence is in the instruction domain.

The major source for content in this video is the chapter by Shannon Budin and her colleagues from SUNY Buffalo State College in the book HLPs for Inclusive Classrooms published by Routledge and CEC.

This video is split into two parts. In part 1, we provide a definition and rationale for teaching cognitive and metacognitive strategies to support learning and independence. In part 2, we highlight four key principles for effectively using this HLP and demonstrate teachers using them in action. Let’s start with an introduction.

Using cognitive or metacognitive strategies includes two main components: First, students learn strategies to address a specific academic task or social/behavioral concern, and then they evaluate the effects of the strategy on their performance. Cognitive strategies address the application of an approach, whereas metacognitive strategies focus on students’ self-evaluation of the effectiveness of the strategy. To use and evaluate a strategy, students must be explicitly taught the purpose, functional steps, mental actions, and evaluation process for the strategy.

Both types of strategies are used to support student memory, attention, and self-regulation of learning and behavior, and simultaneously help them keep one eye towards how well everything is working. In so doing, the strategies help students become self-directed, independent learners. In other words, when students learn and use a strategy, they are essentially learning how to learn and then use the strategy to execute a skill or process.

It is important to note that a strategy in this context is not merely a set of step-by-step instructions, but instead is an instructional technique that can facilitate learning and generalization across number of situations, contexts, and types of academic content. Strategies can also scaffold success for students across academic and behavioral domains at the same time.

Strategies help students become better problem-solvers. That is, through learning and using strategies, students become more adept at identifying problem areas, developing and using solutions to address the difficulties, monitoring their learning and progress, and reflecting on how well the solution worked.

The teacher plays a critical role in student use of strategies. The high leverage practice of TEACHING students what, how, and when to engage in cognitive and metacognitive strategy use is the key. Thus, strategies must be explicitly taught in order to be effective. While some students may be able to develop or figure out strategies on their own, students with disabilities and others who struggle to learn often need instruction in specific strategies, including when and how to use them coupled with practice and feedback.

Using the principles of explicit instruction, including clear language, modeling, guided practice, providing feedback, and independent practice, teachers should help students understand what cognitive and metacognitive strategies are, as well as how and when to use them effectively. Please see video #16 in this series for more information on explicit instruction.

In addition to being explicitly taught, cognitive and metacognitive strategies should be embedded in academic and non-academic lessons, so that students can experience the various ways in which these strategies are used to learn specific academic content. Integrating cognitive and metacognitive strategies into content helps students monitor and evaluate their performance during authentic tasks and can help them generalize the strategies to other content and settings.

One example of a cognitive strategy in mathematics is the Solve It! method of problem solving. This requires the student to read a problem for understanding, paraphrase the problem into their own words, visualize a picture or diagram of the problem, make a plan to solve the problem, estimate the answer, do the arithmetic to solve, and then check to make sure everything is right.

While using the Solve It! strategy for problem-solving, students self-monitor by asking themselves guided questions after performing each step in the strategy procedure. For example, after reading the problem, students are taught to ask themselves, “Have I read and understood the problem?” By asking and answering guided questions after each step in the Solve-It! procedure, students learn to monitor and assess their work.

When students use a metacognitive strategy, they self-monitor their learning or behavior, and evaluate effectiveness. An example of a metacognitive strategy is self-regulation, in which students learn to organize their thoughts and make decisions about using various skills in order to learn, and then monitor progress toward a learning goal.

In sum for part 1, cognitive and metacognitive strategies are designed to help students become self-directed and independent learners. Teachers have an important role in facilitating this process by including strategies in their instruction and directly teaching students when and how to use them. These strategies, when taught explicitly with modeling and guided practice, have been proven effective across content areas and for students with disabilities.

Part 2: Two key principles of teaching cognitive and metacognitive strategies

There are two key components of this HLP teachers should consider.

Component #1 is select strategies purposefully. Component #2 is multifaceted, but revolves around the components of explicit instruction. First, teachers should explicitly teach the components of the strategy. Teachers also need to model use of the strategy, and provide guided and independent practice opportunities for the student.

