Contents

CHAPTER 1

Embedded Instruction in General Education Classrooms

The number of students with intellectual and developmental disabilities (IDD) served in general education classes has increased over the last decade (Morningstar, Kurth, & Johnson, 2017). Research has consistently shown that inclusive educational programs produce positive educational and social outcomes for all students, both with and without disabilities (McDonnell & Hunt, 2014). However, including students with IDD in general education classes and ensuring they have access to the general education curriculum can present a number of challenges to teachers. Perhaps one of the most significant challenges is ensuring these students receive evidence-based instruction that is individualized and which is compatible with the typical activities and routines in general education classrooms (Ryndak, Orlando, & Burnett, in press). One strategy that has been shown to be particularly effective in addressing these two issues is embedded instruction (EI; Jimenez & Kamei, 2015; McDonnell, Jameson, Riesen, & Polychronis, 2014).

What Is Embedded Instruction?

A number of instructional approaches designed to distribute instructional trials within the ongoing routines and activities of classroom environments have been examined over the last several decades. Various labels—including *naturalistic instruction*, *incidental teaching*, and *embedded instruction*—have been used to differentiate these instructional approaches from the kind of discrete-trial instruction that often occurs in more traditional separate special education programs (Collins, 2012). For procedures used with school-age children in general education classes, we prefer the term *embedded instruction*. EI is characterized by several critical features:

- **The expected learning outcomes for the student in the general education class are clearly delineated.** The teacher has developed explicit goals and objectives for the student, and specific criteria for judging the effectiveness of EI on student learning have been established.

- **Instruction is designed to accommodate the presence or absence of "natural" instructional trials within typical routines or activities.** Prior to

CHAPTER 2

Preparing for Instruction

The development and implementation of effective embedded instruction (EI) requires teachers to complete several preparatory activities. These activities include (a) developing specific instruction goals and objectives for the student's participation in the general education class, (b) conducting baseline probes to assess the student's current performance of the target skills, and (c) developing a trial distribution schedule that allows teachers to target when instructional trials will be presented to the student.

Develop Specific Instruction Goals and Objectives

The first step in creating an effective education program is to develop instruction goals and objectives that explicitly define the expected outcomes for the student. In inclusive education programs, this means that the student's individualized education program (IEP) must include goals and objectives that clearly define what knowledge and skills should be demonstrated as a result of instruction in the general education class. If the expected education outcomes for the student are not clearly defined, it is possible for the student to be physically present in the classroom while functionally excluded from meaningful instruction (Schuster, Hemmeter, & Ault, 2001).

Hunt, Soto, Maier, and Doering (2003) described a process for developing unified plans of support (UPS). The focus of this process is to ensure that students' IEPs identify meaningful learning outcomes that are consistent with the general education curriculum, and with the routines and activities of the general education class. However, the UPS process goes beyond simply identifying meaningful learning outcomes; it includes the development of specific supports necessary to ensure that the IEP is implemented successfully. The UPS process comprises four key steps:

1. The team identifies the learning and social profile of the student.

2. Based on the profile, the team brainstorms curricular, instruction, and social support strategies that will allow the student to successfully participate in each domain of the general education curriculum.

CHAPTER 3

Designing an Embedded Instruction Program

The basic elements of an embedded instruction (EI) program are similar to those used in traditional special education classes. Prior to implementing an EI program, the teacher should prepare a teaching plan and develop data collection procedures for ongoing assessment of the student's performance.

Write a Teaching Plan

Appendix A includes a form that teachers can use to write an EI teaching plan. To begin the process, the teacher should identify the instruction objective, and list the natural and supplemental teaching opportunities from the Trial Distribution Planning Form; Figure 3.1 illustrates how Jacob's and Lisa's teachers completed this initial planning. This information will serve as a reminder to the individuals implementing the program about the expected outcomes of EI and when instructional trials may be delivered to the student. The process of developing an EI teaching plan includes four additional steps: (a) selecting instructional examples and developing teaching materials, (b) sequencing instructional examples, (c) developing assistance strategies, and (d) developing reinforcement and error-correction procedures.

