Inclusion in General Education Classes

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I n the 1980s, recommended practice for high school students with intellectual and developmental disabilities focused on providing educational experiences that would directly prepare them for successful community living (Brown et al., 1979; Wilcox & Bellamy, 1982). Curricula focused on teaching employment, personal management, and leisure activities that reflected the expectations of adulthood (Ford et al., 1989; Neel & Billingsley, 1989; Wilcox & Bellamy, 1987). Teachers were encouraged to move instruction out of the classroom and into community settings in order to ensure that students developed the skills necessary to obtain paid jobs, use the resources of the community, and live independently prior to graduation (Horner, McDonnell, & Bellamy, 1986; Sailor et al., 1987).

Although community-based curriculum and instruction are still critical elements of secondary programs, there is a growing agreement that students also benefit educationally and socially from participating in the general high school curriculum and in content-area classes (Fisher, Sax, & Pumpian, 1999; Wehmeyer & Sailor, 2004). There is clear empirical evidence that shows that inclusive educational programs are as effective, if not more effective, than segregated alternatives on a number of measures for students with intellectual and developmental disabilities (Hunt & McDonnell, 2007). In addition, research suggests that students who participate in general education classes have better postschool adjustment than peers who do not have these opportunities

(Baker, Wang, & Walberg, 1994–1995; Benz, Lindstrom, & Yovanoff, 2000; Phelps & Hanley-Maxwell, 1997; Salend & Garrick-Duhaney, 1999).

In spite of the positive impacts of inclusive education, meeting the unique educational needs of students with intellectual and developmental disabilities in typical high school classes remains a challenge for teachers and administrators (Harrower, 1999; McDonnell, 1998). Fortunately, research on strategies for supporting students' participation in the instructional activities and social networks of general education classes has increased significantly over the last decade (Hunt & McDonnell, 2007; Snell, 2007). This chapter will summarize the research on how to effectively support students in the general education curriculum and content-area classes. In addition, the recommended steps for designing effective inclusive educational programs for students will be presented.

POINT/COUNTERPOINT 8.1

Participation in the General Education Curriculum

POINT

"It is possible for students with disabilities to learn from the regular education curriculum. That the barrier to this happening isn't the student's ability, but often it is our own. We know that 'no man is an island,' but without modifications and supports, sometimes students with disabilities in regular classrooms can be. We know the difference between alternative and modified. That 'being in' isn't the same thing as 'being with.' And that ultimately we need to stop talking about curriculum modification and start talking about inclusive curriculum design" (Shapiro-Barnard et al., 2005, p. 197).

COUNTERPOINT

"Equally problematic is the general education curriculum's lack of focus on functional and vocational skills. Curricular demands as early as first grade do not match the educational needs of many students with disabilities. Even with an infinite amount of planning, the educational interests of some students with disabilities cannot be met through modifications to the general education curriculum" (Chesley & Calaluce, 2005, p. 202).

Importance of Inclusive Secondary Education

The term *inclusive education* describes an approach in which students go to the school that they would attend if they did not have a disability and in

which they participate in chronologically age-appropriate general education classes and community sites (McDonnell, Hardman, & McDonnell, 2003). In addition, inclusive educational programs share a number of other characteristics, including school policies and procedures that encourage the development of classroom and school communities in which all students are valued members, natural proportions of students with disabilities in classes and on the school site, a policy of zero rejection so that no student is excluded from typical educational experiences based on type or severity of disability, staff and fiscal resources that are allocated within the school so the educational needs of all students are met, and effective and high-quality instruction designed to promote learning (Giangreco, Cloninger, & Iverson, 1998; Halvorsen & Neary, 2001; Hunt & McDonnell, 2007).

The early expansion of inclusive education for students with developmental disabilities was driven in large part by federal legislation (e.g., the Individuals with Disabilities Education Act) designed to ensure students' equal access to appropriate publicly funded education and by calls from individuals with disabilities and their families demanding their full participation in all aspects of our society and community (Lipsky & Gartner, 1997). Increasingly, however, support for inclusive education is based on its demonstrated effectiveness in improving the quality of life of students both during and following school. For example, some of the documented benefits of including secondary students in content-area classes are

- Increased opportunities to participate in the extracurricular activities of the school (Wagner, Newman, Cameto, Levine, & Marder, 2003).
- Improved social interactions and relationships with peers without disabilities, especially when appropriate contextual arrangements and supports are provided (Carter & Kennedy, 2006; Schwartz, Staub, Peck, & Gallucci, 2006).
- Increased access to the general education curriculum (Wehmeyer, Lattin, Lapp-Rincker, & Agran, 2003).
- Improved performance on alternate assessments tied to the mandates of IDEA 2004 and the No Child Left Behind Act (Roach & Elliot, 2006).
- Improved postschool adjustment to employment, especially if students have taken general vocational education classes (Benz et al., 2000; Phelps & Hanley-Maxwell, 1997).

Focus Question 1	What factors improve educational benefits for students enrolled in content-area classes?

The potential benefits of including students in content-area classes are enhanced when their participation is based on several key principles. First, as discussed in Chapters 4 and 5, the content-area class is selected to increase the likelihood that students will be able to achieve their stated postschool outcomes (Bambara, Wilson, & McKenzie, 2007). IDEA 2004 requires that students' Individualized Education Program/transition plan teams identify the students' expected postschool outcomes and then select specific transition services that will allow them to achieve their goals. Participation in the general education curriculum is one of the possible services that students can use to achieve expected outcomes. The potential advantages of participating in content-area classes will be improved if the goals and objectives included in students' IEPs/transition plans are anchored to their postschool outcomes and aligned with the content standards covered in the class. Second, teachers use strategies that promote students' interaction with the general education curriculum and provide instruction that is tailored to students' unique learning needs (Dymond et al., 2006). Finally, teachers build on the natural social supports available in the class to promote students' participation in instructional activities and to create frequent opportunities for students to interact with peers without disabilities (Carter & Kennedy, 2006). The remaining sections of this chapter will discuss the specific strategies that teachers can use to successfully implement these principles.

