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Equipping Youth With Autism Spectrum Disorders for Adulthood: Promoting Rigor, Relevance, and Relationships

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Abstract

Equipping students with ASD for a good life after high school is the overarching goal of secondary special education services and supports. In this paper, we review important elements of effective transition education for adolescents with ASD. First, we review recent findings related to the post-school employment, education, and independent living outcomes of young adults with ASD. Next, we describe a framework for addressing three important aspects of secondary schooling: rigor, relevance, and relationships. At present, an emphasis on promoting rigor, relevance, and relationships offers a promising approach for addressing the multifaceted needs of youth and young adults with ASD. Rigor, relevance, and relationships should not be viewed as distinct or competing priorities, but as essential, inseparable elements of comprehensive transition education for students with ASD. We conclude with research and policy recommendations for improving the impact of transition service delivery for students with ASD.

Keywords

autism, exceptionalities, transition, high school, special education, disabilities, employment

Improving post-school outcomes of students with disabilities is a primary thrust of special education services and supports. As articulated in the Individuals With Disabilities Education Improvement Act (IDEA, 2004), the overarching purpose of special education is to "prepare [students with disabilities] for further education, employment, and independent living" (34CFR 601(d)(1)(A)). IDEA 2004 mandates that transition services be part of each student's Individualized Education Program (IEP) to help young people develop the skills, supports, and relationships needed to achieve their desired post-school goals.

The IDEA first defined transition services in 1990 and required that a transition component be added to the IEP. Reauthorized in 1997 and again in 2004, IDEA now mandates that transition services (a) be designed "within a results oriented process" focusing on improving "the academic and functional achievement" of students with disabilities; (b) include vocational education as a transition service in an effort to improve vocational outcomes for students; (c) include a specific statement of post-school goals for students with disabilities in the areas of employment, education, and, when appropriate, independent living; and (d) provide students a Summary of Performance at graduation from high school. In addition, the definition of transition services was expanded to mean,

> A coordinated set of activities for a child with a disability that is designed to be within a results-oriented process, that is focused on improving the academic and functional achievement of the child with a disability to facilitate the child's movement from school to post-school activities including post-secondary education, vocational education, integrated employment (including supported employment), continuing and adult education, adult services, independent living, or community participation; is based on the individual child's needs, taking into account the child's strengths, preferences, and interests; and includes instruction, related services, community experiences, the development of employment and other post-school adult living objectives, and when appropriate, acquisition of daily living skills and functional vocational evaluation. (20 U.S.C. § 1401 sec. 602 [34])

For the more than 400,000 students with autism spectrum disorders (ASD) already attending schools in the United States, transition education provides the primary vehicle for equipping these children and youth to live a good life after high school (Turnbull, Turnbull, Wehmeyer, & Park, 2003). Although there is strong consensus regarding the necessity of providing high-quality transition

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services and supports to these students, much more still needs to be learned about how best to individually tailor the design and delivery of transition education to best meet the needs of adolescents with ASD. What should be the focus of education during middle and high school for these students? Which educational and transition practices show particular promise? How should decisions be made about optimal configuration of these practices for a particular student? In this paper, we review important elements of effective transition education for adolescents with ASD. First, we review recent findings related to post-school outcomes for young adults with ASD. Next, we describe a framework for addressing three important aspects of secondary schooling: rigor, relevance, and relationships. We conclude with discussion of needed research and policy innovations aimed at improving the impact of transition service delivery for students with ASD.

Post-School Landscape for Young Adults With ASD

As is true for any group of young people, the post-school pathways of students with ASD can take many different directions. For some students, beginning a career is the primary task; for others, college provides a route to the world of work. Research suggests that autism symptoms and associated behaviors generally improve for individuals with ASD from childhood into adulthood (Seltzer et al., 2011). However, the outcomes many students with ASD aspire toward in the areas of employment, postsecondary education, and community life remain elusive for a large proportion of young people (Henninger & Taylor, 2012).

