Big Ideas in Special Education

Specially Designed Instruction, High-Leverage Practices, Explicit Instruction, and Intensive Instruction

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After returning from the Council for Exceptional Children (CEC) conference in Boston, five teachers were sharing information from the sessions they attended. Mrs. James, a special education teacher, attended multiple sessions emphasizing the importance of using "high-leverage practices" (HLPs) to become a more effective teacher. Mr. Franks, a general education teacher, and his co-teacher, Mrs. Fox, a special educator, attended sessions focused on how to intensify instruction for struggling students with disabilities through the use of "explicit instruction" (EI). Finally, Mrs. Arrow, the special education department chair, attended sessions on providing "specially designed instruction" (SDI) for students with disabilities. In addition, all five of the teachers mentioned that "intensive instruction" (II) was a term used in many of their sessions. As they shared information, it became clear to the group that they were unclear about the differences and similarities of these terms. They left their meeting with several important unanswered questions:

- *Are HLPs, SDI, EI, and II the same thing?*
- *How are HLPs related to explicit instruction?*
- *If HLPs are used, does that mean SDI is being provided?*
- *Does using HLPs, such as EI, mean I am providing intensive instruction?*

It is understandable that misuse of the terms *specially designed instruction, high-leverage practices, explicit instruction*, and *intensive instruction* has bred confusion among professionals, and this confusion may lead to miscommunication and misunderstandings in the field. Practitioners need support in making sense of this terminology, understanding where the terms overlap and diverge, and how to meaningfully put all four into practice in their classrooms. To address possible confusion, we define, describe, and illustrate SDI, HLPs, EI, and II.

Specially Designed Instruction

The Education for All Handicapped Children Act of 1975 (Pub. L. 94-142) defined *special education* as "specially designed instruction, at no cost to parents or guardians, to meet the unique needs of a [child with a disability], including classroom instruction, instruction in physical education, home instruction, and instruction in hospitals and institutions." This definition was retained in the reauthorization of the law as the Individuals With Disabilities Education Act (IDEA, 2006) in 2000 and 2004. Current IDEA regulations define SDI as

adapting, as appropriate to the needs of an eligible child under this part, the content, methodology or delivery of instruction (i) to address the unique needs of the child that result from the child's disability; and (ii) to ensure access of the child to the general curriculum, so that the child can meet the educational standards within the jurisdiction of the public agency that apply to all children. (34 C.F.R. §300.39[b][3])

In sum, *SDI* is a broad term that specifies the type of instruction students with disabilities should receive. SDI is created by changing instructional content, methods, or delivery to meet the student's unique needs as a result of a disability. SDI should support students with disabilities' access to the general curriculum while meeting the goals and objectives outlined within individualized education programs. Thus, SDI is the product of identifying the goals and objectives of intervention and, by definition, is individualized and will look different for students with different strengths, needs, and abilities (see Yell and Bateman, this issue.) HLPs, EI, and II are all aspects of SDI (see Figure 1).

