Collaborative Teaming for Effective Inclusive Education for Students with Severe Disabilities

Diane Lea Ryndak1, Donna Lehr2, Nancy Harayama2, and Megan H. Foster3

1UNIVERSITY OF NORTH CAROLINA GREENSBORO
2BOSTON UNIVERSITY
3UTICA COLLEGE

Setting the Stage

Shortly after the education of all students with disabilities was guaranteed by the Education for All Handicapped Children Act (EAHCA, 1975), information on education for students with severe disabilities began to be published (Sontag et al., 1977). The term severe disabilities, however, is not one of the 13 disability categories defined in EAHCA or its current reauthorization, the Individuals with Disabilities Education Improvement Act (IDEA, 2004). Instead the term severe disabilities has been used in the literature to refer to a subset of students identified as having a primary disability within one of several of the disability categories defined in the legislation, including intellectual disability, deaf-blindness, autism spectrum disorders, traumatic brain injury, physical disability, and other health impairments. In addition, students with severe disabilities often have a combination of two or more intellectual, physical, or sensory disabilities and might be identified as having either multiple disabilities or extensive and pervasive support needs (Thompson et al., 2014). Because of their multiple needs and intensity of their disabilities, this group of students is described as heterogeneous and individual students are described as having complex learning needs (Westling et al., 2015). Today these students are at least as complex and heterogeneous as when the EAHCA was passed, as young children with even more extensive medical needs are surviving and entering the early intervention, early childhood, and education systems (Lehr & Harayama, 2020).

To meet their complex and unique learning needs, knowledge and skills are required from multiple individuals who represent various perspectives. In addition to professionals in general education, special education and related services, relevant individuals include the students’ parents, guardians, and/or caregivers. This set of knowledge and skills can exist only within a collection of individuals who: (a) focus on meeting the unique learning needs of the whole student; (b) bring sets
of specialized knowledge to all aspects of the educational experience for each student; (c) engage in a collaborative teaming model comprising a consistent and on-going approach to identifying and meeting a student’s learning needs; and (d) develop, implement and evaluate collaborative instruction that is embedded in general education classes and other inclusive contexts. This type of model is proactive and contrasts with early models in which teachers and related services personnel each provided services in isolation, with very little interaction occurring among service providers and with very little input from families.

Today, many students with severe disabilities are receiving instruction in general education classes (U.S. Department of Education, 2019). Planning, implementing and evaluating the impact of instruction requires proactive, collaborative teams to provide instruction that actively engages the student with severe disabilities with their grade-level general education classmates within general education instruction in meaningful ways, resulting in progress on the general curriculum (Root et al., 2017), embedded essential skills (e.g., communication, mobility; Gee, 2020a), and relationship building (Dukes & Darling, 2017).

While the learning needs of students with severe disabilities necessitate collaboration, not all teachers nor related service personnel have sufficient knowledge and skills to teach these students (Agran et al., 2020; Gee, 2020b), nor have the knowledge and skills necessary to collaborate effectively (Da Fonte & Barton-Arwood, 2017; Gomez-Najarro, 2020). While many states require general education teachers to complete at least one higher education course in special education, few such courses focus on preparing educators to meet the needs of students with severe disabilities. Consequently, general educators most frequently lack specialized expertise to meet the needs of students with severe disabilities enrolled in their classes (Pugach et al., 2012; Zagona et al., 2017). In addition, many states require special education teachers to obtain initial licensure in high incidence disabilities (e.g., learning disabilities) and provide the option of completing requirements in one or more low incidence disability areas to fulfill licensure requirements is an optional add on. This frequently results in special educators completing only the initial licensure requirements and, therefore, having limited or no specialized expertise in meeting the learning needs of students with severe disabilities. This reality necessitates collaboration among general educators and other educational personnel to bring together the requisite specialized knowledge and skills (McDonnell et al., 2020). For a student with severe disabilities, therefore, collaborative team members minimally should include their elementary general education teacher(s), a special education teacher with expertise in severe disabilities, the student’s parents or guardians, and their related service providers. To meet each student’s learning needs, additional team members might include a school nurse, guidance counselor, instructors for specials (e.g., art, library, music), general education classmates, and paraeducators as appropriate.

As students with severe disabilities increasingly are being placed with grade-level classmates in general education classes (U.S. Department of Education, 2019), there has been a concomitant shift in the knowledge and skills needed to meet the learning needs not just of students with varying abilities (e.g., severe disabilities; gifted and talented), but also students with other learning challenges associated with poverty, homelessness, and racial, ethnic, and linguistic diversity. In these complex and heterogeneous general education contexts, teachers, related service providers, parents, paraeducators, and other educational personnel must navigate a complicated system of legislated accountability for student learning and teacher performance, for the use of evidence-based instructional strategies and interventions, and for access to general education content standards for all of their students, including those with severe disabilities. The importance of planning, implementing, and evaluating rigorous instructional plans has higher stakes than in the past for: (a) the students, especially those in states where graduation is dependent on passing a state test; (b) teachers and administrators, when their performance scores, professional development plans, and merit salary increases are based on student progress; and (c) schools, districts, and states, which are rated based on
annual yearly progress (No Child Left Behind Act, 2001). Few single teachers would be able to acquire the depth and breadth of expertise and skills required to meet the accountability expectations for all their students.

All of these variables have led to a more widespread need for, and acceptance of, the development of collaborative teams whose members bring their own specialized knowledge to discussions about curriculum, instruction, supports and other accommodations to meet the learning needs of students with varying instructional needs in the same class and instructional session. Therefore, in addition to team members who collaboratively can meet the learning needs of a student with severe disabilities, the composition of collaborative teams may vary. For example, a teacher of English language learners (Kangas, 2018) or a social worker may be appropriate additions based on the needs of the students.

**Student and Collaborative Team Vignettes**

What follows are vignettes of three students with severe disabilities, with each student demonstrating various learning and instructional needs. These vignettes are designed to illustrate the needs of a small sample of students with severe disabilities for whom collaborative teaming would serve to maximize their learning. These students will be referenced in other sections of the chapter.

First, let us consider Ava, an energetic first grader with Down syndrome. She is fully included in a classroom in which a general and a special educator co-teach full time with the support of a para-educator. In addition, she receives speech and language therapy, as well as occupational therapy. She identifies several sight words and is beginning to answer ‘what’ and ‘who’ questions by selecting from an array of picture communication symbols after listening to a classmate read with her. She imitates strokes of the letters in her name when given adapted, raised line paper and pencil grip, and writes by sequencing picture symbols. She counts ≤5 objects with one-to-one correspondence, identifies numerals 1-3, rote counts ≤10, identifies what comes next in an ABAB pattern, counts blocks to measure length, etc. Her parents would like to see her continue to make progress in the general education curriculum. (Team members: parents, general education teacher, special education teacher, para-professional, speech/language pathologist, occupational therapist, general education classmates, etc.).

Second, let us discuss Santiago, who is in third grade, immigrated to the U.S. two years ago and was diagnosed with Autism Spectrum Disorder (ASD) upon arrival. Prior to his immigration, he intermittently attended a special program for children with disabilities in Guatemala. Upon immigration, he exhibited echolalic speech and did not have a functional communication method. Therefore, he relied on nonverbal communication acts and behaviors, such as biting and spitting. He now relies on object cues to support literacy skills and is beginning to imitate key words in stories. He attempts to count up to five in both English and Spanish. Given his needs in both daily living skills and behavioral support, he is receiving occupational therapy and in-home ABA services. His mother has a lot of questions about the diagnosis and placement and benefits from a cultural liaison. (Team members: parent, general education teacher, special education teacher, speech/language pathologist, occupational therapist, ABA therapist, general education classmates, etc. Needs translator/cultural liaison.)