In their analysis of the National Longitudinal Transition Study-2 (NLTS2), Shattuck and colleagues (2012) found that young adults with ASD had higher rates of unemployment than graduates with speech/language impairments, learning disabilities, and intellectual disability. Indeed, more than half were completely disengaged from employment and/or educational opportunities during the first 2 years after high school. Similarly, Taylor and Seltzer (2011) found that young adults with ASD had very low rates of community employment (6.1% in competitive employment and 12.1% in supported employment) approximately 2 years after high school exit. Among those who were competitively employed, most were working less than 30 hr a week in low-paid jobs. For students with more severe disabilities (i.e., students with low functional skills or who are on the alternate assessment), employment opportunities may be even more restricted (Carter, Austin, & Trainor, 2011). In the area of postsecondary education, the landscape is also uneven (Chiang, Cheung, Hickson, Xiang, & Tsai, 2012; Shattuck et al., 2012). Up to 6 years after leaving high school, less than half the young adults with autism have attended any type of postsecondary school (compared with 62% of young adults in the general population) and completion rates are as low as 35% (compared with 51% for young adults in the general population; Sanford et al., 2011). Other aspects of life in the community—such as involvement in service activities, moving out of one's childhood home, participation in faith communities, and civic engagement—are also inconsistently accessed by young people with ASD (Farley et al., 2009; Orsmond, Krauss, & Seltzer, 2004)

The Challenges of Autism and Adolescence

What factors might influence the extent to which transition-age youth with ASD leave high school well-prepared for college and careers? What are the unique challenges these young people face as they navigate this transition to adulthood? Adolescence has long been described as a period of "storm and stress" (Hall, 1904). The emergence of adulthood often involves a series of educational, occupational, residential, and relational transitions during which youth develop new roles and identities (Arnett, 2000). Navigating these transitions can be a challenge for many young people. For students with ASD, the normative challenges associated with the transition to adulthood are compounded by additional difficulties associated with having autism. Difficulty coping with change is part of the behavioral phenotype of ASD, and even small changes in routines and environment can be challenging. Some individuals with autism may have anxiety associated with transitions, and major life changes can increase the risk for mood disorders for individuals with ASD. For example, reported rates of anxiety disorder and symptoms have ranged from 7% to 84% of individuals with ASD (Lainhart, 1999).

The varying strengths and needs of students with ASD can also present challenges to school systems charged with addressing their individualized transition needs. Students with ASD can have fairly heterogeneous cognitive, language, social, and behavioral profiles, including splinter skills, distinct strengths and challenges, and highly specialized interests. This diversity of skills and symptoms requires educators to delve deeply when setting expectations and crafting plans for the future. Moreover, the post-school aspirations of students with ASD can vary widely, with some identifying college as a primary post-school goal, others pursuing work, and/or others seeking inclusion in a range of community and residential options (Shogren & Plotner, 2012). The diversity in profiles for students with ASD combined with the wide range of possible adult outcomes necessitates carefully planned and highly individualized transition programming, and likely will require adaptation of current models and systems to improve outcomes for these students.

Inconsistent access to the adult service system poses yet another challenge for transition-age students with ASD. Studies have shown that a significant loss of services, including access to insurance and needed therapies, occurs for individuals with ASD on exiting the school system (Levy & Perry, 2011; Shattuck, Wagner, Narendorf, Sterzing, & Hensley, 2011). Adults with ASD also have higher unmet services needs (e.g., vocational rehabilitation services such as on-the-job training) during adulthood than adults with other developmental disabilities, as well as encounter greater difficulty maintaining those services (Lawer, Brusilovskiy, Salzer, & Mandell, 2009).

