

## Teaming, Collaboration, and Case-Based Learning: A Transdisciplinary Approach to Early Intervention/Education

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**Abstract:** Throughout the United States, an increasingly strong emphasis is placed on interprofessional personnel preparation, particularly in the field of early intervention/education. Teams of professionals representing multiple disciplines work collaboratively to provide optimal services for young children (birth through age eight) with delays or disabilities; therefore, university students representing multiple disciplines are educated together in preparation for them to collaborate with other professionals and family members when they began their careers. The purpose of this article is to describe how faculty members from multiple disciplines (e.g., early childhood special education, general early childhood, physical therapy, occupational therapy) and schools at the University of Alabama at Birmingham (UAB) prepare graduate students through an interprofessional development program. Students are taught to collaborate and serve as team members using transdisciplinary procedures. Cases of young children with delays or disabilities are used to illustrate how to collaboratively address the issues and challenges identified in each case. This article explains the case-based process that is used at UAB to prepare graduate students to provide transdisciplinary services and includes the development of teaming skills and practices that are responsive to cultural and economic diversity.

**Keywords:** interprofessional development, early intervention, teaming, personnel preparation, children with disabilities, transdisciplinary services

### Introduction

In the evolving field of early intervention/early childhood special education (EI/ECSE), recent advances in the science of early childhood development suggest that investments in comprehensive and coordinated services generate long-term benefits for children and families (Bruder, 2010). Infants and young children receiving EI/ECSE services are diverse in their ages, types of delays or disabilities, and cultural and socioeconomic backgrounds; therefore, professionals representing multiple disciplines and diverse backgrounds are needed to be members of their intervention/ education teams to meet their needs (Bruder, 2016; Bruder & Dunst, 2005).

The purpose of this article is to describe how faculty members at the University of Alabama at Birmingham (UAB), with input from family members and community stakeholders, developed and implemented a transdisciplinary graduate program designed to prepare personnel from the disciplines of early childhood special education (ECSE), physical therapy (PT), and occupational therapy (OT). The article begins by defining a transdisciplinary team model and describes how teams are prepared to collaborate and implement a transdisciplinary approach. The faculty at UAB prepares teams of graduate students from various disciplines to work through cases, address the issues, and design appropriate services for the young children with special needs and their families represented in the cases. Emphasized throughout this approach is how to provide team-based services that are responsive to children and families from diverse cultural and economic backgrounds and build on the collective expertise of all team members.

### Transdisciplinary Team Model

A transdisciplinary team model represents recommended practice in the field of early intervention/education. Transdisciplinary teams, which include family members, work together to exchange expertise, knowledge, and information to build team capacity and jointly solve problems, plan, and implement interventions to ensure that programs achieve desired child and family outcomes and goals (DEC, 2014). For

transdisciplinary teams to function effectively, professionals from multiple disciplines contribute equally to team functioning, exchange existing roles and acquire new roles, and are committed to providing culturally competent, family-based services in natural environments for children with delays or disabilities. Unlike multidisciplinary or interdisciplinary teams, transdisciplinary teams jointly identify the goals or outcomes for each child with discipline-specific goals or outcomes woven into the overall team goals (Kilgo, 2006).

A transdisciplinary approach is more beneficial than multidisciplinary and interdisciplinary models for several reasons. A transdisciplinary approach avoids fragmentation of services among disciplines, prevents a duplication of services, integrates services that are more holistically focused on each child, emphasizes the importance of family members as equal members of the team, and encourages role release among team members (Kilgo, 2006). In the sections that follow, one universities approach to preparing graduates to use a transdisciplinary model is described.

### **Project TransTeam at UAB**

At the University of Alabama at Birmingham (UAB), graduate students are taught to use a transdisciplinary model. Through Project TransTeam, which is funded by the U.S. Department of Education Office of Special Education, graduate students representing early childhood special education, occupational therapy, and physical therapy are educated in the same courses, where they are prepared together for two semesters. The faculty members for Project TransTeam include an early intervention/early childhood special educator, who is also the Principal Investigator of the federally-funded grant, an occupational therapist, a physical therapist, and a general early childhood educator. Each faculty member serves as a liaison to their respective programs, departments, and schools within the university.

### **Development of Teaming Skills**

As faculty members and community stakeholders (e.g., family members, ECSE teachers, therapists, agency leaders) participate in the transdisciplinary courses, graduate students learn what other disciplines can offer the team. Teams of professionals from the community share their perspectives on transdisciplinary teaming through panel discussions and demonstrations. Students learn about other disciplines by actively engaging with them throughout the courses as opportunities are provided to practice collaboration and teaming skills (e.g., problem-solving, conflict resolution, joint decision-making, role release) (Bruder & Stayton, 2009; Campbell, Chiarello, Wilcox, & Milbourne., 2009; Smith, 2010). Although the courses provide many occasions to simulate transdisciplinary experiences, opportunities also are available for students to experience transdisciplinary teams in action (e.g., assessments, team meetings, service delivery) as they complete assignments and requirements in clinical settings and receive ongoing feedback.