Effective Instructional Strategies

The benefits of students participating in content-area classes are enhanced when teachers employ a combination of student-level interventions designed to meet the students' unique needs and classroom interventions that enhance their ability to participate in the instructional activities of the class (Hunt & McDonnell, 2007; Snell, 2007).

Student-Level Interventions

A primary tenet of special education is that instruction is individualized to meet the unique needs of students. The discrepancy between students' ability and the complexity of knowledge and skills addressed in secondary content-area classes often requires teachers to use multiple strategies to effectively promote learning. A number of possible student-level interventions have been discussed in the literature, but three have received significant attention. These strategies include the use of modifications and adaptations (Lee et al., 2006), student-direct learning

(Wehmeyer, Field, Doren, Jones, & Mason, 2004), and embedded instruction (McDonnell, Johnson, & McQuivey, 2008).

Modifications and Adaptations. The use of curriculum accommodations and modifications as part of larger intervention packages has been shown to be very effective in supporting students in general education classes (Coots, Bishop, & Grenot-Scheyer, 1998; Fisher & Frey, 2001; Janney & Snell, 1997; McDonnell, Mathot-Buckner, Thorson, & Fister, 2001; Ryndak, Morrison, & Sommerstein, 1999; Udvari-Solner, 1996). One study that examined the unique contributions of curriculum accommodations and modifications to student learning and participation in general education classes was conducted by Fisher and Frey (2001). They examined the ways that an elementary school, a middle school, and a high school student accessed the general education curriculum through the design and implementation of accommodations and modifications. Data were gathered through direct observations of students in their general education classes and through interviews with parents, general education teachers, special education teachers, and peers without disabilities. The researchers found that all three students were provided with a number of individualized accommodations and modifications to participate in the instructional activities of their general education classes. The adaptations ranged from reducing the number of items presented to students to the use of curriculum overlapping. They also found that collaboration between special education and general education teachers was essential to developing effective accommodations and modifications for students. In addition, they observed that peers without disabilities had significant insights into how curriculum and instruction could be adapted or modified to increase the students' success. Finally, the researchers noted that the most effective accommodations were those that were specifically designed for the class and the instructional tasks completed by the students.

Focus Question 2	Why are self-directed learning strategies important to improving students' participation in content-area classes?

Student-Directed Learning. The purposes of student-directed learning strategies are to increase students' autonomy in participating in classroom activities and thereby reduce the level of assistance they need from special and general educators to be successful. Student-directed learning encompasses a number of different skills, including problem solving, study planning, goal setting, and self-monitoring (Agran et al., 2005; Gilberts, Agran, Hughes, & Wehmeyer, 2001; Hughes et al., 2002; King-Sears, 1999; Koegel, Harrower, & Koegel, 1999; Wehmeyer, Yeager, Bolding, Agran, & Hughes, 2003).

Agran and colleagues (2005) examined the impact of a self-monitoring strategy on the ability of six middle school students with developmental disabilities to follow their general education teachers' directions. The students were taught to nod their heads or verbally affirm that they had been given a direction by their teacher, complete the direction, and self-monitor whether they followed the direction correctly or incorrectly. The results showed that all the students quickly learned the self-monitoring procedures and significantly increased their completion of the directions given by their teacher. In addition, the students were able to maintain their use of the self-monitoring strategy across time.

Embedded Instruction. The term *embedded instruction* (EI) commonly refers to explicit, systematic instruction that is designed to distribute instructional trials within the ongoing routines and activities of the performance environment (Rule, Losardo, Dinnebeil, Kaiser, & Rowland, 1998; McDonnell et al., 2008; Schepis, Reid, Ownbey, & Parsons, 2001; Wolery, Ault, & Doyle, 1992). The specific instructional procedures used during embedded instruction vary based on the needs of individual students, the skills being taught, and the contexts in which instruction is being provided. In the last decade, embedded instruction has increasingly been recommended as a potential strategy for meeting the needs of students participating in general education classes (Harrower, 1999; McDonnell, 1998).

For example, McDonnell, Johnson, Polychronis, and Riesen (2002) used embedded instruction to teach four junior high school students with developmental disabilities to read or define words that were included in vocabulary lists of a food and nutrition class, a health class, and a computer class. The study was also designed to examine whether paraprofessional staff could successfully implement EI as part of their responsibilities in supporting the participation of students in the class. The results indicated that embedded instruction led to the acquisition and maintenance of the target skills. The paraprofessionals implemented the embedded instruction procedures in general education classes with high levels of procedural fidelity. The students' general education teachers and the paraprofessionals reported that EI was an effective and acceptable strategy for supporting their participation in the general education curriculum.

Part of the utility of embedded instruction is that it can be implemented by peers. In a study conducted by Jameson, McDonnell, Polychronis, and Riesen (2008), three junior high school students without disabilities were taught to deliver EI to three peers with developmental disabilities in an arts and crafts class and a health class. The students were taught to define key concepts drawn from the lessons being presented to students without

disabilities enrolled in the classes. Students without disabilities were taught to implement EI in a 30-min training session prior to the implementation of the study and were provided with ongoing feedback about their implementation of EI on one set of concepts throughout the study. The results showed that students with developmental disabilities learned the target skills when receiving instruction from peers without disabilities and that the peers could implement EI with a high degree of procedural fidelity. Finally, the students without disabilities and their general education teachers reported that EI was an effective and acceptable strategy for providing instruction to students within the ongoing routines of the general education classes.