Promising Components of High-Quality Transition Education

Over the past two decades, a number of promising frameworks have been developed for organizing the services, supports, and linkages students with disabilities might need to transition successfully to post-school life (Kohler & Field, 2003). Two of these frameworks have received particular prominence within the field. The *Taxonomy for Transition Programming* (Kohler, 1996) offers an applied framework of secondary education practices associated with improving post-school outcomes for youths with disabilities. Developed through a review of the literature, an analysis of exemplary transition programs identified through evaluation studies, a meta-evaluation of model demonstration transition program outcomes and activities, and a concept mapping process, five key components of transition education were identified: (a) student-focused planning, (b) student development, (c) interagency collaboration, (d) family involvement, and (e) program structure. The *Guideposts for Success* (National Collaborative on Workforce and Disability for Youth, 2009) offers a second framework delineating key program features associated with improved post-school outcomes, particularly in the areas of college and careers. Drawing on an extensive review of the research literature, employment demonstration projects, and effective practices covering a wide range of programs and services, five areas were identified as critical to promoting successful youth transitions: (a) school-based preparatory experiences, (b) career preparation and work-based learning experiences, (c) youth development and leadership, (d) connecting activities, and (d) family involvement and supports.

While both frameworks delineate key elements of high-quality transition programming for schools to draw on, guidance is also available within recent efforts to compile evidence-based practices and predictors of in- and post-school success. Spurred by legislative initiatives requiring educators to use practices and curricula that are research-based (IDEA, 2004; No Child Left Behind Act of 2001, 2002) and the evidence-based practice movement (Odom et al., 2005), the identification of research-supported practices in the field of transition has developed swiftly. Test, Fowler, and colleagues (2009) conducted a comprehensive literature review of experimental (i.e., group and single subject) research studies and identified 64 evidence-based instructional strategies for secondary students with disabilities. Because few of these studies directly investigated the effects of school-based interventions on post-school outcomes, Test, Mazzotti, and colleagues (2009) also synthesized high-quality correlational research to determine how various programs, services, instruction, and other factors promote better post-school outcomes for students with disabilities. They identified 16 predictors of post-school success, representing services (e.g., skill instruction, work experience) and programming decisions (e.g., diploma status, program of study).

Unfortunately, none of these efforts to identify key features of comprehensive transition education has focused specifically on the needs of students with ASD. Moreover, relatively few high-quality empirical studies—whether experimental or correlational—have included youth and young adults with ASD. As a result, a framework for addressing the transition preparation of this particular group of young people remains sorely needed. In the remainder of the paper, we highlight research-based practices that hold particular promise for improving the in- and post-school outcomes of students with ASD. To present this overview, we draw on a simple—but comprehensive—organizing framework focused on promoting *rigor, relevance*, and *relationships* (Carter & Draper, 2010). In short, students with ASD should have access to rigorous learning opportunities that have immediate and long-term relevance for their lives and promote valued relationships with key members of their schools and communities.

Access to Rigorous Learning Opportunities

One important thrust of transition education involves ensuring that adolescents with ASD receive strong instruction and individualized support to access learning opportunities that are challenging, help students reach their potential, and reflect high expectations. Conversations about rigor often take place within discussions about promoting access to the general education curriculum. As noted in the opening sections of IDEA,

> Almost 30 years of research and experience has demonstrated that the education of children with disabilities can be made more effective by . . . having high expectations and ensuring their access to the general education curriculum in the regular classroom, to the maximum extent possible . . . . (Title 1/A/601/c/5)

Yet, among all students aged 12 to 17 years receiving special education under the category of autism, only 40.2% spend most (i.e., 80% or more) of their day in general education classrooms, 20.5% spend between 40% and 79% of their day in general education classrooms, and 39.2% spend most (i.e., 60% or more) or all of their day in other settings (U.S. Department of Education, 2011). For many students, access to and success within general education coursework opens up desired postsecondary educational pathways (Chiang et al., 2012). Not surprisingly, Test, Mazzotti, and colleagues (2009) identified inclusion in general education as a significant predictor of more favorable educational, employment, and independent living outcomes.