Co-teachers Mr. Franks and Mrs. Fox are planning a lesson on word problems for their fourth-grade class. In their class of 24 students, there 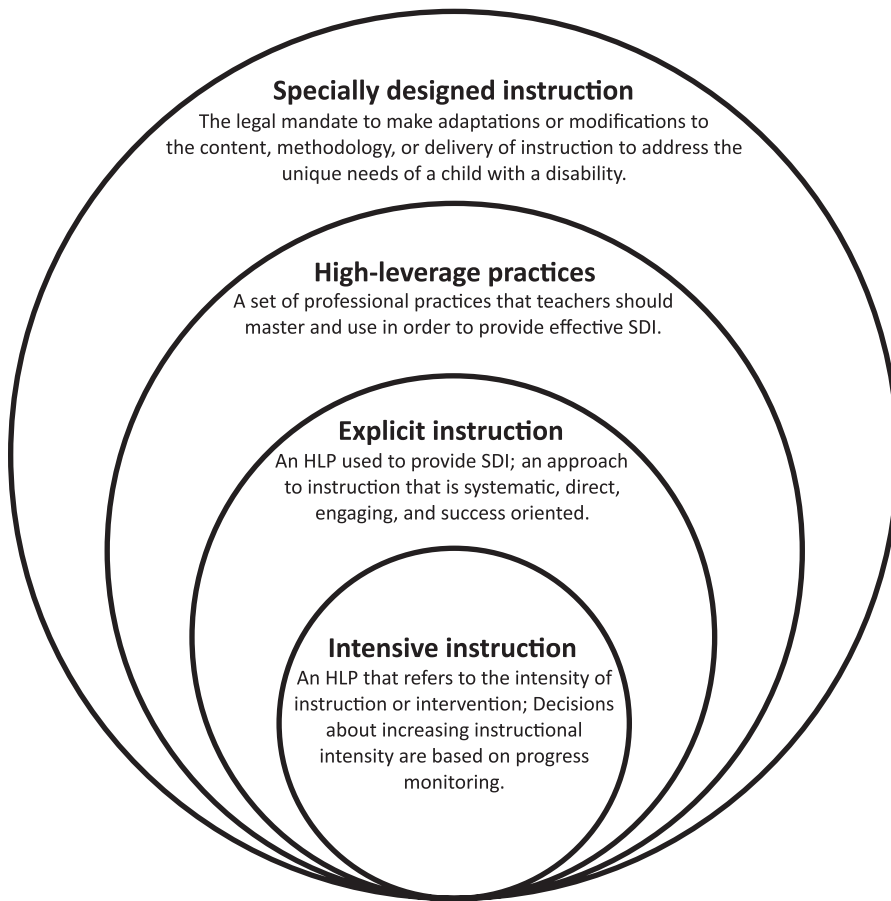are eight students with disabilities who have demonstrated significant deficits with word problem tasks, even after instruction. Specifically, these students have substantial difficulty identifying what the word problem is asking and determining the correct approach needed to solve the problem. The teachers have often observed the students circling all of the numbers in the word problem and then executing the operation that was most recently used with very little reasoning or explaining. Clearly, the instructional approach used in the curriculum is not facilitating high-level problem solving for these students: They will require SDI to learn how to successfully solve word problems.

High-Leverage Practices

Recently, CEC and the Collaboration for Effective Educator, Development, Accountability, and Reform (CEEDAR) Center published a collection of 22 HLPs generated by a team of special education researchers in a book titled *High-Leverage Practices in Special Education* (McLesky et al., 2017). HLPs are "a set of practices that are fundamental to support K–12 student learning, and that can be taught, learned, and implemented by those entering the profession" (Windschitl, Thompson, Braaten, & Stroupe, 2012). The 22 HLPs (see Table 1) published by CEC and the CEEDAR Center are professional practices these organizations recommend be taught in all special education teacher preparation programs.

HLPs address many aspects related to the delivery of special education—collaboration, assessment, social-emotional-behavior supports, and instruction. Criteria for selecting the HLPs specify that each must (a) focus directly on instructional practice, (b) occur with high frequency in teaching in any setting, (c) be research based and known to foster student engagement and learning, (d) be broadly applicable and usable in any content area or approach to teaching, and (e) be fundamental to effective teaching when executed skillfully (McLesky et al., 2017). HLPs can be used as a starting point for selecting,

Figure 1. Nested structure of special education terms

Specially designed instruction
The legal mandate to make adaptations or modifications to the content, methodology, or delivery of instruction to address the unique needs of a child with a disability.

High-leverage practices
A set of professional practices that teachers should master and use in order to provide effective SDI.

Explicit instruction
An HLP used to provide SDI; an approach to instruction that is systematic, direct, engaging, and success oriented.

Intensive instruction
An HLP that refers to the intensity of instruction or intervention; Decisions about increasing instructional intensity are based on progress monitoring.

designing, and implementing effective SDI. For example, a student identified as having attention and working-memory problems might be a good candidate for needing the HLP of EI (HLP 16) as this approach addresses both of these challenges (Archer & Hughes, 2011; Doabler et al., 2016).