Finally, let us consider Malik, who is a fifth grader with multiple disabilities. He uses a Dynavox with Tobii mounted on his wheelchair to communicate and participate in all classroom activities. During literacy activities, he reads a modified text that is augmented with picture symbols and writes up to three sentences using Tobii with word prediction for rate enhancement. He adds/subtracts 2-digit numbers with regrouping, identifies largest/smallest values on graphs, and measures length to the nearest quarter-inch when the ruler is positioned for him. In other curricular areas, he can identify some of the original 13 colonies, name key historical figures, and write a paragraph about them with the support of a graphic organizer. His parents want him to continue to participate in all general education curriculum areas and have instruction on essential skills embedded into the daily...
routines of his general education class. (Team members: parents, general education teacher, special education teacher, speech/language pathologist, physical therapist, occupational therapy, assistive technology specialist, general education classmates.)

As we proceed through the chapter, references will be made to the learning needs of Ava, Santiago, and Malik. In addition, examples will be provided related to the role of collaborative teams and teaming in meeting their learning needs within general education classes and other inclusive settings.

Legal Mandates Relevant for Collaboration

The overriding goal of IDEA (2004) is assisting each student to achieve educational benefit through the provision of a free and appropriate public education (FAPE) in the least restrictive environment (LRE). To achieve this goal, IDEA mandates the use of education teams and provides some guidance in relation to the responsibilities of team members in descriptions of key functions that require collaboration. Three of these key functions include the:

a. determination of a child’s eligibility for special education and related services through either early intervention, early childhood, or K-12 education systems (Part B Section 1414 (b) (4) (A);

b. development of an annual IEP that recognizes a student’s current performance level identifies relevant grade- and age-appropriate annual goals on both the general curriculum and embedded essential skills that cumulatively lead to desired long-term outcomes for an enviable life, and determines the supports and services the student will need to make progress on those annual goals (Section 1414 (d) (1) (A) (i) (I)); and

c. ongoing formative and summative monitoring of the student’s progress on their IEP goals and objectives, as well as the determination of whether the student is making sufficient progress annually to ensure their long-term goals might be realized. (Section 1414 (d) (1) (A) (i) (III))

Bateman and Yell (2019) stated that the intent of the team process mandated within the IDEA (2004) is that the team is composed of members

…because of his or her particular expertise. The general education teacher is there because of his or her expertise in the curriculum. The special education teacher is there because of his or her expertise and knowledge of how to work with students in special education and understanding of the special education process. (p. 192)

IDEA regulations define the role, criteria or qualifications of various team members. Some of this information is brief; for example, in 34 CFR section 300.34(c)(9), we learn, “Physical therapy means services provided by a qualified physical therapist” (IDEA). Information for other team members is more detailed. In 34 CFR section 300.34 (c)(6), we learn,

Occupational therapy—(i) means services provided by a qualified occupational therapist, and (ii) includes—(A) improving, developing, or restoring functions impaired or lost through illness, injury, or deprivation; (B) improving ability to perform tasks for independent functioning if functions are impaired or lost; and (C) preventing, through early intervention, initial, or further impairments or loss of function. (IDEA)

Information on the roles and responsibilities of parents is primarily included in the definition of a free and appropriate public education (FAPE). Additionally, IDEA requires schools to provide services for any student with disabilities in the least restrictive environment, starting with the premise...
that the student belongs in general education classes, with the provision of supports and services that meet the student’s learning needs. Many argue that such placement in general education classes with support and services constitutes the least restrictive environment and describe such services as inclusive education.

For the purpose of this chapter, inclusive education for a student with severe disabilities is defined as comprising three indicators:

1. The student is engaged with and making progress in the general education content standards and individually identified essential skills to participate in grade-level general education classes and other contexts.
2. The student interacts and develops relationships with their grade-level classmates.
3. The student is engaged in activities within their general education class, school, and home communities.

Teams must consistently monitor the degree to which these key indicators are evident as they co-plan, co-implement, and co-evaluate the effectiveness of each individual student’s educational and related services.

For these indicators to be actualized, collaborative teams must address four aspects of a student’s education, including instructional (a) content, (b) context, (c) instruction, and (d) accountability (Ryndak et al., 2013). For instance, it is critical for teams to collaboratively identify and prioritize the most relevant instructional content from both the grade-level general education content standards and individually identified essential skills needed to engage in the general education instruction on those standards. While there are numerous approaches to identify content to include on a student’s IEP or to match instructional outcomes for a general education instructional unit, each approach could result in different conclusions; thus, the process used by a collaborative team will impact the content that ultimately is prioritized for a student.

For context, it is critical for collaborative teams to focus first on the general education contexts in which instruction is delivered for the student’s grade-level classmates, as well as other general education contexts in which the student reasonably could use the content being taught (e.g., other general education classes, inclusive school settings, inclusive non-school settings). In addition to these contexts with grade-level classmates, teams can focus on other contexts which are part of the student’s life (e.g., home dinner table, scouts) into which the student could generalize the use of the content (Ryndak et al., 2020). Context, however, is broader than a specific setting. Context includes every aspect of each setting, such as instructional activities and materials, the person leading or supporting instruction, other persons in the setting, and expectations related to engagement and performance levels. As with instructional content, there are different approaches for identifying the contexts in which a student will receive instruction, and the process used by a collaborative team to identify contexts will reflect their values, beliefs, and biases about students with severe disabilities and the educational services they deserve, as well as their expectations for each student’s growth (Lansey et al., 2020).

For instruction, it is critical collaborative teams learn about research-, evidence-, and practice-based instructional methods that meet the complex learning needs of students with severe disabilities and strategize on how to embed those methods in grade-level general education contexts (McDonnell et al., 2020). As with content and context, there are numerous approaches to identifying inclusive education practices to be used. To ensure continuity of instruction across contexts and instructors, the process a collaborative team uses to identify inclusive education practices must result in approaches that match both a student’s learning needs and the grade-level contexts in which they receive instruction.

For accountability, collaborative teams must develop and implement a system for collecting formative and summative data that are meaningful to all team members and that measure progress on both general education content standards and individually identified essential skills prioritized for a student. In addition, the accountability system must reflect the student’s progress on both short- and
long-term desired outcomes and the social validity of those outcomes. While each state and school district has requirements and specific tools for measuring student progress (e.g., alternate assessment; alternate achievement standards), collaborative teams frequently have difficulty obtaining detailed information that meaningfully reflects a student’s progress on the prioritized content by using these formalized measures. Thus, to address accountability, effective collaborative teams supplement such measures required by their state and district systems with individualized data collection systems that match the student’s learning needs, content, contexts, and instruction.

Foci for Additional Chapter Sections

The remainder of this chapter will focus on four main areas, including (a) the current state of both research and the wisdom of practice related to collaborative teaming for students with severe disabilities, (b) challenges to effective implementation of collaborative teaming, (c) use of collaborative teaming when identifying instructional content for students with severe disabilities, and (d) collaborative teaming practices for the provision of effective instruction for students with severe disabilities. Throughout these sections, we will refer to the student vignettes to provide an illustration of some key points.

Research on Collaborative Teaming and the Wisdom of Practice

While much is written about the benefits of collaborative teaming, there is not an extensive body of research demonstrating its effectiveness as related to student outcomes. A systematic review of the literature conducted by Vangrieken et al. (2015) revealed that most of the extant research has focused on teacher and organizational outcomes, with limited research focused on student outcomes. Further, she described difficulty with summarizing that research due to the lack of uniform definitions of collaboration. Vangrieken and her colleagues noted:

A considerable amount of different terms is used to describe this phenomenon: teacher teams, teacher collaboration, professional (learning) communities, (teacher) learning communities, (teacher) learning teams, etc. These terms were often used interchangeably, and different researchers tended to allot different interpretations to the same term. (p. 23)

The authors summarized what was described in the articles as occurring on a continuum, “ranging from mere aggregates of individuals to strong team collaboration” (p. 17). This lack of clarity regarding terms makes it difficult to interpret the research, but nevertheless many continue to advocate for teams to go beyond being cooperative and focus on instructional teams collaboratively improving upon existing processes, exploring complex problems, developing deeper understandings of challenges, and developing thoughtful solutions (Herrmann, 2019). Included in the following sections of this chapter is a discussion of models of collaboration in schools and the evidence of its effectiveness in general education, special education overall, and special education for students with severe disabilities. Also presented is a primary driver for implementing a collaborative teaming approach: logic codified as legal requirements.