Although enrollment in general education coursework is often advocated, it is the quality of instruction and supports students receive in inclusive settings that ultimately affects access to rigorous instruction. While knowledge about evidence-based instructional and support strategies for students with ASD has grown substantially over the past two decades (e.g., National Autism Center, 2009; Odom, Collet-Klingenberg, Rogers, & Hatton, 2010), relatively few intervention studies have focused on adolescents in secondary school or attending inclusive classes. As the middle and high school curriculum increases in breadth and complexity, the importance of ensuring students receive effective instruction, appropriate accommodations, and personalized supports intensifies. At the same time, it is also essential to consider the roles of school staff in delivering instruction and support within secondary school classrooms. Among the increasingly common approaches used to support the general education participation of adolescents with ASD who have more extensive support needs is the use of individually assigned paraprofessionals. More than 449,000 full-time equivalent paraprofessionals now work with school-aged children receiving special education services under IDEA (U.S. Department of Education, 2011). Although paraprofessionals can assume important roles in schools, recent studies associate a host of unintended consequences when relying too heavily or exclusively on adult-delivered support within inclusive secondary classrooms (e.g., decreased peer interactions, access to certified teachers, and academic engagement; Carter, Sisco, & Chung, 2012). Instead, adolescents with ASD should receive instruction from highly qualified educators who are fluent in curricular content, evidence-based instructional strategies, and the unique needs of students with ASD.

Another aspect of rigor relates to the expectations educators and family members, and others hold for adolescents with ASD. Teacher expectations about students' college and career prospects can directly influence decisions about the coursework, academic supports, and supplemental services adolescents with ASD receive. For example, course of study and diploma track choices made early in a student's program will either narrow or expand the opportunities students have for further education after high school. Similarly, parent expectations have a direct impact on the in- and post-school pathways of students with disabilities. In their secondary analysis of the NLTS2, Chiang et al. (2012) found parent expectations to be significant predictors of postsecondary education participation for students with autism. Young adults with autism whose parents had expected them to participate in postsecondary education after high school were 3.7 times more likely to achieve such participation than young adults whose parents had not held such expectations. Given the powerful influence expectations have on the design and delivery of transition education, additional efforts are needed to further raise the expectations of educators and others about possibilities for young people with ASD.

Instruction That Has Relevance to Life After High School

As the last formal schooling many students with ASD will receive, instruction during secondary school must be engaging, build on students' interests and strengths, and equip them with the array of skills they will need to be active citizens and achieve their personal post-school goals. Although relevance is individually defined, we highlight three areas in which transition services and supports may be particularly valuable. These include instruction in the areas of career development, self-determination, and recreation and leisure.

Career Development Skills

In light of the poor employment outcomes for young adults with ASD, it is critical that students have multiple opportunities to learn career-related skills and knowledge while still in high school. Although none of the evidence-based instructional practices focused on employment has yet been evaluated specifically with adolescents with ASD (Test, Fowler, et al., 2009), school-based activities such as promoting career awareness, accessing vocational courses, connecting to early work experiences, and involvement in work study have been identified as predictors of successful employment outcomes in studies including students with autism (Test, Mazzotti, et al., 2009).

Fortunately, most high schools already have available numerous career-related activities for students (Carter, Trainor, Cakiroglu, Swedeen, & Owens, 2010). For example, to support career assessment and planning, high schools might administer career interest and aptitude assessments, offer career or job counseling, and provide written career plans. To encourage career exploration, many high schools offer tours of local businesses, sponsor job-shadowing programs, and invite local business leaders to speak with students. To improve linkages to careers, high schools often

have a career-resource center and hold job fairs on career days. These preparatory experiences—when combined with hands-on work experiences such as an after-school or summer job—provide rich contexts for students to build relevant career-related skills and knowledge that contribute to better employment outcomes after high school (Carter et al., 2011). Unfortunately, large numbers of adolescents with ASD are not participating in these important transition opportunities (Carter, Ditchman, et al., 2010; Wagner, Newman, Cameto, Levine, & Marder, 2003).