Mr. Franks and Mrs. Fox discussed the description of scaffolded instruction, *an HLP addressed during their last professional development day. They noted the emphasis on providing support, structure, and guidance, and systematically fading support so students are able to complete the task independently. On the basis of their students' observed difficulties, the teachers decided to add a visual cue to the verbal prompting scaffolds they were using to provide the students with a specific structure to follow as they work through the word problem tasks*

and that would be generalizable to many other problem-solving tasks. The three visual cues would be displayed on the board juxtaposed to each word problem:

- *What do I know?*
- *What do I need to know?*
- *How do I solve this problem?*

The teachers planned to use a scaffolded, four-problem progression for this instructional lesson focusing on a common word problem task in fourth grade. See Table 2 for the classroom application.

Explicit Instruction

As noted previously, SDI is a student's individualized program of instruction. EI is an instructional approach that has been identified as an HLP. EI has been defined as

a group of research-supported instructional behaviors used to design and deliver instruction that provides needed supports for successful learning through clarity of language and purpose, and reduction of cognitive load. It promotes active student engagement by requiring frequent and varied responses followed by appropriate affirmative and corrective feedback, and assists long-term retention through use of purposeful practice strategies. (Hughes, Morris, Therrien, & Benson, 2017, p. 4)

The EI approach is guided by six principles and 16 elements (see Table 3) that have been derived and distilled from 40-plus years of research focused on effective instruction in general and special education (Archer & Hughes, 2011; Hughes et al., 2017).

EI is taught in many special education teacher preparation programs as a framework for designing and delivering SDI lesson plans because a preponderance of evidence suggests that EI promotes learning more effectively and efficiently than other approaches to instruction (e.g., inquiry- or discovery-based approaches), especially for students experiencing difficulty learning academic skills. In support of this practice, recent reports published by the National Mathematics Advisory Panel (2008) and the Institute for Education Sciences (Gersten et al., 2009; Kamil et al., 2008) used evidence of the effectiveness of EI as a basis to recommend that EI be used in both literacy and mathematics instruction for students with and without disabilities.

In order to provide the level of support needed for the students, Mrs. Fox decided to work with the eight students in a small group. The purpose of the small-group instruction was to build the students' understanding of the word problem strategy and their ability to apply the strategy independently. Mrs. Fox modeled the first word problem using the cues (What do I know? What do I need to know? How do I solve this problem?) as

Table 1. High-Leverage Practices

Collaboration
1. Collaborate with professionals to increase student success.
2. Organize and facilitate effective meetings with professionals and families.
3. Collaborate with families to support student learning and secure needed services.

Assessment
4. Use multiple sources of information to develop a comprehensive understanding of a student's strengths and needs.
5. Interpret and communicate assessment information with stakeholders to collaboratively design and implement educational programs.
6. Use student assessment data, analyze instructional practices, and make necessary adjustments that improve student outcomes.

Social/Emotional/Behavioral
7. Establish a consistent, organized, and respectful learning environment.
8. Provide positive and constructive feedback to guide students' learning and behavior.
9. Teach social behaviors.
10. Conduct functional behavioral assessments to develop individual student behavior support plans.

Instruction
11. Identify and prioritize long- and short-term learning goals.
12. Systematically design instruction toward specific learning goals.
13. Adapt curriculum tasks and materials for specific learning goals.
14. Teach cognitive and metacognitive strategies to support learning and independence.
15. Provided scaffolded supports.
16. Use explicit instruction.
17. Use flexible grouping.
18. Use strategies to promote active student engagement.
19. Use assistive and instructional technologies.
20. Provide intensive instruction.
21. Teach students to maintain and generalize new learning across time and settings.
22. Provide positive and constructive feedback to guide students' learning and behavior.

she explained and reasoned through the task. After modeling Problem 1, she had the students partner with a peer to reexplain the think-aloud that was just modeled for Problem 1. Instead of moving to Problem 2, this think-pair-share opportunity served as a guided think-aloud and could help Mrs. Fox determine how much guidance (e.g., provide another teacher model or begin fading) was needed for Problem 2. In Problem 2, Mrs. Fox began to fade her instruction based on the students' response to Problem 1 by increasing student involvement in performing the strategy. For Problem 2, Mrs. Fox prompted the students through each of the three cues by asking the students to answer each of the questions with their partner and then share their answers with the group. This allowed her to verify her students' understanding of the strategy. Because the students were successful in using the cues and reasoning through the problem, Mrs.