### **Responsiveness to Cultural and Economic Diversity**

An important aspect of Project TransTeam is the students' understanding and acquisition of cultural competence addressing the many dimensions of diversity (Barrera & Corso, 2002; Lim & Able-Boone, 2005). Transdisciplinary EI/ECSE teams serve children and families from diverse cultures and often face difficult challenges related to cultural diversity (e.g., race/ethnicity, religion, linguistic, socioeconomic) (Aldridge, Kilgo, & Bruton, 2015, 2016; Aldridge, Kilgo, & Christensen, 2011; Bruder, 2010; McWilliam, 2014). Family-professional relationship building is accomplished in ways that are responsive to each family's unique characteristics and cultural backgrounds (Barrera & Corso, 2002; Chang, Early, & Winton, 2005; Hanson & Lynch, 2013; Hanson & Espinosa, 2016). Thus, a major emphasis of the program is how to address issues related to diversity in providing family-centered services. Rather than being taught as an isolated topic, the emphasis on cultural and linguistic diversity is interwoven throughout the program (Catlett, Maude, Nollsch, & Simon, 2014).

Because so many young children with disabilities and their families are from high-poverty communities, students also must understand how to deliver appropriate and supportive services to them within their community settings (Bruder & Stayton, 2009). Information is provided that addresses the impact of poverty on the development, learning, and care of young children and examines aspects of vulnerability, risk, and resilience that children and families often experience. Having background knowledge of diverse cultures and the effects of poverty, using resources, and interacting with families can help teams more effectively meet diverse child and family needs within high-poverty communities. Specific competencies are included that address the provision of transdisciplinary services in high-poverty communities. Course content, assignments, resources, and clinical experiences support the development of specific skills to address high-poverty needs. Through the team-based cases and information from the community collaborators, students learn to respond effectively to the needs of young children and families in high-poverty programs, schools, and communities.

### **Case-based Instruction**

The use of case-based teaching and learning has grown rapidly in interprofessional development as a viable means to prepare students to develop skills applied to “real life” situations in early intervention/education settings (Kilgo, Aldridge, Vogtle, & Ronilo, 2014; Kilgo & Aldridge, 2011). During the first semester of the Project TransTeam courses, students learn about the roles of the various disciplines on the team and specific content that all disciplines need to serve on transdisciplinary teams. Cases are presented that address individual issues related to diversity (e.g., poverty, religious, ethnic, linguistic differences). After having copious opportunities to practice problem-solving skills with relatively simple cases, students are introduced to more complex cases that address several dimensions of diversity, as well as other issues, within one case. The focus is on what to do when team members advocate for practices that conflict with families’ values or what to do when families’ goals are against program or school policies. Students work as teams to develop plans to accommodate based on families’ values and priorities.

In the second semester of the Project TransTeam courses, teams of students from different disciplines are assigned comprehensive cases and function as transdisciplinary teams to develop strategies to address the issues presented in the cases. All teams include a minimum of one early childhood special education major, an occupational therapy student, and a physical therapy student. Team-based learning occurs as students identify the role of their discipline on the team, determine assessments, develop the Individual Family Service Plan (IFSP) and Individual Education Program (IEP), determine evidence-based interventions, and address the issues identified in the cases. This serves as a culminating assignment allowing teams of students to apply the knowledge and skills learned through the transdisciplinary courses.

Below is an example of one case assigned to a team of students in the Project TransTeam courses. The faculty collaboratively developed the cases based on their professional wisdom and experience.

### **Case – Bruno**

Bruno is a 24-month-old male with a diagnosis of cerebral palsy. He was the product of an extremely complicated pregnancy. Bruno was born at 26 weeks gestation at a rural hospital in southern Alabama. His birth weight was 1300 grams and he displayed macrocephalic features. Bruno’s father was not present for the birth as he left the state months earlier to pursue work options. Bruno’s mother passed away shortly after giving birth due to complications. Bruno’s immediate family consisting of his grandmother, Maria, and his aunt, Marisol, took over his care following his mother’s death. Custody of Bruno has been granted to his aunt Marisol. Testing determined enlargement of his ventricles and posthemorrhagic hydrocephalus with grade 3 intraventricular hemorrhage (IVH) bilaterally. A permanent ventriculoperitoneal shunt was placed at 5 weeks of age. Bruno was discharged home under the care of his aunt Marisol who lives in Northeast Birmingham. Bruno’s grandmother, Maria, lives with the family. He attends frequent medical appointments and is followed by a neurologist; neurosurgeon; physiatrist; and ear, nose, and throat physician (ENT). Early intervention services were initiated