Classroom-Level Strategies

Several classroom-level interventions have also been proposed to support students in secondary content-area classes. Based on the available research, four strategies in particular hold promise: professional teaming, universal design, cooperative learning, and peer-mediated instruction.

Professional Teaming. There is general agreement that inclusive education programs can be successful only if special and general educators work together as a team to support students (Downing, 1996; Rainforth & England, 1997). While most of what has been written on professional teaming has focused on collaboration at the elementary level, the case studies and qualitative studies that have been conducted at the secondary level have confirmed the importance of teaming to the long-term success of inclusive education for middle or junior high school students and high school students (Fisher et al., 1999; Jorgensen, 1998; Park, Hoffman, Whaley, & Gonsier-Gerdin, 2001; Wallace, Anderson, & Bartholomay, 2002).

For example, Wallace and colleagues (2002) examined the collaboration and communication strategies in four high schools that had been identified as successfully including students with disabilities, including students with intellectual and developmental disabilities, in content-area classes. They used interviews with teachers, focus groups, and surveys to identify the school and classroom variables that were associated with successful collaboration between special education and general education teachers. The results suggested that having adequate planning time was key to successful teaming. In addition, the findings emphasized the importance of teachers from different departments working together to support students, planning lessons together, sharing their knowledge and materials, and attending professional development activities together in order to establish a unified vision of inclusion and to develop the relationships necessary to make teaming successful.

Universal Design. The concept of universal design emerged in the field of architecture more than 30 years ago (McGuire, Scott, & Shaw, 2006). It focused on the proactive design of physical settings to accommodate the needs of all individuals (i.e., the elderly, tall and short individuals, and people with disabilities). Most of us understand the concept of universal design as it is applied to home, school, and community environments (e.g., curb cuts for wheelchairs, ramps), but its application to curriculum and instruction to improve educational outcomes for all students is a relatively new idea (McGuire et al., 2006). However, its potential in supporting all students' access to the general education curriculum is intuitive, and as such, it has received increasing attention in the field of special education as a potential strategy to support the development of inclusive educational programs for students with developmental disabilities (Renzaglia, Karvonen, Drasgow, & Stoxen, 2003; Wehmeyer, 2006).

Focus Question 3	How does the application of universal design principles to curriculum and instruction support the participation of students in the general education curriculum?

Universally designed curriculum and instruction provide alternative means to represent and interact with curriculum content so that it is equally accessible to students with different abilities and needs (Rose, Meyer, & Hitchcock, 2005). Dymond and colleagues (2006) describe a study focused on the application of universal design principles to a high school science course. A team comprising the general education teacher, a special education teacher who also taught the science course to students with mild disabilities, and the special education teacher for students with developmental disabilities worked collaboratively to restructure each science lesson using universal design principles. The restructuring process was guided by a rubric that laid out specific questions about curriculum content, instructional delivery, promoting students' participation, materials, and assessment. The team met weekly throughout the semester to restructure the traditional lesson plans so that they were accessible to all students in the class, including those with developmental disabilities. The results suggested that while the process of redesigning the class was time-consuming, structuring the course to meet the needs of all students had a number of benefits for both students with disabilities and those without them. For example, the researchers found that for students with disabilities, the process led to improved social interactions with their peers without disabilities and improved their participation in instructional routines and activities. The researchers noted positive outcomes for students without disabilities, including improved class participation, personal responsibility, completion of work, grades, and end-of-year test scores.

Cooperative Learning. Cooperative learning has been defined as "the instructional use of small groups so that students work together to maximize their own and each other's learning" (Johnson, Johnson, & Holubec, 1993, p. 6). There are a number of cooperative learning approaches, and although they vary in structure, research has consistently shown that they produce improved academic and social outcomes for students, including those with disabilities (Slavin, 1995). Cooperative learning approaches share the following characteristics: (a) Small groups of students (i.e., fewer than five) are given a group assignment that they must complete together, (b) the students are directly taught the skills necessary to cooperate with each other, (c) teachers encourage the development of "positive interdependence" among members of the group in order to support each other's learning, and (d) each individual in the group must be able to account for what he or she learns.

Cooperative learning has been examined extensively as a way to improve the quality of instruction provided to students with developmental disabilities in general education classes (Cushing, Kennedy, Shukla, Davis, & Meyer, 1997; Dugan et al., 1995; Hunt, Staub, Alwell, & Goetz, 1994; Jacques, Wilton, & Townsend, 1998; Kamps, Leonard, Potucek, & Garrison-Harrell, 1995; Putnam, 1993). Cushing and colleagues (1997) examined the effects of two cooperative learning arrangements on two students with developmental disabilities and their peers without disabilities enrolled in an eighth-grade English class. In the first condition, all students were assigned to collaborative groups based on class performance. Each group included two to three students with average performance, one student with above-average performance, and one student with below-average performance. In this condition, each group received 10 min of group lecture, 18 min of reciprocal peer tutoring from a group member, 5 min of group activities, and 5 min of group wrap-up directed by the teacher. In the second condition, the sequence of instructional activities was the same, but the mixed grouping procedure was eliminated. Instead, students were assigned to specific peers to work in two-member teams. The authors found that both cooperative learning approaches were effective for both students with disabilities and those without them. There were no differences in the two conditions in terms of the number of social interactions that occurred between students with and without disabilities. However, the posttest scores on the content covered during the lessons were slightly higher for students in the condition in which two students were paired together for instruction.