While the evidence-based career-related practices identified by Test, Fowler, and colleagues (2009) did not include students with ASD, Odom and colleagues (2010) identified 24 evidence-based instructional and support practices for students with ASD. Three of these practices—self-management, video-modeling, and visual supports—hold particular promise for teaching work-related skills to students with ASD. Self-management involves teaching students to monitor, record, and reinforce their own behavior, video modeling uses assistive technology to allow for pre-rehearsal of a job skill by watching it being performed, and visual supports are tools that help students follow events and activities independently. Each has been used to teach students with developmental disabilities job-related skills. For example, Minarovic and Bambara (2007) taught three adult employees with intellectual disability to use a sight-word checklist to initiate jobs and self-monitor job task completion, and Gentry, Lau, Molinelli, Fallen, and Kriner (2012) used the Apple iPod Touch as a vocational self-management tool for adults with ASD by using the *Clock* application to remind employees when to start and stop tasks, as well as take breaks and when to catch the bus. Similarly, two recent studies have used video-modeling to teach job skills. Goh and Bambara (2013) used video self-modeling to teach two adults with intellectual disability and one adult with ASD to perform a variety of chained tasks in the workplace (e.g., replacing misplaced books and CDs, using a paper shredder, re-hanging clothes in a fitting room). Van Laarhoven, Winiarski, Blood, and Chan (2012) used video-modeling to teach six students with ASD to independently complete job tasks at a restaurant.

Self-Determination Skills

A second set of skills with particular relevance to life after high school for students with ASD fall under the domain of self-determination. Wehmeyer (2005) defined self-determination as "people acting voluntarily, based on their own will" (p. 117). The construct of self-determination consists of many component skills related to self-advocacy, choice making, goal setting, and problem solving. For example, Test, Fowler, Wood, Brewer, and Eddy (2005) posited that self-advocacy involved first having knowledge of self-advocacy rights and then the skill to communicate them effectively to others. Studies involving transition-age youth with ASD and other developmental disabilities suggest that these students often have limited skills and opportunities to engage in self-determined behaviors (e.g., Carter, Lane, et al., 2013; Carter, Owens, Trainor, Sun, & Swedeen, 2009).

One method successfully used to enhance the self-determination of students has been to teach them to become active members of their IEP process (Held, Thoma, & Thomas, 2004; Test et al., 2004). Although students with ASD are among the least likely group of students with disabilities to attend, participate in, and/or lead their own transition-planning meetings (Wagner, Newman, Cameto, Javitz, & Valdes, 2012), a number of evidence-based strategies for promoting active involvement in IEP meetings exist (Test, Fowler, et al., 2009). The *Self-Advocacy Strategy* (Van Reusen, Bos, Schumaker, & Deshler, 1994) and *Self-Directed IEP* (Martin, Marshall, Maxson, & Jerman, 1996) have been used to teach middle and high school students with mild to moderate disabilities to actively participate in their IEP meeting. However, the only curriculum with research involving students with ASD is *Whose Future is it Anyway*? (Lee et al., 2011).

Recreation and Leisure Skills

While most high schools and communities offer youth a variety of recreation and leisure activities through extracurricular and school-sponsored programs, research suggests that students with ASD are rarely involved. For example, Wagner, Cadwallader, Garza, and Cameto (2004) reported that only 30% of the parents of students with ASD said that their children had participated in any organized, nonclassroom, school activities during the previous year. This percentage was the lowest for any disability category reported. Similarly, Shattuck, Orsmond, Wagner, and Cooper (2011) reported that only 35% of the adolescents with ASD were involved in community or volunteer service, 16% were on a sports team, and 9% where involved with a performing group.