Fox decided that, for Problem 3, the students would also be responsible for writing the equation and explaining what each number represents to support them in focusing on the problem structure.

To provide additional scaffolding, the answer was included for the first two problems. This allowed the students to focus on reasoning and explaining the problem structure, following the visual cues, and setting up the equation. By providing the answer embedded in the word problems, the teacher hoped to prevent (or at least reduce) the students' tendency to "grab numbers and do an operation." As the students showed mastery of setting up the equation, for the third and fourth problems, the answer was not provided. The teacher kept the problem structure similar and changed only the type of object (e.g., trees, shrubs, flowers) and the units (e.g., inches and feet). Using a consistent problem structure helped

facilitate the students' understanding of the structural features of the problem type (e.g., initial growth, subsequent growth, total growing period, and total growth). Future lessons would introduce different problem structures, which will create the opportunity for mixed practice of different problem structures later in the unit.

Therefore, in Problem 3, the students had their first opportunity to use the strategy in its entirety with minimal prompting. Mrs. Fox prompted the students through the visual cues by asking them what three questions they need to answer before solving the problem. Once the students answered, they were asked to set up and solve the problem individually. When they had finished, Mrs. Fox had the students share their solution with a partner and explain why and how they solved it. She then discussed the solutions and cleared up any misconceptions the students had. Finally, because the

Table 2. Classroom Application of Scaffolding, a High-Leverage Practice (HLP), for Teaching Word Problems

Key questions	HLP: Scaffolded problem progression	HLP: Explicit instruction approach
What do I know? What do I need to know? How do I solve this problem?	An oak seedling grew 10 feet in the first year. Every year after it grew 1 1/2 feet. After 6 years, the oak tree was 17 1/2 feet tall.	• Teacher models the think-aloud two or three times focusing on the three key questions. • Teacher writes the equation for the problem. • Teacher explicitly emphasizes the problem structure. • Teacher asks questions to check for understanding. • Teacher provides a think-pair-share opportunity for students to reexplain the think-aloud just modeled.
What do I know? What do I need to know? How do I solve this problem?	A garden shrub grew 25 inches in the first year. Every year after it grew 10 1/2 inches. After 4 years, the garden shrub was 56 1/2 inches tall.	• Depending on student performance in the first problem, teacher guidance is reduced. • Teacher now prompts the students to answer each of the three questions. • Teacher discusses the three questions with the group to verify understanding. • Students are given a think-pair-share opportunity to explain the problem and write the equation. • Teacher provides support to individual students as necessary.
What do I know? What do I need to know? How do I solve this problem?	A flower grew 8 inches in the first month. Every week after it grew 1 1/2 inches. How tall was the flower after 3 weeks?	• A question is now introduced back into the problem task. • Teacher only prompts the students to answer the three questions. • Students are given 2 to 3 minutes to read the problem and answer questions. • Students then write and discuss the equation with a partner. • Students solve problem. • Teacher discusses the students' equation and solution to verify students have completed the task. • Teacher monitors students and provides prompts and support as needed.
	A farmer planted an oak seedling. It grew 10 inches in the first year. Every year after, it grew 1 3/4 inches. How tall was the oak tree after 9 years?	• Teacher asks students to read problem independently and then asks the students to think about the three key questions they must answer. • Students complete task independently. • Teacher monitors and provides support as needed.

students had demonstrated their ability to use the strategy with minimal prompting, Mrs. Fox removed the three visual cues altogether and asked the students to solve the next problem independently.

Mrs. Fox asked the students to rate their confidence after each problem, which helped determine who might need more II. At the completion of the lesson, students solved two additional problems as an assessment to provide more information related to individual student performance on this specific task. This information was used by the teachers to determine if this scaffolded, small-group instruction was effective or if more II was needed.