Peer-Mediated Instruction. Peer-mediated instruction is designed to allow students to serve as instructional agents for one another (Harper, Maheady, & Mallette, 1994). Research has clearly documented the effectiveness of

peer-mediated instruction for students in general education classes (Kamps, Barbetta, Leonard, & Delquardri, 1994; McDonnell, Thorson, Allen, & Mathot-Buckner, 2000; McDonnell et al., 2001; Moortweet et al., 1999; Weiner, 2005). For example, McDonnell and colleagues (2001) examined the impact of a class-wide peer tutoring program on the academic responding and rates of inappropriate behaviors of three junior high school students with intellectual and developmental disabilities. The researchers also examined the impact of the program on three peers without disabilities who participated in the peer tutoring arrangement with the students with disabilities. The peer tutoring program was implemented in a pre-algebra class, a physical education class, and a history class. All students in these classes were organized in tutoring teams comprising three students of varying ability. Each member of the team was asked to serve as a tutor, a tutee, and an observer. The students' roles shifted following each tutoring trial. Content for the class-wide tutoring sessions focused on the material in the units being presented by the general education teacher. The results showed that the class-wide peer tutoring program resulted in increased rates of academic responding and lower rates of inappropriate behaviors by both students with disabilities and those without them. In addition, the program resulted in improved weekly posttest scores for the students without disabilities on the content presented by the general education teacher. The general education teachers participating in the study reported that the class-wide peer tutoring program was an effective strategy for both students with disabilities and those without them.

Effective Social Support Strategies

In addition to providing adequate instructional support to students, successfully including them in general education classes requires that they have access to ongoing social supports. The main purpose of these strategies is to promote social interaction between students with disabilities and their peers without disabilities (Carter & Kennedy, 2006). Typically, these strategies are designed not only to foster relationships between students and specific peers but also to connect them to the natural social networks of the classroom and the school. These support strategies include informal peer-to-peer interventions and structured strategies, such as peer buddies.

Peer-to-Peer Strategies

Peer-to-peer support strategies can be organized easily within content-area classes by pairing a single peer or group of peers without disabilities

with a student with disabilities to help him or her participate in class routines and activities. Although establishing peer-to-peer supports is critical to successful inclusion at any age level (Hunt & McDonnell, 2007), it is especially important in high schools because of greater class rotation and the need for students to participate in multiple social groups throughout the day (Cutts & Sigafoos, 2001). Additionally, the nature of instruction in content-area classes can often limit students' opportunities to interact with their peers and therefore inhibit the natural development of supportive social relationships (Carter & Kennedy, 2006). Consequently, teachers will need to establish peer-to-peer support strategies to help students meet the academic and social demands of content-area classes.

In a study by Kennedy, Cushing, and Itkonen (1997), peers without disabilities were trained to provide support to a middle school student and a high school student participating in four different general education classes. One peer was recruited to provide support to the student in each class. Initially, class seating arrangements were changed to allow the peer to sit next to the student. Peers were taught how to communicate and interact with the students appropriately during class time. The peers were also taught how to adapt classroom assignments and activities to allow the student to participate. The researchers examined the impact of the peer support strategy on social contacts between the student and peers in the class and the number of peers with whom students had social contact outside of class periods. The results showed that the number of peers with whom students interacted during and outside of class periods increased significantly over the course of the study.

While strategies that pair one student with one peer have been quite successful, recently it has been recommended that teachers begin to use multiple peers to support students in content-area classes. These multiple-peer strategies are commonly known as social groups (Cushing & Kennedy, 2004). For example, Carter, Cushing, Clark, and Kennedy (2005) examined the impact of the number of peers without disabilities providing support to three middle or high school students with developmental disabilities enrolled in general education classes. The primary dependent variables used in the study included the extent to which students were participating in instructional activities that were aligned with the general education curriculum, engagement in typical class activities, and social interactions with peers. The results showed that all three students were more likely to participate in instructional activities that aligned with the general education curriculum, were more engaged in typical class activities, and had higher levels of social interactions with peers when receiving support from two peers without disabilities rather than one.

Multiple-peer support strategies have a number of potential advantages over pairing students with a single peer. First, they allow students to develop

relationships with several different individuals who can, in turn, create increased opportunities for them to access a variety of social groups within the school (Ryan, 2000). Second, multiple-peer strategies provide students with several different sources of support when one peer is absent. The use of multiple peers to support students in classes ensures that assistance will be continuously available to students in content-area classes. Finally, the use of multiple peers to support students fosters a sense of classroom community that may not otherwise be established (Carter, Cushing, et al., 2005; Kennedy, Shukla, & Fryxell, 1997).

Peer Buddies. In addition to informal peer-to-peer supports, a number of authors have argued for the development of organized peer support systems within secondary schools. One strategy that has received a significant amount of attention in the last several years is a program called peer buddies (Hughes & Carter, 2006). Peer buddy programs are typically offered through classes in the general education curriculum, and peers receive credit for their participation. The focus is on establishing a broader level of support to help students participate in the routines and activities of the school, such as getting to and from classes successfully, having lunch, and participating in extracurricular activities. This is encouraged by educating the general education students on how to engage their buddy in noninstructional activities, social interactions, and even leisure activities. The peer buddy classes are designed to provide peers with information about the support needs of students with disabilities and strategies for interacting appropriately with their buddy. However, the classes also emphasize that peers are not their buddy's "teacher" and are not in charge of students. Peer buddies are meant to be an effective source of social supports rather than additional authority figures in the lives of students with disabilities. Finally, peer buddy programs are most effective when staff members fade their support to the peer buddy. This allows students and their peers to develop a relationship in which they rely on each other for interaction and support, and it increases the opportunities for spontaneous interaction between the peers.