Models of Teaching: Isolative and Collaborative

Teaching was once described as an isolative practice by Lortie (2002) in a sociological study of general education teachers. He depicted the traditional model of schools existing since the 19th century in which teachers were assigned to their individual classrooms with the responsibility of teaching the students within them—a so-called egg-crate model. He noted that both physical
barriers of the separate room and psychological barriers of teachers trying to figure out their roles independently contributed to teachers’ isolation. At that time, teachers had considerable autonomy regarding what and how to teach their students and they were expected to work independently. He argued that this autonomy and expectation, along with little time to interact with other teachers, contributed to the lack of collaboration among teachers. Most general education teachers still primarily teach in isolation (Scholastic and the Bill & Melinda Gates Foundation, 2012).

The literature includes some emphasis on collaboration as related to professional development (McLeskey et al., 2017, 2019). Called communities of practice (Trust & Horrocks, 2017), lesson study (Fujii, 2016), and professional learning communities (Stoll et al., 2006), these professional development approaches are designed to bring together general education teachers to improve their practice (Scholastic and the Bill & Melinda Gates Foundation, 2012). A comprehensive survey of general education teachers (Scholastic and the Bill & Melinda Gates Foundation, 2012), however, revealed that they spent only 15 minutes a day collaborating with other teachers. Despite this limited time, some studies have demonstrated improved outcomes for students with the collaboration of this nature (Hargreaves, 2019), though most of the research has focused on teacher satisfaction with collaboration and self-efficacy.

While the same egg-crate model of teaching exists within special education, there are some peculiarities of the field that prevent special education teachers from being completely isolated. Earlier in this chapter, we noted the complexity of learning needs for students with severe disabilities. No one teacher can be an expert across these areas of learning needs; have sufficient content knowledge across academic subjects (e.g., science, history, mathematics); have expertise in specialized instructional approaches for students with sensory impairments and severe behavioral challenges; and have specialized knowledge of the provision of health care services. This precisely is the reason that special education law dictates that educational teams collaborate to co-plan, co-implement, and co-evaluate students’ educational programs.

In one of the first texts focused on the education of students with severe disabilities, Hart (1977) noted:

The need for professionals from many disciplines to work with the handicapped [sic] has been advocated for years, but never has this need been as critical as it is in educating the severely and profoundly handicapped [sic]. Because of the complexities of these children, their heterogeneity, their multiple handicaps, and their age ranges, effective programming for them must be based on a cooperative effort by a variety of experts. (p.6)

Shortly after the passage of EAHCA, Bricker (1976) conceptualized an approach to teaming that focused on the role of the special education teacher. She proposed that the teacher should be the educational synthesizer “…who can draw relevant information from a variety of sources and then incorporate it into daily intervention procedures for children.” She stated that “The educational synthesizer becomes the pivotal force in the overall educational program by seeking and coordinating the necessary resources to produce growth and change in the severely impaired [sic] child” (p. 88).

This model of a sole teacher gathering and integrating information from multiple disciplines, however, was seen by some as being insufficient to meet the needs of students with severe disabilities. Others (United Cerebral Palsy National Collaborative Infant Project, 1976) proposed alternative models for bringing together the necessary expertise to support the development and learning of these students. One such model is the multidisciplinary model, composed of specialists who apply their specialized knowledge and skills directly and independently with students. By contrast, the interdisciplinary model includes a team of specialists that work directly with students, but they also interact with other team members regarding shared goals for the students. The transdisciplinary model was described by York et al. (1990) as follows:
Two features that distinguish transdisciplinary teamwork from traditional more isolated team approaches are (a) a high degree of collaboration and joint decision-making among team members (including parents) in conducting assessments, establishing program priorities, and designing and implementing individualized educational programs; and (b) teaching the skills traditionally associated with one discipline to other team members who function in direct service capacities and work directly with learners throughout each day across a variety of environments and activities (role release). (p. 73)

In his early textbook, Sontag (1977) described the predominant model of educational service delivery as that of one special educator, one or more paraeducators, and, frequently, volunteers, providing educational services for students with severe disabilities in self-contained special education classes. Related services personnel provided services (e.g., occupational therapy) in pull-out models that removed students from those classrooms. In 1986, as students with severe disabilities increasingly were being educated in general education classes, the then Assistant Secretary for the Office of Special Education, Madeline Will (1986), emphasized the need for general and special educators to share responsibility for assessment and intervention to meet the needs of students with disabilities, and a more collaborative approach to teaming. Since then, several other approaches to collaborative teaming have emerged and a research base has begun to be developed related to those approaches. On the other hand, much of that work has focused on students with high incidence disabilities. What is known is described in the following sections.

Collaborative Teaming Practices in the Research

Though it is limited, there is some existing research that supports the overall use of collaborative teams, as well as their use of specific practices, when serving students with severe disabilities in inclusive general education classes. The research supports the overall use of education teams, individualized instruction within teaming models, and the role of team members. For instance, Fisher and Frey (2001) found that collaboration among education team members was critical for ensuring access to the general curriculum and participation in general education instructional activities for one student with severe disabilities in elementary school, one in middle school, and one in high school. Similarly, Hunt et al. (2003) found that collaborative teams designing Unified Plans of Supports for students with severe disabilities in general education classes and implementing those plans consistently resulted in increases in the students’ (a) acquisition of academic skills, (b) participation in-class activities, (c) interactions with peers, and (d) student-initiated interactions. Finnerty et al. (2019) found that collaboration between general and special educators was associated with sustained use of adaptations for students with severe disabilities.

Embedding Instruction

Research also supports the use of specific practices by collaborative teams. For instance, it supports various team members embedding individualized instruction for students with severe disabilities within general education instructional instruction and routines. In a series of studies, McDonnell and his colleagues (Jameson et al., 2008, 2012; Johnson et al., 2004; McDonnell et al., 2002) found that: (a) embedding individualized interventions for students with severe disabilities into general education instructional activities led to improved student outcomes on general education content standards, functional content, and the use of communication devices; and (b) peers, paraeducators, and general and special educators were effective at embedding individualized instruction with fidelity. In addition, Johnson et al. found that general educators “viewed embedded instruction as a practical, effective, and efficient strategy for teaching students with developmental disabilities in general education settings” (p. 214).
Communication Across Providers of Instruction

Research also exists on the roles of special education teachers and paraeducators in the delivery of services for students with severe disabilities in general education classes. This research describes various models in which paraeducators are used and raises questions about appropriate roles for paraeducators and special education teachers related to specific responsibilities (Giangreco, 2001; Suter & Giangreco, 2009). While research does not reveal officially identified evidence-based practices, experts point to the critical role of communication among special educators and para-professionals to ensure that students are receiving high-quality instruction that includes consistency of instruction across providers (Biggs et al., 2016, 2017).

General Education Classmates on Collaborative Teams

The existing research also supports general education classmates having a role in collaborative teams. For instance, Fisher and Frey (2001) found that the involvement of classmates on a student’s collaborative team was critical to ensuring access to and participation in the general curriculum. The role of classmates also has been studied related to the effectiveness of individualized instruction when provided by various team members. Jameson et al. (2008) found that classmates were effective implementers of embedded instruction that used constant time delay. Carter et al. (2005) found not only that classmates were critical members of collaborative teams, but also that having two classmates, instead of one, supporting the student with severe disabilities in general education contexts led to “higher levels of social interaction and contact with the general curriculum” (p. 15).