Intensive Instruction

II, also an HLP (McKlesky et al., 2017), is a process by which the intensity of an intervention is increased to match the severity of student need or lack of expected or adequate academic or behavioral progress. The concept of II becomes especially important when a student has not progressed even after the use of supplemental, research-supported interventions. These students are typically referred for special education services, where it should be possible to provide the level of intensity needed. When and how to increase instructional intensity are

Table 3. Principles and Elements of Effective Explicit Instruction

Principles

1. Optimize engaged time or time on task.

    The more time students are actively participating in instructional activities, the more they learn.

2. Promote high levels of success.

    The more successful (i.e., correct or accurate) students are when they engage in an academic task, the more they achieve.

3. Increase content coverage.

    The more academic content covered effectively and efficiently, the greater potential for student learning.

4. Have students spend more time in instructional groups.

    The more time students participate in teacher-led, skill-level groups versus one-to-one teaching or seatwork activities, the more instruction they receive, and the more they learn.

5. Scaffold instruction.

    Providing support, structure, and guidance during instruction promotes academic success, and systematic fading of this support encourages students to become more independent learners.

6. Address different forms of knowledge.

    The ability to strategically use academic skills and knowledge often requires students to know different sorts of information at differing levels: the declarative level (*what* something is, factual information), the procedural level (*how* something is done or performed), and the conditional level (*when and where* to use the skill).

Elements

1. Focus instruction on critical content.
2. Sequence skills logically.
3. Break down complex skills and strategies into smaller instructional units.
4. Design organized and focused lessons.
5. Begin lessons with a clear statement of the lesson's goals and your expectations.
6. Review prior skills and knowledge before beginning instruction.
7. Provide step-by-step demonstrations.
8. Use clear and concise language.
9. Provide an adequate range of examples and non-examples.
10. Provide guided and supported practice.
11. Require frequent responses.
12. Monitor student performance closely.
13. Provide immediate affirmative and corrective feedback.
14. Deliver the lesson at a brisk pace.
15. Help students organize knowledge.
16. Provide distributed and cumulative practice.

Note. Adapted from *Explicit Instruction: Effective and Efficient Teaching*, by A. L. Archer and C. A. Hughes, pp. 2, 5. Copyright 2010 by Guilford Press.

based on frequent progress-monitoring data that allows for individualized instruction, a key aspect of SDI.

Instruction can be intensified in a number of ways. In their article, "The Taxonomy of Intervention Intensity," Fuchs, Fuchs, and Malone (this issue) presented a taxonomy of intervention intensity and identify a number of evidence-based dimensions for evaluating and building intensity. For example, one dimension of intensifying instruction, described as "dosage," includes decreasing the size of the instructional group and increasing the amount of instructional time (i.e., duration and frequency of instructional sessions). Decreasing group size (or providing one-to-one instruction) and increasing instructional time should result in more opportunities to respond and to receive individual feedback, both shown to improve learning (Hattie & Timperley, 2007). Another dimension of intensity in the taxonomy is "complexity." Complexity relates to the number of EI elements included in the

instructional program, and II in this domain would involve strengthening or adding EI elements, such as the use of clear, concise, and consistent language when modeling; ensuring students have prerequisite skills; systematic fading of supports contingent upon correct responses; and providing distributed and cumulative review.

After several small-group sessions using the visual cues, five of the students were able to independently apply the strategy to novel word problems. Three students, however, could not consistently select the appropriate operation; it became apparent these students required more II. Mrs. Fox and Mrs. Arrow, the special education department chair, decided that these three students needed a higher dosage of instruction, so they increased weekly sessions from three to five to provide more opportunities for the students to respond and receive affirmative and corrective feedback. After closer assessment, they also found that students were not fluent (accurate and automatic) in some important preskills. That is, the students did not understand some of the basic operations necessary to accurately answer the questions included in the strategy and required additional instruction in these specific preskills. Together, Mrs. Fox and Arrow identified an effective instructional program that included the full range of the students' preskill deficits and added that to the unit on word problem solving, thus addressing one aspect of the dimension of alignment.