Carter, Hughes, Guth, and Copeland (2005) examined the impact of peer buddies on the social interactions that high school students with intellectual and developmental disabilities had with their peers throughout the school day. The peer buddies interacted with students during instructional and noninstructional activities during one 50-min period each day and were encouraged to interact outside of the class during the school day. They were provided with information on how to communicate and interact with the students. The results showed that social interactions between students with disabilities and their peers without disabilities increased and that the affect of the peers during social interaction improved when the peer buddy was in close physical proximity to students with disabilities.

In another study, Carter, Hughes, Copeland, and Breen (2001) compared the perceptions of and attitudes toward students with disabilities of peers without disabilities who participated in a peer buddy program and those who did not. The students who volunteered to participate in a peer buddy program reported a more positive perception of people with disabilities and a higher level of willingness to interact with students with disabilities than their peers who did not volunteer. After one semester of participating in a peer buddy program, the volunteers' perceptions of people with disabilities and willingness to interact with them increased significantly, while there were no changes in perceptions of those peers who did not participate in the program. This study suggests that structured programs like peer buddies that promote increased contact and interaction between students with disabilities and their peers are critical to promoting successful inclusive education.

Designing Effective Inclusive Education Programs

Most successful approaches to developing inclusive education programs are based on school-wide efforts to improve the quality of education for all students (Fisher et al., 1999; Jorgensen, 1998; Wehmeyer & Sailor, 2004). These system change efforts have been driven by a number of general principles (Berry, 2006; Burnstein, Sears, Wilcoxen, Cbello, & Spagna, 2004; Sailor & Roger, 2005; Stockall & Gartin, 2002):

- The administration and faculty have established a clear vision for the school that embraces high standards and expectations for all students.
- Significant efforts are made to create a cohesive learning community in which all students are valued and diversity is celebrated.
- Faculty members collaborate to develop a universally designed curriculum.
- Faculty members engage in ongoing professional development activities designed to increase their capacity to meet the educational needs of all students.
- The school institutes a system of technical supports that can help teachers meet the instructional, behavioral, and social needs of challenging students.
- Evaluation of system change efforts are based on measures of student academic achievement, school connectedness (e.g., attendance, dropout rate), and safety. Administrators and faculty use evaluation data to guide ongoing system change efforts.

At the individual level, teachers can complete a number of steps that will increase a student's access to the general education curriculum and successful participation in general education classes. These steps include (a) implementing a team-based support process, (b) developing student- and class-specific adaptations and accommodations, (c) fostering peer-based instructional and social supports for the student, (d) developing individualized teaching plans, and (e) scheduling instruction on student-specific goals and objectives.

Window 8–1

Including Robert in Science Class

Robert is a 10th grader at East Lake High School. He is very interested in science because his mother is a science professor at the local community college and his father works as a research scientist at the medical school. During his IEP/transition planning meeting, Robert indicated that after school he'd like to be able to work in a lab like his dad. The IEP/transition planning team discussed Robert's goal extensively and decided that working as a lab tech in a customized job placement might be a realistic employment outcome for him. In order to achieve his goal, Robert would need to have more experience working in laboratory settings and become familiar with the equipment typically found in science labs. Consequently, the team decided that participating in the 10th-grade science sequence would be a good way for him to get these kinds of opportunities.

Ms. Hill, Robert's special education teacher, met with Mr. Blake, who taught the 10th-grade science sequence, to identify possible skills that Robert would learn during the first trimester. They agreed that Robert should learn to read and define several key vocabulary words in the first unit on ecosystems. In addition, they agreed that Robert would also work on initiating conversations with peers and using a class schedule to initiate moving from one activity to another.

Mr. Blake, Ms. Hill, and Mrs. Dalton (Ms. Hill's paraprofessional) met to develop a comprehensive support plan for Robert in the science class. Mrs. Dalton committed to creating audiotapes of each of the assigned readings so that Robert could access the information. In addition, Mrs. Dalton would also assist Mr. Blake with developing modified worksheets and materials that highlight the target vocabulary words for Robert. He would be provided with embedded instruction on learning to read and define the targeted vocabulary words from two peers (Jacob and Lizzie) under the supervision of Ms. Hill and Mrs. Dalton. Jacob and Lizzie would also provide Robert with other supports necessary for him to participate in class routines and activities.

Mr. Blake, Ms. Hill, and Mrs. Dalton agreed to meeting weekly to review the support plan and track Robert's progress in the class.

Implement a Team-Based Support Process

Following the development of a student's IEP/transition plan, it is necessary to establish a process to ensure that special educators, general educators, paraprofessionals, and related service personnel continue to work together to meet the needs of the student in general education classes. The importance of professional teaming to successful inclusive education has prompted a number of researchers to examine ways to formally support these activities within schools (Giangreco, Edelman, & Nelson, 1998; Hunt, Doering, Hirose-Hatae, Maier, & Goetz, 2001; Hunt, Soto, Maier, & Doering, 2003; Hunt, Soto, Maier, Muller, & Goetz, 2002). While the specific steps of these professional teaming approaches vary, they all have a number of common components, including (a) regularly scheduled meetings to address the changing needs of students, (b) collaborative development of students' social and academic supports by team members, and (c) a specific accountability system to evaluate the effectiveness of students' education programs.