Co-Teaching

Co-teaching is one model of collaboration, one that focuses on two teachers, one in general and one in special education, working together (Friend, 2021). In co-teaching arrangements, students with disabilities receive supports and services in general education classrooms to which both general and special education teachers are assigned. This model most often is used when students with high incidence disabilities are in general education classes; however, in some schools, it is a general approach used for all students (e.g., The Henderson School in Boston Public Schools). Six models of co-teaching are prevalent in the literature and are described by Friend as follows. In the one teach and one observe model, one teacher observes to collect information for joint analysis at a later time. In the one teach and one assist model, one teacher teaches while a second teacher plays a supporting role for individual students. In the station teaching model, each teacher is assigned to various learning stations through which their students rotate. In the parallel teaching model, teachers share the responsibility for teaching the same content but for different groups of students. In the alternative teaching model, one teacher provides specialized instruction to a small group of students, while the second teacher provides instruction to the rest of the class at the same time. In the team teaching model, teachers share equally the responsibilities for teaching all the students.

Friend and Cook (1990) pointed out that co-teaching was intended to go far beyond the presence of two teachers during the same class. They suggested that “…collaboration is a style for interaction between at least two co-equal parties voluntarily engaged in shared decision making as they work toward a common goal” (p. 72). They described six characteristics that must be present for collaborative efforts to be effective: (a) mutual goals, (b) parity, (c) shared participation, (d) shared resources, (e) shared accountability, and (f) voluntariness (i.e., members voluntarily participate in collaborative efforts). It is when decision making is shared as teachers work toward common goals that students with severe disabilities have the greatest likelihood of receiving effective inclusive education services and instruction on the general education content standards within general education contexts.
Several features are critical for a co-teaching model to be effective. After completing a meta-
analysis of studies on co-teaching, Scruggs et al. (2007) stated that some of these variables included: 
(a) administrative support, as reflected in the availability of space and time to collaborate, as well as 
professional development related to collaborative teaming; (b) voluntary participation in co-teaching 
models; and (c) choice of and compatibility among co-teaching partners. While it might be desirable 
to allow teachers to volunteer to participate in co-teaching models and choose the colleague with 
whom they co-teach, these features might not be possible or even be compatible with including 
several students with severe disabilities across a grade level or school. Often only one teacher with 
specialized expertise in severe disabilities is employed in a school building; therefore, that teacher 
must be on each collaborative team, and choices of co-teachers are no longer an option (Ryndak 
et al., 2007). Additionally, allowing general education teachers to volunteer to teach a class that 
includes one or two students with severe disabilities or other extensive support needs enables other 
teachers to avoid responsibility for collaborating and limits the extent to which a grade level or 
school is inclusive for all students (Ryndak et al., 2007).

Friend et al. (2010) pointed out:

Despite considerable enthusiasm expressed by those who write about co-teaching and those 
who implement it, co-teaching illustrates the complexity of conceptualizing and studying 
collaboration in special education. Most inquiry on co-teaching has emphasized co-teachers’ 
roles and relationships or program logistics rather than demonstrating its impact on student 
achievement and other key outcomes, and far more literature exists describing co-teaching and 
offering advice about it than carefully studying it. (p. 9)

**Teaming Processes**

Some research exists on the processes used by teams to collaborate in co-planning, co-
implementing, and co-evaluating the effectiveness of instruction. For instance, Giangreco (1993) 
adapted and field-tested variations of the Osborn-Parnes Creative Problem-Solving process for use 
by collaborative teams to meet the needs of students with severe disabilities in general education 
classes. Snell and Janney (2000) found that team members used several methods for collaborating to 
resolve concerns related to the effectiveness of services for students with severe disabilities included 
in general education classes. These included steps that were similar to those reported by other 
researchers and were described as follows: (a) identify the problem; (b) collect information; (c) 
generate possible solutions; (d) evaluate those possibilities; (e) implement solutions; and (f) evaluate 
by watching, thinking and talking.

**Multiple Collaborative Teams**

Researchers also have begun to study the impact one effective collaborative team can have on other 
teams. For instance, Hunt et al. (2001) found that an effective collaborative team from one school 
could “visit” a “home” team at a second school and teach the “home” team to use a collaborative 
problem-solving process to more effectively co-plan, co-implement, and co-evaluate the effec-
tiveness of their services for students with severe disabilities in general education classes.

**Key Factors for Collaborative Teams for Students with Severe Disabilities**

Beyond the existing research related to collaborative teaming, the literature consistently re-
commends several variables as critical to meeting the needs of students in inclusive general education
classes. Some of these variables and examples of their relevance for meeting the learning needs of students with severe disabilities, such as Ava, Santiago and Malik, are presented in the following sections.

Members with Relevant Expertise

Collaborative teams are considered effective when they comprise members with expertise across areas relevant to the needs of the students with severe disabilities they serve. It is critical, however, that these areas include specific knowledge related to the education of students with severe disabilities, such as:

1. use of evidence-based interventions, instructional strategies, and inclusive education practices (Brown et al., 2020; Downing, 2010);
2. methods for embedding evidence-based interventions, instructional strategies, and practices across general education contexts and activities (Kennedy & Horn, 2004);
3. use of Universal Design for Learning (UDL) principles to design, implement, and evaluate instruction for all students (Meyer et al., 2014; Rose & Meyer, 2002);
4. use of accommodations and modifications to curriculum, instruction, materials, and contexts (Copeland & Keefe, 2007; Downing, 2010; Kluth, 2003);
5. adherence to guidelines for selecting, teaching the use of and evaluating students’ use of assistive technology (AT) and augmentative and alternative communication (AAC) systems (QIAT Leadership Team, 2015); and
6. methods for embedding instruction on, and the use of, AT and AAC in inclusive general education classes and activities (Kleinert et al., 2019).

When considering Malik and his multiple disabilities, general and special education teachers must work together to ensure lessons are universally designed and Malik is receiving necessary accommodations. During co-planning, his teachers look at the general education content standards addressed within each lesson and the instruction that Malik will receive to ensure he has access to that content and is engaged with and making progress in the general education content standards. His speech/language pathologist works closely with his teachers to program his communication device to support his upcoming lessons and provides services to Malik in the classroom by embedding instruction on his use of the communication device in natural settings. This provides opportunities for Malik to learn how to use his device to engage in the lessons with his peers. Additionally, the therapist models for his teachers how to engage Malik through the use of his device. The skills learned by the teachers are then routinely used and integrated as an ongoing part of daily classroom activities.

A Common Vision of Services for All Students

To be collaborative, team members share the overall goals of the services they provide for all of their students. This requires that they have a common vision of services and a keen understanding of how their respective roles support the design, implementation, and evaluation of those services (Fisher & Frey, 2001).

For instance, Santiago’s collaborative team members all recognize the importance of addressing his challenging behaviors through positive behavior interventions and supports while also working on his communication and ESL needs. Their common vision reflects the expectation that he interacts and develops relationships with his general education classmates and engages with them during activities within their general education classes, school, and community.
**Shared Ownership and Responsibility**

Members of collaborative teams have equal ownership of and responsibility for planning, implementing and evaluating the effectiveness of their combined services for the students with severe disabilities they serve in general education classes. This shared ownership and responsibility for the learning of all students, as well as the measurement of that learning, lead to shared accountability and acknowledgment for the student outcomes they achieve through their collaborative efforts (Ryndak et al., 2007).

Shared ownership and responsibility are evident when Ava’s collaborative team discuss, agree upon, implement across members and contexts, and evaluate the effectiveness of practices related to her general education content standard goals, communication, and fine motor needs. Each team member works to support all of Ava’s needs instead of focusing solely on one area. For example, Ava’s occupational therapist provides services to her during general education classes when she addresses fine motor challenges while also supporting instruction on the content of the general education lesson and encouraging increased communication.

**Role Release**

To use resources wisely, members of collaborative teams share their diverse expertise so that specialized uses of that expertise (e.g., positioning students with physical needs; embedding instruction; using evidence-based interventions) are implemented with fidelity by all team members across the school day. In this way, team members also develop expertise from each other and implement with fidelity the specialized interventions they learn. As team members engage in role release, they learn specialized knowledge and implement specialized interventions that are supervised by the team member with the relevant licensure for each aspect of services (Orelove et al., 2017).