Identify Performance Contexts and Develop Teaching Materials

Research consistently suggests that many students with intellectual and developmental disabilities (IDD) have difficulty generalizing skills learned in one context or setting to new contexts or settings (Horner, McDonnell, & Bellamy, 1986; McDonnell et al., In press; Rosenthal-Malek & Bloom, 1998). For example, a student might use signs to request desired items at school with his teacher but not be able to use the signs at home with his parents. Another student may learn to use one type of calculator to complete single-digit addition problems but not be able to do the same problems with a different calculator. Effectively addressing this problem requires that the teacher develop a teaching plan designed to promote generalized responding—from the very beginning. This is accomplished by identifying the full range of situations and settings across which the student

CHAPTER 4

Implementing the Embedded Instruction Program

The success of embedded instruction (EI) hinges upon consistent implementation of the teaching plan. The same instructional procedures—presentation sequence, assistance strategy, and reinforcement or error correction—should be implemented with both natural and supplemental embedded instruction trials. In order to achieve this outcome, the teacher must (a) train the instructors (e.g., special education paraprofessionals, student peers) to reliably implement EI, (b) monitor the fidelity of program implementation by instructors, and (c) monitor the number of natural and supplemental embedded instruction trials being presented to the student within and across instructional sessions.

Train Instructors

One of the challenges in successfully implementing EI is ensuring that the individuals carrying it out are taking advantage of all possible opportunities to present instructional trials to the student and are implementing teaching procedures consistently. There are numerous research studies focused on validating procedures for effectively training individuals to implement EI (Jameson, McDonnell, Johnson, Riesen, & Polychronis, 2007; Johnson & McDonnell, 2004; McBride & Schwartz, 2003; VanDerheyden, Snyder, Smith, Sevin, & Longwell, 2005; Wolery et al., 1997). These studies have identified several procedures that can improve the quality and effectiveness of training provided to instructors. These include the teacher providing (a) written materials that describe the procedures to the instructor, (b) modeling and role play prior to implementation of EI in the classroom, and (c) modeling and guided practice in implementing the procedures in the classroom.

Written Materials

Research suggests that instructors benefit from reviewing brief and clearly written materials about EI prior to implementing it with students in the classroom. (See Appendix B for an annotated bibliography of EI research.) In our own work, these materials typically include a description of EI and rationale for its use in the classroom, a description of how EI will be implemented with students, illustrations

CHAPTER 5

Supporting Student Learning

After implementing an embedded instruction (EI) program, teachers may find it necessary to modify or adjust instructional procedures to ensure that students continue to learn at the expected rate. Decisions about how to change the instructional procedures should be determined by the patterns in graphed student performance data. Research has consistently shown that students achieve greater instructional success with teachers who use data to adjust instructional procedures than with teachers who do not (Collins, 2012; Haring, Liberty, & White, 1980; Snell & Lloyd, 1991).

Problem Data Patterns

There are four patterns in graphed data that should raise red flags for teachers as they carry out their regular reviews of student performance in EI programs. These are (a) slow improvements in performance, (b) variable performance, (c) flat performance, and (d) decreasing performance. Teachers can use these patterns to help narrow the range of possible explanations for why a student is not making progress as expected in the instructional program.

Slow Improvements in Performance

In this pattern (Figure 5.1), the student's performance is improving at a rate slower than expected. There are many factors that might affect how quickly a student learns a new skill., When this problem arises in EI programs, however, it often means that the instructional task is too difficult for the student. This may occur when the teacher is presenting too many instructional examples at one time, or when the student lacks adequate prerequisite skills to complete the response. For example, if Ms. Smith saw this pattern with Jacob, it could mean that she had included too many words and symbols in the teaching sets, or that he did not have the necessary discrimination skills to differentiate between the words and symbols. In Lisa's case, this problem could arise because too many symbols had been placed on her speech-generating device, resulting in difficulty