Hunt and colleagues (2003) describe a process for developing Unified Plans of Support (UPS) to support the inclusion of students in general education classes. The focus of this process is to ensure that the educational plans for students identify meaningful learning outcomes that are consistent with the general education curriculum and the routines and activities of the general education class. However, the UPS process is designed to go beyond simply identifying meaningful learning outcomes to include the development of the specific supports necessary to ensure that the IEP/transition plan is implemented successfully. The UPS process is based on four key steps:

1. Each student's learning and social profile is identified.

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

3. Once each support strategy is identified, a team member is assigned responsibility for ensuring that the strategy is put into place and for coordinating the activities of other team members in implementing the strategy.

4. A system of accountability that allows the team to evaluate the effectiveness of the UPS in meeting the student's needs is developed and implemented. This step involves regular team meetings that allow the team members to evaluate the impact of each strategy and refine the UPS.

Figure 8.1 presents an example of a UPS for a student enrolled in a science class. The plan specifies the adaptations and modifications, social supports,

and student-specific instructional plans to be implemented for the student in the general education class.

Develop Student- and Class-Specific Adaptations and Modifications

An essential element of supporting students in content-area classes is to develop adaptations and modifications that will maximize their ability to participate in all routines and activities. Janney and Snell (2000) have argued that adaptations may be necessary in three areas, including the curriculum, instruction, and the environment.

Curriculum adaptations are changes to what is being taught to a student and include supplemental, simplified, or alternative curricula. Supplemental curricula are designed to expose a student to additional knowledge or skills that will help him or her meet the standards of the class. For example, a student might be taught various learning strategies to allow him or her to develop a deeper understanding of the content being presented or to learn the content more quickly (Schumaker & Deshler, 2006). This would include such strategies as self-questioning to help a student generate questions about a passage that he or she is reading in order to identify key information later in the text or teaching a student a mnemonic strategy that can assist him or her with remembering lists of key concepts or ideas. Simplified curriculum entails the identification of modified standards that are directly referenced to the core curriculum. For example, in Robert's case, Mr. Blake and Ms. Hill decided that he would learn to read and provide a verbal definition of key vocabulary words (e.g., *ecosystem, food chain,* and *biosphere*) rather than predict how changes in abiotic or biotic factors might affect specific ecosystems. Finally, alternative curricula are focused on teaching knowledge and skills that are not directly referenced to the core curricula in the class but are nonetheless important to a student's successful transition to community life. For Robert, these skills included initiating conversations with peers and using a class schedule. However, they could also include such skills as using an electronic communication device to communicate with peers or transferring from a wheelchair to a regular chair.

Instructional adaptations are focused on changing either the input (i.e., the stimulus materials) or the output (i.e., the behavior that the student completes) during instructional activities. Adaptations to the input that a student receives could include such things as having him or her listen to a passage recorded on a CD or an audiotape rather than read it or using an advanced organizer that provides a list of the key concepts on which he or she should take notes when listening to a lecture by the teacher. Adaptations to a student's output focus on changes in the expected response—for example, pointing to a flashcard of a word rather than writing its definition during a vocabulary test or completing every other item on a worksheet rather than completing them all.

Figure 8.1   Example of a Unified Plan of Support (UPS)

Unified Plan of Support (UPS)

Student: Robert

Team Members Present: Mr. Blake, Ms. Hill, Mrs. Dalton

Class: Earth Science

Date: September 15, 2007

EDUCATIONAL SUPPORT
(Adaptations, curriculum modifications, alternate instructional formats)

Supports	Person Responsible	Level of Implementation
Embedded instruction on reading vocabulary words.	Ms. Hill Mrs. Dalton	• (Full) • Partial • Pending
Assigned chapter reading recorded on audiotape.	Ms. Hill Mrs. Dalton	• (Full) • Partial • Pending
Modified worksheets highlighting selected vocabulary words.	Ms. Hill Mrs. Dalton	• Full • (Partial) • Pending
		• Full • Partial • Pending

SOCIAL SUPPORT
(Circles of support, buddy systems, social facilitation)

Peer support from Jacob and Lizzie.	Mr. Blake Mrs. Dalton	• Full • (Partial) • Pending
		• Full • Partial • Pending
		• Full • Partial • Pending
		• Full • Partial • Pending

Other issues or concerns:
Robert's desk should be located next to Jacob's and Lizzie's at the front of the classroom.

Note. From "Across-Program Collaboration to Support Students with and without Disabilities in General Education Classrooms," by P. Hunt, K. Doering, A. Hirose-Hatae, J. Maier, & L. Goetz, 2001, *Journal of the Association for Persons with Severe Handicaps, 26,* pp. 240–256. Adapted with permission.

Finally, ecological adaptations may include changes to where a student is located in the classroom, changes to his or her schedule, or changes to whom he or she works with. Changing the location in the class might include moving to a quieter area of the classroom so that the student has fewer distractions in completing a task or moving his or her desk closer to the front of the room to improve his or her ability to see PowerPoint slides. Changing a student's schedule might include allowing him or her to complete a task during study hall rather than during class to give him or her more time or allowing him or her to have regular breaks during a task to prevent fatigue or behavior problems. Similarly, the supports could be changed so that a student is provided with one-on-one instruction rather than group instruction, or instruction could be provided by peers rather than paraprofessionals.