The collaborative team for Santiago demonstrates role release when they provide instruction on content that does not match their specific expertise. Since the language used in Santiago’s home is Spanish, his instruction may be provided by various members of the team who have learned evidence-based language support strategies by those who have expertise in bilingual education, as well as in augmentative and alternative communication. For example, the general education teacher may use key vocabulary in Spanish and provide object cues during a literacy activity. The special education teacher might model these communication strategies for his grade-level classmates so that Santiago can interact and communicate meaningfully during group activities in class, during recess, and during lunch. Finally, the occupational therapist may learn key phrases in Spanish in teaching individually identified essential embedded skills for use during routines.

**Ground Rules for Team Functioning**

To function efficiently, collaborative teams develop and adhere to ground rules for team functioning. Some recommended ground rules include (a) demonstration of mutual respect among team members, (b) establishment of team goals, (c) assignment of clear roles, (d) individual accountability, (e) measurement of effectiveness, (f) reflective evaluation of the team’s functioning, (g) problem-solving processes and action planning, and (h) receipt of mutual benefits from their collaboration (Jorgensen et al., 2010; Pugach et al., 2012).

The effective use of ground rules for collaborative team functioning is evident in the way that Malik’s team operates. The parents, general education teacher, special education teacher, speech/language pathologist, physical therapist, occupational therapy, and assistive technology specialist actively listen to each member’s perspectives and collaboratively set goals based on Malik as a ‘whole’ child, rather than from a discipline-specific view, and set expectations for responsibilities as a
collective group, as well as individuals. For example, if there are different perspectives about an adaptation for teaching multiplication, the team can listen to the advantages and disadvantages of each method and then determine which to use. Once a decision is made, the assistive technology specialist may make the necessary adjustments to Dynavox and Tobii, and the special education teacher may collect data on its effectiveness. Then, the team can reflect upon their problem-solving process and co-evaluate the impact of their decisions.

Only as Special as Necessary

Rather than automatically adding an adult with specialized expertise to an instructional context, collaborative teams use role release to determine how services that require specialized expertise can be implemented by team members who have less or different expertise (e.g., classmate, paraprofessional, math teacher). In this way, instruction that requires specialized expertise can be implemented across the school day by team members with less professional development, but with preparation and supervision to implement services provided by team members with the specialized expertise. In this way, team members whose services are most expensive are present for a student’s instruction only when their presence is necessary (i.e., when they have not been able to teach other team members to use specific expertise to meet a student’s learning needs). In this way, the expertise of the team member implementing services is only as special as necessary, allowing flexibility in the use of the more specialized team members while allowing specialized instruction to occur across each school day, rather than only when a team member with specialized expertise is available (Carter et al., 2009; Giangreco, 2001).

This concept of ‘only as special as necessary’ can be seen in how supports for Ava are co-planned and co-implemented by her team. For example, during the literacy block, a peer-assisted learning strategy might be used. The general education teacher introduces a phonemic awareness activity to a small group and pairs Ava with a general education classmate who has been taught to support her so they can continue to work on the activity. The effectiveness of peer-assisted learning is then evaluated by the special education teacher, who examines the data collected by a trained paraprofessional. Additionally, the occupational therapist may train the paraprofessional to teach Ava to open snack packages in the cafeteria, and the speech and language therapist may provide training to the peers to ask Ava open-ended questions about favorite cartoons to increase the number of communication exchanges.

Challenges to Effective Collaborative Teaming

The idea of collaborative teaming is widely accepted. At the same time, however, implementing collaborative practices is perceived as challenging because of how personnel are prepared, differing mindsets and beliefs they might hold, administrative infrastructures and processes within which they practice, and how teams function.

Differences in Professional Development

Teams comprising individuals from different disciplines sometimes experience challenges caused by individual members’ various points of view that reflect the perspectives of their professional development programs. Varying programs frequently focus on discipline-specific content within different theoretical and conceptual models (e.g., medical, clinical, inclusive, disability-based). While individual team members should have different discipline-specific expertise, the use of different terminology, different goals for services, and different visions of what constitutes effective practices can be problematic for team functioning. For example, consider this difference: Central to
special education practice is the concept of individualized instruction; however, central to general education practice is group instruction. These different practices, and their underlying differences in beliefs about teaching and instruction, can result in team members holding different opinions about “fairness,” especially related to the use of accommodations and modifications to meet the learning needs of individual students. Consider, too, the challenges related to the different professional vocabulary used by various team members. Occupational and physical therapists typically use terminology related to the medical field, while general or special educators use terminology related to pedagogy and learning. A lack of understanding of the terminology used by team members can be challenging to a team’s communication, shared vision, and effectiveness.

Team members with specialized expertise often are challenged by the concept of role release; that is, the practice of sharing specialized expertise so all team members can use that knowledge and skills in their own practice with individual students. Some professionals believe that their knowledge and skills are so specialized that others would not be able to understand or apply specific practices. Others are concerned that if they release their roles to team members, their expertise might not be needed in the future. Conversely, team members might be challenged by the concept of learning new knowledge and skills from other team members, believing that this could emphasize the importance of the expertise of other team members while diminishing the importance of their own expertise and their ability to use it with individual students.

Finally, personality differences among team members also can result in challenges to team functioning and collaboration (Hamilton-Jones & Vail, 2014). For example, the critical variables of equal membership, shared responsibility and shared accountability can be threatened by dominant personalities and by perceptions of unequal power or rewards.

**Mindsets and Beliefs**

As mentioned previously, one of the six characteristics needed for effective collaboration is voluntariness (Friend & Cook, 1990). Team members must be willing to work collaboratively with each other to support inclusive education practices for all students. Specifically, research indicates that the more positively a teacher feels about inclusive education, the more open they are to make adaptations to meet the needs of all students and work collaboratively to design and implement inclusive education for all students (Cullen et al., 2010). Cullen et al. found that general educators frequently hold negative beliefs about inclusive education, fearing that including all students would take too much time for co-planning, co-implementing, and co-evaluating instruction. In addition, some special and general educators cite general educators’ lack of knowledge and skills as reasons not to provide inclusive education for students with severe disabilities.

Similar to educators and administrators, parents also hold beliefs about inclusive education and inclusive instructional practices that can shape both the educational placement of their child and collaborative teaming practices. Palmer and his colleagues (2001) found that while some parents supported inclusive education and believed it would benefit their child academically, many parents of children with severe disabilities feared that the severity of their child’s disability was too great for their child to benefit from being with general education classmates in general education settings. In addition, Palmer et al. found that parents feared their child would not be welcomed in general education classes. School districts have a responsibility to work with parents to alleviate these concerns and share information on inclusive education practices associated with improved student outcomes.

**Team Functioning**

Teams can function well only if there is time to co-plan, co-implement, and co-evaluate instruction; however, a challenge to collaborative teaming often identified by general educators is the lack of
sufficient time for these activities (Foster, 2013). The factors that potentially inhibit time to collaborate are numerous. For instance, paraeducators might be paid only for the time they spend interacting directly with students; related service providers might travel between schools on tight schedules; general and special educators might not have planning time scheduled in common. Each of these factors makes it difficult to schedule meetings, yet meetings are essential for effective collaboration. To address, research indicates that administrative support is essential to ensuring sufficient common planning time is built into schedules for effective collaborative teaming (Harding, 2009; Smith & Leonard, 2005). To function well, teams require the use of practices that facilitate efficient and effective use of the limited time allocated for meeting. Time available can be optimized by the utilization of practices to increase efficiency. Commonly recommended practices include the assignment of roles of timekeeper, note-taker, and facilitator for each meeting.