Finally, it was decided to address complexity by adding a key element of EI, chunking, in order to reduce cognitive load for students as they continued to learn the strategy. To do this, Mrs. Fox taught one step of the strategy at a time to mastery, versus trying to teach all of them together. When the first step was mastered, the second step was introduced, and so on. In addition to chunking content into smaller units, this process allows for systematic cumulative practice (see Hughes, 2011, for an extended example of how chunking and cumulative practice were blended when teaching a multistep writing strategy).

Figure 2. Key ingredients of specially designed instruction used by Mr. Frank and Mrs. Fox
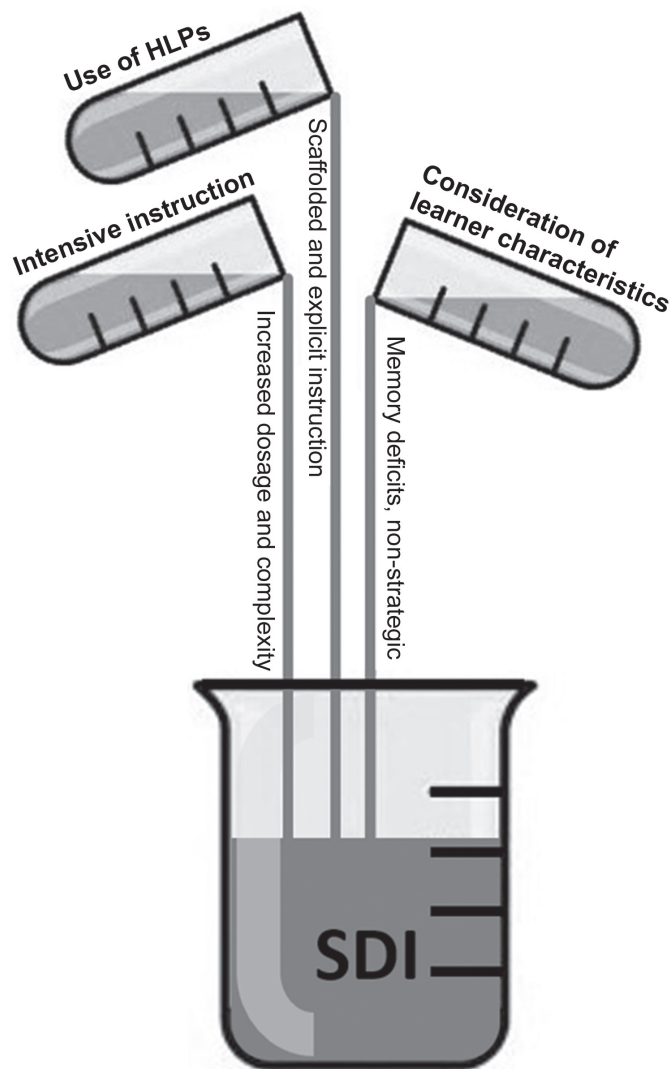
Note. SDI = specially designed instruction; HLPs = high-leverage practices.

Overall, the teachers were pleased with the progress demonstrated by the students as a result of the SDI delivered for problem solving. In reviewing their plans, they realized that the key ingredients of SDI for these students was scaffolded instruction, EI, and II (see Figure 2).

Summary

The terms described in this article relate to the delivery of instruction for students with disabilities. To begin, the delivery of SDI is dependent upon the identification of a student's unique learning needs.

HLPs serve as foundational aspects related to the delivery of effective instruction. That is, these are features of instruction that should be present across the majority of instruction delivered to students with disabilities, no matter the place. Once instruction begins, data should inform teachers' decisions to change instruction (i.e., adjust features of instructional intensity, incorporate different HLPs) as needed to meet the students' unique needs. Table 4 is a list of organizations that provide additional professional development information related to each of these components of SDI.

Table 4. Resources for the Delivery of Specially Designed Instruction

Organization	URL
CEEDAR Center	https://ceedar.education.ufl.edu/
Explicit Instruction	http://explicitinstruction.org/
National Center on Intensive Intervention	http://www.intensiveintervention.org/
The IRIS Center	https://iris.peabody.vanderbilt.edu/
IDEA Data Center	https://ideadata.org/

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