It is important to note that the team may need to use a number of curricular, instructional, and ecological adaptations in order to promote students' success in classes. Further, as discussed above, it is critical that the accommodations be designed specifically to meet students' needs in the typical routines and activities of the class (Fisher & Frey, 2001). Each individual who is supporting a student in a class should be made aware of the adaptations and modifications he or she uses and be given the training necessary to ensure they are implemented correctly.

Focus Question 4	Why are peer supports preferable to paraprofessional supports in general education classes?

Foster Peer-Based Instructional and Social Supports

One of the most common approaches to providing instructional and social support to students in general education classes is to assign a paraprofessional to work with them in completing class routines and activities (French, 2003b; Giangreco, Broer, & Edelman, 2002). While initially the role of paraprofessionals was limited, the available evidence suggests that in a number of schools across the country, paraprofessionals are assuming increasing responsibility for planning and designing instruction for students, even though they do not have the knowledge and skills necessary to do so (Giangreco & Broer, 2005). This raises questions about the overall quality of the educational programs that students may be receiving in general education classes, especially in secondary content-area classes that require that teachers have specialized knowledge in specific disciplines (e.g., math, science, history). Further, research suggests that the presence of paraprofessionals in a general education class can actually have unintended negative impacts, ranging from reducing general educators'

engagement with students to lowering the rates of social interactions between disabled students and their peers without disabilities (Downing, Ryndak, & Clark, 2000; Giangreco, Edelman, Luiselli, & MacFarland, 1997; Marks, Schrader, & Levine, 1999; Shukla, Kennedy, & Cushing, 1998; Young, Simpson, Smith-Myles, & Kamps, 1997). Researchers are recognizing that paraprofessional supports should be used sparingly and only in situations in which peer support strategies cannot be used to meet the student's needs (Giangreco & Broer, 2007). This might include situations in which there are concerns about a student's safety, in which he or she might need personal support to care for daily needs, or in which he or she needs intensive assistance or support to communicate with others.

While paraprofessional support should be used judiciously, paraprofessionals can be a critical source of support for students in content-area classes when their roles are well defined and they are provided with the necessary training and ongoing assistance necessary to complete their assignments (Broer, Doyle, & Giangreco, 2005; Carter, Cushing, et al., 2005; Causton-Theoharis & Malmgren, 2005; Devlin, 2005). Although a detailed description of the procedures necessary to prepare paraprofessionals for their roles in general education classes is beyond the scope of this chapter, there are a number field-test programs that can provide valuable resources to teachers and schools in addressing this need (e.g., Doyle, 2002; French, 2003a).

The most appropriate and readily available sources of instructional and social support in general education classes are peers (Carter & Kennedy, 2006; Hunt & McDonnell, 2007). This support can be used when teachers employ cooperative learning or peer-mediated instructional strategies but also when IEP/transition planning teams develop both informal and formal peer support strategies in classes and the school. Peers can play a number of roles in supporting students with intellectual and developmental disabilities in general education classes, including (a) implementing curricular, instructional, or ecological adaptations; (b) providing assistance and feedback in completing assigned tasks; (c) modeling appropriate communication and social skills; (d) facilitating social interactions between students and other peers; and (e) providing embedded instruction on specific skills drawn from the general education curriculum or IEP/transition plan. A number of steps have been recommended for developing and implementing successful peer support programs:

- Identify one or more peers in the same class who can provide support to the student (Carter & Kennedy, 2006). A number of factors should be considered in selecting peers for a support role, including the kinds of supports they will be expected to provide to the student, who will be training and monitoring the peers, and the individual needs of the student.

- Provide training on the specific support roles that peers will play (Carter & Kennedy, 2006). The training should focus on the procedures that they will be implementing with a student. These procedures should be modeled for each peer by a teacher or a paraprofessional, and the peer should be provided with guided practice in implementing them with the student. It is important to structure the training to emphasize to the peer that he or she is not the student's "teacher" but is helping the student participate in class routines and activities.
- Systematically fade support from the peer as the student becomes more competent and confident (Carter & Kennedy, 2006).
- Regularly monitor the supports provided by the peer to ensure that the student is getting what he or she needs. An important part of the monitoring process is to talk with the peer about how things are going and whether he or she is encountering any problems in providing support to the student. Research suggests that peers often have important insights into how to improve the supports provided to students (Fisher & Frey, 2001).

Develop Individualized Teaching Plans

Students will often require explicit, systematic instruction to learn content drawn from the general education curriculum or achieve goals included in their IEPs/transition plans. Research over the last several decades has led to the development of robust technology of instruction for students with intellectual and developmental disabilities (Snell & Brown, 2006; Westling & Fox, 2009). Instruction focused on the individual needs of students with disabilities in general education classes should be designed and implemented following the same principles that guide instruction in separate educational settings. These principles include the following:

- Instruction should be based on a clear and specific statement of the intended learning outcomes for the student.
- A sufficient number of instructional trials should be provided to promote efficient learning.
- Careful selection and sequencing of instructional examples should be practiced to promote generalization and maintenance of targeted skills.
- Response prompting and fading procedures designed to minimize errors during instruction should be used.
- Student errors should be systematically corrected when they do occur.

- Natural reinforcers should be used to support student learning, as should fading schedules of reinforcement to levels found in typical performance environments.
- Student performance data should be collected regularly, and that information should be used to modify instructional procedures as necessary to maximize student learning.

Figure 8.2 provides an illustration of a teaching plan format for implementing embedded instruction in general education classes (McDonnell et al., 2008). The form contains the essential elements of any effective teaching plan and could be easily adapted for use in any individualized instructional format for students in general education classes. The example shows the instructional procedures for teaching Robert to read key vocabulary words drawn from the general education science curriculum. Figure 8.3 presents an illustrative data collection form that could be used to track his performance during the week.