A final challenge to effective collaborative teaming is how to embed teams within existing school-wide structures, so they enhance those school-wide structures, rather than functioning separately from, or in conflict with, those structures. For example, collaborative teamwork should be embedded within multi-tiered systems of support (Sailor, 2015), which provide a continuum of support that enhances learning for all students. While models for multi-tiered systems of support vary across schools, common elements include “multiple tiers of intervention service delivery, a problem-solving method, and an integrated data collection and assessment system to inform decisions at each tier of service delivery” (Averill & Rinaldi, 2011, p. 91). Collaborative teams also should be embedded within grade-level teams and subject area teams.

Multi-level Administrative Support and Infrastructures for Collaborative Teaming

Since one of the main characteristics of effective collaboration is voluntariness, it is critical for administrators to provide the necessary infrastructures and support that assist all educators to be invested in collaborative processes. Federal mandates (IDEA, 2004) ensure that certain provisions are in place for all students with disabilities, including education in the least restrictive environment, access to the general education content standards, and active parental participation. In addition to federal policy, state and district policies might add regulations regarding services that local education agencies must provide to students with disabilities, as well as procedures that must be followed. Beyond federal, state and district policies and procedures, numerous federally-funded projects and state departments of education have developed tools that summarize research- and evidence-based practices that comprise effective collaborative services for students with severe disabilities. For example, one set of tools used for systems at different levels (i.e., state, district, school, education team) are known as RISE tools (Reflecting on Inclusive Systems of Education; TIES National Technical Assistance Center on Inclusive Practices and Policies, 2021). Teams of stakeholders use these tools first to reflect on the extent to which their services reflect evidence-based practices, including those that support collaborative teaming, and then to strategize how to increase and improve their use of evidence-based practices across their education system.

The RISE tools reflect an understanding that the vision and mission statements of a district and each school have a powerful influence over the acceptance of and willingness to implement inclusive education policies and practices, including collaborative teaming. Foster (2013) found that both general and special educators were more supportive of inclusive education and collaborative teaming practices when the practices were clearly embedded in their district’s mission statement and had their administrators’ support. In contrast, Foster found that teachers who worked under administrators that were not supportive of inclusive education practices did not believe these practices to be in the best interest of all students. In addition, they were more likely to refer students with disabilities to segregated settings. Roberts et al. (2018) found that administrators working in inclusive schools welcomed students with severe disabilities, worked collaboratively with team members and made
changes to general education services to best support all learners. The beliefs and actions of administrators surrounding inclusive education and collaborative practices were paramount in the philosophy of the school and all its members. Thus, the extent to which effective collaborative teams can develop and function with and across schools is directly impacted by the vision and mission explicitly stated and supported by the leaders of those systems.

An additional barrier to collaborative teaming described by general educators is a lack of expertise and relevant professional development that teaches and models collaborative practices. In response, administrators must develop infrastructures that support collaborative teaming, and provide effective professional development activities, technical assistance, and coaching that teach and model collaborative teaming practices so all team members (e.g., general and special educators, related services personnel, paraeducators) can develop and practice them.

An additional barrier to collaborative teaming is the trend of administrators hiring dual- or triple-licensed educators and expecting them to be responsible for multiple roles (i.e., the role of both the general educator and the special educator). While this sounds positive in theory, in practice, it is less positive. In situations where one individual is responsible for multiple roles, there are not team members with whom that individual can collaborate to co-plan, co-implement, and co-evaluate instruction. If a general educator is hired with certification in both elementary and special education, and that teacher is solely responsible for the education of all students in the classroom, this person loses the benefit of brainstorming, receiving feedback, sharing expertise, and gaining the perspective of another team member. In addition, they lose the support for completing tasks such as developing materials, teaching groups of students, and sharing supervision of students during instruction. Administrators can alleviate such losses by ensuring that even dually-licensed educators are part of a collaborative team and that no educator is teaching in isolation.

Collaborative Teaming and Identifying Instructional Content

A key area in which collaboration is essential is planning instructional content for students with severe disabilities. With the advent of a focus on access to the general education content standards, access to grade-level general education classmates, accountability for progress on the general curriculum, and specially-designed instruction on standards-based content for students with severe disabilities, new attention is being given to the students’ instruction on general education content standards. While evidence-based practices support the use of processes through which collaborative teams can identify relevant instructional content for a student with severe disabilities, prepackaged curricula have begun to be developed specifically stating their purpose as providing access to the general education content standards for students with severe disabilities. Some curriculum packages, such as Early Literacy Skills Builder (Browder et al., 2010), Promoting Awareness of Sounds in Speech (Roth et al., 2012), and Early Numeracy (Jimenez et al., 2013), are noted as having been developed with the consideration for the diverse adaptation needs of students with severe disabilities. On the other hand, researchers are beginning to question the extent to which such curricula are aligned with grade-level general education content standards and, therefore, questioning their effectiveness in assisting students with severe disabilities in making progress on the general education content standards as they are taught to their grade-level classmates (Taub et al., 2019, 2020). If used, most commercially available prepackaged curricula rarely can be used directly off-the-shelf without individualization to meet some of the heterogeneous needs of the students. In addition, teams must also collaborate to ensure that instructional content for any student with severe disabilities is aligned with content and instruction delivered in general education classes.

For students like Malik, it is critical for the team to collaborate to make adaptations that allow true access to the general curriculum and instruction, providing real opportunities to learn (Taub
et al., 2017). The general and special educators will need to collaborate to determine the level of complexity at which he will access grade-level general education content standards. The two educators and related service providers will need to collaborate to identify, develop, and use adaptations and supports for both presenting instruction and student responding. Finally, while prepackaged curricula might be treated as sources for concrete or reproducible materials (e.g., worksheets), ultimately, the content on which instruction is provided, as well as ‘how’ that instruction is provided, will have to be decided by each student’s collaborative team after initiating collaboration around the general education class content and instruction. These decisions would include the appropriate level of prompting and the use of instructional strategies like time delay, error correction, and reinforcement.

Various curricular access models have been presented to inform the selection of high-priority grade-level academic standards for instruction (Browder et al., 2007; Hunt et al., 2012; Ryndak et al., 2009). Several of these models have components in common. For instance, first and foremost, these models begin with collaborating with the student’s family to ensure that the selected standards are consistent with their priorities. For example, Hunt et al. (2012) described an ecological model of providing access to the general curriculum that begins with the identification of goal areas using a family-centered approach. Tools such as Choosing Outcomes and Accommodations for Children (COACH; Giangreco et al., 2011) can be used to facilitate the process of identifying family priorities in a systematic manner. Santiago’s family would benefit from this process with the addition of an interpreter and cultural liaison for a culturally- and linguistically-responsive approach to the selection of priority goals.

These models also describe a student’s collaborative team as considering various criteria when selecting relevant high-priority grade-level content standards. Among these are: (a) identification of grade-level content standards based on chronological age, (b) examination of the representativeness of the key strand areas within the subject area, (c) alignment to grade-level expectations with consideration for scope, (d) differentiation over the years, and (e) preservation of the integrity of the content area standards (Browder et al., 2007). The use of these criteria requires deep content-area knowledge and collaboration with general education teachers. As Ryndak et al. (2009) pointed out, the underlying assumptions and perspectives of team members about context and content, as well as what it means to provide access to the general education content standards and opportunities to learn, impact this process. This highlights the importance of shared responsibility; development of collaboration skills; and accountability systems that support collaborative teaming for co-planning, co-implementing, and co-evaluating the effectiveness of instruction.

The process of identifying high-priority grade-level content standards also must be based on longitudinal planning. This means that instruction should be provided to target standards that are critical for growth within specific strand areas. For example, Collins et al. (2006) described how a high-priority math skill of telling time could be developed by targeting telling time to the hour, to the half-hour, increments of 15-minutes, etc., and having students apply it to their class and daily schedules. Similarly, money handling can be addressed by targeting coin identification, value of combinations of bills and coins, comparison of prices, calculation of tips and taxes, budgeting, etc. This requires collaboration with general education teachers to ensure that students are being taught content based on a logical progression of more sophisticated skills and concepts within meaningful contexts. For a student like Ava who has emerging academic skills, it is critical that instructional planning consider long-term growth.