Although most high schools and local communities are replete with opportunities to connect young people without disabilities to interesting and relevant recreation and leisure activities, many youth with ASD, their families, and their teachers are unaware of available options. Swedeen, Carter, and Molfenter (2010) suggested that schools undertake an "opportunity mapping" process to identify school-based recreation and leisure activities (e.g., clubs, sports teams, volunteer experiences) available to any adolescent in their school. Students must then be taught to identify and select activities that align with their interests and future goals. For example, Nietupski et al. (1986) taught three youth with intellectual disabilities to choose leisure skills using a choice chart. Whatley, Gast, and Hammond (2009) taught four middle school youth with intellectual disability to use

an activity schedule book to stay on-task and transition during recreation and leisure activities. In addition, students may need direct instruction on how to participate in recreation and leisure skill of interest to them. For example, Hammond, Whatley, Ayres, and Gast (2010) used video-modeling to teach three middle school students with intellectual disability to use an iPod to access videos, music, or photos.

Strengthening Supportive Relationships

In addition to ensuring that adolescents with ASD access rigorous, relevant learning experiences, fostering supportive relationships with family members, peers, formal service systems, and natural community supports is also a critical aspect of transition education (Hughes & Carter, 2011).

Families

Families often provide the first and longest lasting relational context for students with ASD, with family members acting as children's earliest teachers, social partners, and advocates. Of course, the salience of supportive family relationships for individuals with ASD is not limited to the early childhood period. Parents and siblings continue to provide ongoing care and support to individuals with ASD throughout life, particularly as students transition through high school to adulthood (Seltzer et al., 2011). Positive family environments, such as those marked by high levels of warmth and low levels of criticism, have been associated with improvement in behavior problems and autism symptoms during adolescents and adulthood (Baker, Smith, Greenberg, Seltzer, & Taylor, 2011; Smith, Greenberg, Seltzer, & Hong, 2008). Given the important role family members play in providing support, it is critical to involve family members in all aspects of transition education. The opportunities and needs of families related to supporting students with ASD during the transition to adulthood are discussed more fully in Smith and Anderson (in this special issue).

Families can also be strong allies and advocates for expanding meaningful transition opportunities more widely throughout schools and communities. Although conversations about engaging parents during secondary school often focus narrowly on involvement in the transition-planning process, broader advocacy and leadership roles should also be supported. For example, Carter, Swedeen, Cooney, Walter, and Moss (2012) equipped parents of children and youth with autism and other developmental disabilities to launch local efforts aimed at strengthening the capacity of schools and communities to expand inclusive educational and transition programming. Other contexts for supporting deeper engagement of parents might include involvement on district- and state-level systems change efforts, local parent support programs, or parent–school leadership teams.

Peers

The relationships students forge with peers during adolescence and early adulthood can have a powerful influence on their learning, skill development, sense of belonging, and overall well-being. At the same time, the absence of positive peer relationships and lasting friendships can contribute to loneliness, depression, and disengagement from school (Prinstein & Dodge, 2008). The importance of fostering peer relationships during middle and high school should not be overlooked.

However, multiple factors often limit opportunities students with and without ASD have to meet, learn alongside, and develop relationships with one another within typical secondary schools. For example, students with ASD experience social, communication, and behavioral challenges that may make interactions with peers more difficult to navigate successfully. The attitudes and prior experiences of some peers may contribute to an initial reluctance or overall resistance to working or spending time with their classmates with ASD (Siperstein, Norins, & Mohler, 2007). Moreover, the service delivery and support models used in most secondary schools can limit the opportunities students with and without ASD have to even encounter or work collaboratively with one another in classrooms, clubs, cafeterias, and community-based programs. The social connections of adolescents with ASD will likely be enhanced by adopting a multifaceted approach in which coordinated efforts are made to build the social competence of students with ASD, improve the confidence and commitment of peers, and expand shared learning opportunities for students with and without ASD (Carter, Bottema-Beutel, & Brock, 2014). Specific intervention approaches for fostering social connections for adolescents with ASD are discussed in more detail in Carter, Common, et al. (in this special issue).