Figure 8.2   Example of an Embedded Instruction Teaching Plan

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Student: Robert

Instructional Objective: When presented in different print forms, Robert will read five sight words from the unit on ecosystems with 80% accuracy on two consecutive probes.

Supplemental Instruction Opportunities	*Natural Instruction Opportunities*
Activity transitions.	Textbook.
Breaks during lab.	Worksheets.
Independent seatwork.	Lab summaries.

Presentation Sequence (Vary print forms.)

1. system
2. ecosystem
3. system or ecosystem
4. biodiversity
5. system, ecosystem, or biodiversity
6. atmosphere
7. system, ecosystem, biodiversity, or atmosphere
8. biomass
9. extinction
10. All six words

Assistance Strategy

 I. Present word. "Read this word." 0-s delay and model word.
II. Present word. "Read this word." 3-s delay and model.

Reinforcement Procedures

Descriptive social praise. "That's right; it is (word)."

Error Correction Procedures

1. "No, this says (word)."
2. Represent word. "Read this word."
3. Model word.
4. Descriptive feedback. "Yes, that says (word)."

Figure 8.3   Example of an Embedded Instruction Data Collection Form

	Assistance/ Sequence Step	Distributed Trial										%
Date		1	2	3	4	5	6	7	8	9	10	
9/20	I 1	+	+	+	+	+	+					100
9/21	I 1	+	+	+	+	+						100
9/22	II 1	0	+	0	+	+	+	+	+	+	+	80
9/23	II 1	+	+	+	+	+						100
9/24	I 2	+	+	+	+	+						100
9/27	I 2	+	+	+	+	+						100
9/28	II 2	0	+	+	+	+	+	+	+	+	+	90

Embedded Instruction Data Sheet

Note. From *A Data Based Classroom for the Moderately and Severely Handicapped,* by H. D. Fredericks, V. L. Baldwin, D. N. Grove, C. Riggs, V. Furey, W. Moore, et al., 1975, Monmouth, OR: Instructional Development Corporation. Adapted with permission.

Schedule Instruction on Individualized Teaching Plans

Once students' individualized teaching plans have been developed, the teacher will need to develop a schedule that will ensure these plans are implemented consistently. One of the most widely used approaches to accomplish this is the scheduling matrix, originally developed as a strategy to schedule embedded instruction on academic and developmental skills into the typical routines and activities of special education classrooms (Guess & Helmstetter, 1986). More recently, it has been suggested as a strategy for planning instruction for students on supplemental, simplified, or alternative curricular goals in general education classes (Downing, 1996; Giangreco, Cloninger, et al., 1998; Ryndak & Alper, 2003).

The development of the scheduling matrix begins with an analysis of the typical routines and activities completed by the teacher and the student each day. Although the content covered by teachers will vary daily, teachers usually have an established pattern for organizing their lessons. For example, they may begin class by reviewing the homework assignment, then present new information in a large group lecture, then have students break into small groups for a collaborative instructional activity, and so on. These routines and activities are analyzed to identify opportunities for providing embedded instruction to students or parallel one-on-one or small-group instruction to students.

Following the analysis, the special education teacher develops a matrix that includes a list of the typical routines and activities and the specific goals that will be addressed with the student throughout the class (Figure 8.4). The teacher then checks the routines or activities in which instruction on each goal should occur. The matrix can serve as a guide for any individual who will provide instruction to a student on these specific goals.

Figure 8.4   Example of a Scheduling Matrix

Student: Robert

Class: Earth Science

	Routines/Activities				
Goals	*Opening*	*Homework Review*	*Lecture/ Demonstration*	*Lab Groups*	*Lab Group Summary*
Initiates conversations with peers.	✓			✓	✓
Reads vocabulary words.	✓	✓		✓	
Uses class schedule.	✓	✓	✓	✓	✓

Summary

The available evidence suggests that secondary-age students benefit from participating in the general education curriculum and in general education classes. Ideally, efforts to support inclusive educational opportunities for students are nested within larger reform efforts within the school to improve the quality of education provided to all students. However, teachers can make students' inclusion in general education classes more successful by collaborating with general educators in developing plans of support that fit within the typical routines and activities of the general education class, developing student- and class-specific adaptations and modifications, creating peer support systems, carefully scheduling instruction on core content and IEP goals, and providing systematic instruction as necessary to ensure student achievement. The potential benefits of participating in the general education curriculum and general education classes are enhanced if the content of the courses in which students are enrolled is directly aligned with their desired postschool goals.

Focus Question Review

Focus Question 1: What factors improve educational benefits for students enrolled in content-area classes?

- The content in the class aligns with students' expected postschool outcomes.
- Students receive instructional supports that allow them to interact with course content and receive individualized instruction tailored to their unique needs.
- Students receive support from peers to participate in the routines and activities of the class.

Focus Question 2: Why are self-directed learning strategies important to improving students' participation in content-area classes?

- They increase students' autonomy in participating in class routines and activities.
- They allow support from special and general education teachers to be reduced.

Focus Question 3: How does the application of universal design principles to curriculum and instruction support the participation of students in the general education curriculum?

- It allows all students to access content covered in the classes.
- It provides alternative ways for students to demonstrate knowledge and skills.

Focus Question 4: Why are peer supports preferable to paraprofessional supports in general education classes?

- Peer supports provide a more natural and age-appropriate source of support to students.
- Research has documented that paraprofessional support often has a number of unintended negative outcomes, including student dependence on the paraprofessional and inhibiting social interactions with peers.