In addition, horizontal integration of targeted academic skills is critical in ensuring that core academic skills are addressed across content areas. For example, if a priority academic standard for a student is to answer ‘w’ questions, then the team would collaborate to ensure that ‘w’ questions are addressed across content areas in social studies with ‘w’ questions about historical events (e.g., who the historical figure was, what happened during the event, when the event occurred, where it
occurred); in earth and space science with ‘w’ questions about the weather phenomena (e.g., what the weather event is, when it occurs, where it occurs, how it occurs, etc.); and in English language arts with ‘w’ questions after reading narrative and expository text. This again requires collaborative teaming to ensure that these high-priority academic skills are addressed across content areas and related services. In addition, the format of the presentation of the questions and response modalities would be determined collaboratively.

Collaborative teams also decide the level of complexity at which the selected high-priority grade-level standards would be addressed. As stated earlier, it is important to preserve the integrity of the grade-level content standards and avoid reverting to lower grade-level content. Some states (e.g., Massachusetts) have provided resource guides for teachers of students with severe disabilities that show a continuum of complexity for each grade-level standard to facilitate this team process (Massachusetts Department of Elementary and Secondary Education, 2020). The expertise of general education teachers is critical to maintain focus on the selected grade-level content standards and prevent overstretching (e.g., having a student draw an animal when the life science standard is about habitats) or mismatching (e.g., naming animals when the life science standard is about the differences and similarities of plants and animals) (Courtade & Flowers, 2007). Similarly, the expertise of special education teachers is critical for identifying, developing and ensuring the effectiveness of instructional supports provided to afford students opportunities to learn and make progress on the general education content standards.

Collaborative Teaming and Providing Effective Instruction

Collaborative teaming is necessary for effective instruction in an inclusive setting. Considering the heterogeneity of students with severe disabilities, systematic adaptations require the expertise of each member of the team. In addition, the students’ need to have essential skills embedded meaningfully into daily routines makes coordination paramount. The co-planning and co-implementing of evidence-based practices, as well as co-evaluating, are discussed below.

Systematic Adaptations for Instruction on Grade-Level Content Standards

Related service providers are critical in determining the appropriate presentation of materials and student response. For instance, for the presentation of materials, the speech/language pathologist could provide input about the level of symbolic representation (e.g., text, picture symbols, photos, tactile materials, concrete objects) and level of vocabulary that match a student’s learning needs; the physical therapist could make recommendations about the placement of the materials (e.g., plane of presentation or positioning for the inhibition of primitive reflexes such as the asymmetrical tonic neck reflex [ATNR]); the occupational therapist could make recommendations regarding placement of materials regarding hand dominance, size of manipulatives for ease of grasp, adaptations for turning pages of a book, etc.; the teacher of students with visual impairments could suggest materials that provide enlargement/color contrast of materials, tactile materials, etc. For a student like Malik, input from team members with differing expertise is critical to assure appropriate individualization.

For student response, various considerations such as the format of response (e.g., open-ended, multiple-choice), modality of response (e.g., verbal, written by handwriting or assistive technology, a selection from an array of picture symbols using pointing, eye gaze, augmentative and alternative communication device, etc.), and complexity of the response need to be taken into account. This process will require the collaboration of speech/language pathologists, physical and occupational therapists, and assistive technologist specialists.

Some students, such as Santiago, might require behavioral supports during academic instruction. In collaboration with other team members, a behavior specialist can conduct a functional behavioral
assessment to identify antecedents and consequences associated with challenging behaviors and recommend preventative and instructional strategies for appropriate replacement behaviors. Considering that the academic task itself might serve as an antecedent and trigger the behavior, collaboration with the entire team could be critical to prevent any mismatch between the difficulty level of the academic tasks and the student’s current level of performance and to ensure that there are appropriate adaptations and supports in place.

**Embedded Essential Skills**

Students with severe disabilities have additional needs that require instruction across various domains of life (e.g., daily living skills, community, etc.). Rather than perceiving the mandate to provide access to the general education content standards as competing against the need for instruction on embedded essential skills or classifying skills into mutually exclusive categories of academic or functional, there are ways to reconcile them and to consider overlaps. For example, Hunt et al. (2012) presented the ecological model that teams can use to determine outcomes that are standards-aligned within priority goal areas identified by the family and to provide instruction across meaningful contexts, rather than just in the classroom. Essential skills of socializing with peers (e.g., turn-taking) and communicating (e.g., staying on topic) can be embedded within academic contexts, and academic skills can be embedded in daily routines. This again requires collaboration with the entire team to ensure that all the students’ goals are addressed in meaningful contexts to the maximum extent possible.

**Planning and Implementing Effective Instruction with Evidence-based Practices**

Instructional planning in an inclusive setting should begin with the general education teacher adhering to the principles of Universal Design for Learning (UDL; Rose & Meyer, 2002). The extent to which the general education teacher plans with the needs of all students, including those with severe disabilities, in mind by providing multiple means of engagement, representation, and action and expression will have an inverse relationship to the need to add-on adaptations as an afterthought. While the need for all individualized adaptations cannot be completely eliminated even with UDL, the team can collaborate to identify appropriate assistive technology for reading (e.g., digital texts with text-to-speech, electronic picture dictionaries for key words, age-appropriate online books at accessible readability level), composition (e.g., electronic picture-based graphic organizers, word prediction), motor aspects of writing (e.g., adapted keyboard and mouse, speech-to-text, eye gaze input), and math (e.g., adapted calculator, virtual math manipulatives). The team can select augmentative and alternative communication methods (e.g., object/miniature objects, picture symbols on academic topic boards or pragmatic organization dynamic display, voice-output devices with a static display, or app-based systems with dynamic display) by considering expressive/receptive language, physical abilities, and levels of symbolic representation and literacy levels, as well as ensuring that the key academic vocabulary for each lesson is readily accessible for the student’s use.

The use of **systematic instruction** was identified as an evidence-based practice to teach academic skills (Browder et al., 2006; Orlando & Ruppar, 2016; Saunders et al., 2020; Spooner et al., 2011, 2019). Systematic instruction, which incorporates the use of task analysis, appropriate prompting procedures and error correction, requires careful planning. The steps of the academic task will need to be systematically identified, the level within the prompt hierarchy (i.e., visual, verbal, modeling, physical) and prompt latency (e.g., 5-second constant time delay or 0-, 2-, 4-, 6-second progressive time delay) will need to be identified, and specific procedures for error correction will need to be pre-planned. Selection of the appropriate level of prompt requires consideration of the advantages/disadvantages of each (e.g., modeling requires the student to have imitation skills and consideration for the chunking of the model into rememberable steps, verbal prompts may need to be adjusted for
vocabulary level and used with caution to minimize prompt dependency, physical prompts may be beneficial for errorless learning, but some may be averse to touch.

These details need to be communicated clearly to all team members. The clarity and specificity of instructional plans become critical considering the number of individuals on the team who work directly with the student. For example, paraprofessionals are frequently used to provide instruction in inclusive settings. If an instructional plan only states that the student is to be provided prompts, the paraprofessional might not know which type of prompts to use. Simply stating “verbal prompt” would not make it clear as to whether to provide a direction to reattempt (e.g., “Try again”), encouragement (e.g., “I know you can do it!”), redirection of attention (e.g., “Look here”), or content-related prompt (e.g., “Look at the first word”). Depending on the paraprofessional, there might be a very long wait time or rapid-fire series of prompts. Therefore, for paraprofessionals who work with students like Ava, Santiago, and Malik, the instructional steps to be implemented must be explicitly described and documented.