around 6 months of age as he was not attempting to roll or sit. He now sits with assistance leaning from side to side seeking external support. He belly crawls around the home for independent mobility. Bruno walks longer distances utilizing a Rifton gait trainer. In the gait trainer, he can maneuver around the entire home and is supported such that he cannot fall. His family reports that he will walk when they hold his hands but that he “gets so excited he steps on his own feet.” Bruno’s family utilizes a basic umbrella stroller for community outings and church. Bruno can perform finger-feeding activities. The early intervention program has worked on feeding and has adapted utensils at the home to help with grip and control. Bruno typically sits in his grandmother’s lap for meals. He requires assistance for dressing and is still utilizing diapers. Bruno is currently delayed in his language. His cerebral palsy affects his speech. His family feels that he understands everything spoken to him but has issues clearly expressing his wants and needs. He frequently becomes frustrated and upset when they do not know what he wants. Bruno’s family comes from Honduras. The grandmother and aunt speak Spanish fluently. His grandmother does not speak English and his aunt understands English but has a limited speaking vocabulary in English. Bruno’s early intervention occupational therapist speaks Spanish and has served as the interpreter for the EI team. The family utilizes the interpreter services at the local Children’s Hospital during their medical appointments. Bruno’s is a citizen of the United States and has Medicaid insurance. The immigration status of his aunt and grandmother is not known. Bruno’s aunt works as a maid for a cleaning service. His grandmother does not work outside of the home and stays at home with Bruno. The family has no means of transportation and Marisol is transported to and from work via co-workers at the cleaning agency. Marisol reports that she may have to quit her job as her company is under new management and they are requesting updated social security cards from each employee. If she becomes unemployed Marisol would like for her mother and Bruno to return to Honduras and live with relatives until she gains steady employment. The family is a member of the Kingdom Hall of Jehovah’s Witness religion. They attend a Spanish speaking service. Horizon Preschool is located across the street from the family’s home. The director and workers at the preschool facility have high school educations plus the minimal requirements for child care training. The director is academically oriented and believes in the season curriculum in which a holiday is celebrated and used as a theme every month. A local university has criticized the preschool as being “developmentally inappropriate” for children. Bruno’s grandmother wants him to attend Horizon Preschool because it is close and convenient for the family. Bruno’s aunt is worried that she will not be able to afford Horizon Preschool if she becomes unemployed.

There are several issues that need to be addressed. These include the classroom placement at Horizon with peers and instructional design of the preschool; seating & positioning as it relates to mobility, activities of daily living (ADLs), play, safety, etc.; modifications and adaptations for play and communication; language barriers between home, preschool, and future service providers; communication and language barriers between Bruno and his new caregivers leading to poor behavior; access to outside resources (therapies, medical clinics, community/monetary support groups, etc.); preschool options based on family’s funding limitations and possible future unemployment; and immigration and service issues that could arise with Bruno and his grandmother leaving the country.

A brief list follows of what the team assigned to this case must determine to address the issues of this case and design appropriate plans for intervention.

1. What assessment instruments and processes should the team use? Is the process holistic and focused on all areas of development? How will information be shared among team members?
2. What are the goals for this child in this case? Are they team-based? Are they functional, holistic, developmentally appropriate, and needed in the natural environment?
3. What cultural adaptations will be needed to meet the needs of the child and family in this case?
4. What evidence-based practices and interventions will be used to address the child’s goals? How will the practices facilitate inclusion?
5. How will each of the issues be addressed?



When teams of students work together to design programs and address the issues and challenges presented in cases such as this, opportunities for team learning occur.

### Conclusions

Project TransTeam, a transdisciplinary early intervention/education program at UAB, has continually educated professionals representing multiple disciplines using a transdisciplinary approach since 1999. The data collected each year to assess the effectiveness of the program was used to make improvement for future students. Professionals from multiple disciplines involved in Project TransTeam at the UAB hope that this information from this transdisciplinary personnel preparation approach can be used to produce graduates representing multiple disciplines who are well qualified to provide high quality teaming and collaboration practices in early intervention/education. As one Project TransTeam graduate student reflected on their interprofessional education experience, “We were prepared to implement a transdisciplinary model by working with team members representing different disciplines. We learned from each other, developed team-based goals, determined appropriate interventions, and found the best available evidence as a team. All of the assignments allowed us to put trust in each other and to effectively communicate, problem solve, and sometimes compromise to work through our complex case studies, which is what working as a transdisciplinary team requires.”

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