First, select strategies purposefully.

Teachers should select cognitive and metacognitive strategies that will not only “stick” with students, but that also have high utility, align well with content being taught, and are appropriate for the functioning level of the student. Strategies that are too complex or ask the student to complete skills that are too difficult will not have the intended impact.

For example, teaching students to use context clues in the text to determine the meaning of an unfamiliar word could support reading comprehension across subjects. Teachers should use progress monitoring and feedback to determine the extent to which the strategies are appropriate for the needs of the students. This connects with other HLPs from the collaboration and assessment domains.

The second component of HLP 14 is to use explicit instruction to support student learning of the strategy and readiness to use it independently. As explicit instruction has several key components, we highlight three critical components here related to explicitly teaching students how to use strategies.

First, teachers should introduce the strategy and explain the specific strategy components. One helpful way to show students the components of a strategy is by using a visual aid, such as a graphic organizer or an anchor chart. However, regardless of visual aids, explicit instruction should be used. The teacher needs to provide clear explanations, and provide examples and non-examples as appropriate. Teachers should also monitor students’ understanding of the strategy steps/components through questioning and opportunities to respond during guided practice and provide specific, immediate feedback on student use of new strategies or skills. Other elements of explicit instruction are included in the next two components of this HLP.

In this first clip, Mr. Sean McDonald is working with a student in a distance environment because of the COVID-19 pandemic. He explicitly introduces a strategy and its steps. Note the use of numerous opportunities to respond and high quality feedback that is provided.

Another key part of explicitly teaching the components of the strategy is for the teacher to model its use

In order for students to see the purpose and the application of a strategy, the teacher should provide models. These models can be likened to the “I do” portion of explicit instruction. For example, one effective way a teacher can model the use of a cognitive or metacognitive strategy for students is by using the think-aloud approach to provide a verbal description of what completing each step looks like and demonstrate when to move on to the next step as they work through an example problem. When using think-alouds, students observe the teacher using a strategy while narrating the steps, to show how skilled problem solvers approach tasks. This supports students’ metacognitive ability by helping them understand how to “think about their thinking.”

In this clip, Mr. McDonald provides a clear model of how to use the strategy, but note how he continues to monitor the student’s comprehension so he isn’t doing all of the talking.

Lastly, it is important to provide guided and independent opportunities for students to practice using the strategy

We can liken this stage of the process to the “We do” and “You do” parts of the explicit instruction strategy lesson. Teachers should provide students with guided and independent practice opportunities for each component of the strategy (or, in other words, scaffold the learning of the approach). In addition, students need opportunities to apply the overall strategy that includes all components. As students practice, teachers should provide specific, immediate feedback to let students know how they are progressing towards mastery of the strategy. Giving specific and immediate feedback also allows the teacher to correct mistakes and misconceptions quickly. To learn more about the role of feedback in improving student outcomes, please watch [HLPs #8 and #22: Provide Positive and Constructive Feedback to Guide Students’ Learning and Behavior](https://highleveragepractices.org/701-2-3/)

For the sake of time, we do not include the sample guided and independent practice clip here. Please visit this website to see Mr. McDonald use this element of the practice. You can also see a good example of guided and independent practice in this unedited clip available as part of the HLP video series.

Conclusion

Cognitive and metacognitive strategies are designed to help students become more self-directed and independent learners. While some students may be able to develop their own learning strategies, students with disabilities often need explicit instruction to learn specific strategies that support their learning, including when and how to apply them.

Teachers should purposefully and carefully select the cognitive and metacognitive strategies they teach so that students can be more successful in their learning. Then, teachers should use explicit instruction – including modeling, guided practice, and specific feedback – to teach students strategies and monitor students’ progress toward acquiring skills.

More information about cognitive and metacognitive strategies and their role in supporting the needs of students with and without disabilities can be found at highleveragepractices.org.

Thanks for watching, and please continue using resources from this series on high leverage practices for special education.