The strategies used for planning systematic instruction are based on applied behavior analysis (ABA). Unfortunately, there is a misconception of equating ABA with discrete trial training in which students are taught on a one-on-one basis by an ABA technician using massed trials outside of general education classes. This is problematic due to the lack of opportunities to have peer models during skill acquisition, challenges with the generalization of academic skills to meaningful contexts, and lack of maintenance of skills through distributed practice. It is critical to recognize that prompting, reinforcement, and error correction strategies used in systematic instruction are transportable and can be implemented within the contexts of general education classes through collaborative teaming and doing so helps to assure generalization of skills across people, places, and things.

Addressing Differences in Perspectives on Collaborative Teams

As stated earlier, there are various barriers to effective collaboration. General education teachers might follow an inquiry-based, constructivist approach and might perceive the explicit instruction model and systematic instruction used by special education teachers as being diametrically opposed to their theoretical framework. Professional development provided for related service providers might impact their perspectives about the student and their disabilities, service delivery models, instructional contexts, etc. Attitudes about the competence of individuals with severe disabilities might serve as a barrier to inclusive placements (Vandercook et al., 2020). Some parents might even view inclusion with suspicion, as though it may result in a dilution of services. Some team members might perceive trans-disciplinary service delivery as an encroachment on their turf as disciplinary boundaries are blurred. Such challenges can be remedied through school- and district-level leadership, allocation of common planning time and resources for collaboration, team-based professional development, accountability systems, and other variables.

Multi-tiered Systems of Supports

Multi-tiered system of supports (MTSS) was initially designed to address the needs of students at risk and to identify students with suspected specific learning disabilities who fail to respond to the intervention and, thereby, are determined to be in need of special education. Therefore, students with severe disabilities often were excluded from the discussion of the MTSS model. On the other hand, MTSS actually was conceptualized to be inclusive and to address the needs of students with severe disabilities through tiered levels of support (e.g., response to intervention, positive interventions and supports, Thurlow, 2020). In fact, as Thurlow noted, the Every Student Succeeds Act (2021) permits funds to be used for students with the most significant cognitive disabilities so they can meet academic standards (Sec 2103(b)(3)(F)). In this conceptualized of MTSS, collaborative team members can collaborate to provide academic Tier 1 supports (e.g., identification of priority goals, use of AAC
systems), Tier 2 supports (e.g., activating background knowledge or pre-teaching key concepts), and Tier 3 supports (e.g., providing targeted instruction). Similarly, behavioral supports at Tier 1 (e.g., accessible presentation of expectations and behavioral rules), Tier 2 (e.g., breaks, explicit instruction of social skills), and Tier 3 (i.e., individualized positive behavior support plan based on the results of a functional behavioral assessment) can be provided through collaborative team planning.

Assessing Progress

Students with severe disabilities are assessed for various purposes (e.g., diagnosis, initial or re-evaluation for special education eligibility, instructional planning, monitoring of progress, participation in the statewide accountability system). Historically, the evaluation of students has been discipline-specific (e.g., the occupational therapist focuses on fine motor skills; the speech therapist focuses on speech and language development). But this approach ignores discipline overlaps and results in fragmented findings written with discipline-specific terminology that might be unfamiliar to family members or other team members. What is needed is a focus on the whole child, considering relevant activities and contexts and findings that are instructionally meaningful. Such focus would be family-friendly and could assist in the development of IEP objectives. For students like Ava, Santiago, and Malik, a collaborative approach to assessment is needed (Brown et al., 2020). In addition to the evaluation for special education eligibility, ongoing data collection for the attainment of IEP objectives for formative purposes is necessary, and team members would share a collective responsibility.

Related to assessment is the matter of assignment of grades for work performance. General education teachers often struggle with how to assign grades for students with severe disabilities on report cards. It is critical for the team to consider and come to an agreement regarding the grading criteria for a standards-aligned report card for students with severe disabilities who might not meet the same grade-level achievement as their classmates. Finally, the social validity of each student’s outcomes must be evaluated by asking the student, family members, and even the student’s friends if the outcomes are important, meaningful outcomes for the student.

Conclusion

In this chapter, we noted the legal mandate for the provision of effective special education and related services for students with disabilities by education teams and the need for expanded membership on teams charged with meeting the heterogeneous educational needs of students with severe disabilities within general education classes and other inclusive contexts. While many terms have been used to refer to these education teams and how they function, a collaborative teaming approach is supported by the literature as the most relevant for students with severe disabilities. It is not clear in the literature, however, that collaborative teaming practices are being implemented on a large scale.

We identified three indicators that define inclusive education for students with severe disabilities, including the students: (a) engaging with and making progress in the general curriculum and individually identified essential skills to participate in grade-level general education classes and other contexts; (b) interacting and developing relationships with their grade-level classmates; and (c) engaging in activities within their general education classes, school, and home communities. To accomplish this, we described how teams consistently monitor the degree to which these key indicators are evident as they co-plan, co-implement, and co-evaluate the effectiveness of each individual student’s special education and related services. We further discussed how, for these indicators to be actualized, collaborative teams must address four aspects of a student’s education: content, context, instruction, and accountability.

With this foundational information, we then discussed what the research and collective wisdom of practice tell us about collaborative teaming and meeting the needs of students with severe disabilities in
inclusive general education settings. For instance, these tell us that a teaming teaching model is more effective than an isolative teaching model and that collaborative teaming is the most effective model of teaching. They inform us about several practices that support effective collaborative teaming, including the embedding of instruction within general education instruction and routine tasks, communication across all providers of instruction and other services, and the membership of a student’s general education classmates on their collaborative team. They tell us that co-teaching models are effective and require support from the school’s administrative, teaching and support personnel; and that teaming processes exist that facilitate co-planning, co-implementing, and co-evaluating the effectiveness of instruction. They also support the interaction of members of multiple teams to support the development and implementation of multiple collaborative teams within and across schools. Finally, they inform us that several factors are key to the effective implementation of collaborative teams for students with severe disabilities. These include members contributing the expertise relevant to meeting a student’s unique and multiple learning needs, a common vision of services for all students, shared ownership and responsibility, use of role release practices, ground rules for team functioning, and services being provided by personnel with expertise that is only as special as necessary.

We also discussed challenges to effective collaborative teaming that have been identified, including the difference in the professional development of various team members, how that professional development and other experiences frequently result in differing mindsets and beliefs about teams and how they should function, and the need for administrative support and infrastructures that facilitate collaborative teaming and cross multiple levels of a system (e.g., classroom, school, district). Finally, we described how collaborative teaming processes could impact the instructional content identified for a student with severe disabilities and the provision of effective instruction on that content. Through collaborative teaming, students with severe disabilities are more likely to have systematic adaptations for instruction on grade-level curriculum content, instruction on essential skills embedded within grade-level instruction and routines, implementation of evidence-based practices across instructional activities, instruction that reflects the expertise of multiple collaborative team members, engagement in class- and school-wide multi-tiered systems of supports, and valid and reliable assessment of progress.

Though collaborative teaming is the most efficacious approach to meeting the educational needs of students with severe disabilities, we recognize that it is not widely or consistently implemented across schools or districts. Greater efforts must be made to develop and implement collaborative teaming to respond to the intent of our education legislation and provide services informed by research and wisdom of practice. To do so, we argue for the increased use of implementation science approaches by education teams, schools, districts, and states to ensure both initial implementation and scaling up collaborative practices systemically.

References
Ryndak et al.


Saunders, A., Wakeman, S., Reyes, E., Thurlow, M., & Vandercook, T. (2020). Instructional practices for students with the most significant cognitive disabilities in inclusive settings: A review of the literature. TIES Center. https://tiescenter.org/resource/8j/b6dpf5jSmKSVg6x4oGR.Gw

Scholastic and the Bill & Melinda Gates Foundation (2012). *Primary sources: America’s teachers on the teaching profession*. Scholastic Inc.


Taub, D., Apgar, J., Foster, M., Ryndak, D. L., Burdge, M. D., & Letson, S. (2020). Investigating the alignment of math curricula developed for students with significant intellectual disabilities and the CCSS. Department of Specialized Education Services, UNC Greensboro.