Formal Service Providers

Assisting youth and young adults with ASD to successfully access the breadth of employment, postsecondary, and residential options available in their community necessitate partnerships that involve, but extend beyond, the school system. A constellation of formal agencies and service systems—including vocational rehabilitation, independent living centers, employment providers, developmental disabilities agencies, benefits counseling, office of disability services, and mental health services—may be instrumental in helping students and their families prepare for and connect to desired post-school outcomes. Although few studies have addressed the critical considerations and

configurations of these potential partnerships, strong interagency collaboration is widely cited as a crucial component of effective transition education for students with ASD (Roberts, 2010). Yet, research suggests that the early years after exiting high school mark the very time when many young adults with ASD lose access to beneficial services and formal supports (Shattuck, Wagner, et al., 2011).

For individual students, the transition planning process provides the context within which planning teams identify the specific service linkages a student and his or her family will need to achieve individualized post-school goals. To be effective, such linkages should be made early and be designed in ways that ensure continuity of support. At the systems level, interagency agreements should be formalized, deepen cross-agency knowledge and relationships, integrate funding, and ultimately expand opportunities and outcomes for transition-age youth (Noonan & Morningstar, 2012). Trach (2012) further emphasizes that interagency efforts must extend beyond written polices and actually penetrate transition practice. He identifies a continuum of relationships service systems might adopt—ranging from coexistence to collaboration—and calls for more concerted efforts to develop strong and meaningful partnerships among schools and their formal partners.

Natural Community Supports

Although the involvement of formal service systems can be instrumental in positively shifting the outcomes of young people with ASD, two realities highlight the importance of facilitating relationships with natural supports in the community. First, many young people with ASD are not eligible for disability services available in adulthood to adults with more severe disabilities. Second, the service system as currently configured simply lacks the capacity to meet the deep and diverse needs of young people with ASD in our country. In other words, substantive improvements in the post-school outcomes of young adults with ASD are unlikely to occur if responsibility falls entirely on educational and adult service systems. The support, resources, and relationships of employers, coworkers, neighbors, friends, family, and other community can thus be an important element of comprehensive transition-programming efforts. Indeed, steps taken to foster relationships among young people with disabilities, their families, and community members outside the disability service system may be among the most promising—and elusive—components of comprehensive transition efforts.

Cultivating new partnerships with individuals, networks, and organizations beyond the boundaries of the school holds considerable promise for improving the quality and impact of transition opportunities for young people with ASD. Most communities possess a broad range of expertise, programs, initiatives, supports, opportunities, and other assets that could be drawn on to support students with ASD as they prepare for adulthood. For example, chambers of commerce and other business networks know who is hiring and how best to approach these employers; members of civic organizations and faith communities are familiar with the range of recreational and service opportunities available nearby, as well as supports available within these activities; local programs may already be directed toward supporting individuals without disabilities to find employment and residential supports; and neighbors, friends, and family members can assist in meeting a range of personal needs young people may have. Yet, school systems are often unaware of these natural assets or they have simply not considered how these resources could be drawn on to meet the needs of students with disabilities. Community resource mapping offers one recommended approach for identifying, compiling, and disseminating the range of informal and formal resources existing within a community that could be drawn on to improve outcomes for youth with disabilities (see Crane & Mooney, 2005). Similarly, "community conversation" events have been suggested as an avenue for (a) fostering new dialogue around ways schools, employers, local organizations, civic leaders, families, youth, and others could work in concert to improve transition outcomes for youth with disabilities in their local community and (b) identifying new, natural partners willing to collaborate with schools (Trainor, Carter, Swedeen, & Pickett, 2012). While natural community supports hold great promise for improving student post-school outcomes, it is still essential that efforts be made by service systems to help develop, coordinate, and broaden access to natural supports for young people with ASD.

Assessment and Planning as the Foundation of Effective Transition

What might it look like to promote rigor, relevance, and relationships for students with ASD? Decisions about which transition skills, services, and supports are most important for a particular student must be based on solid assessment. No single configuration of transition education will work for every student. As such, transition assessment is the critical first step in the individualized transition-planning process (Mazzotti et al., 2009). Because students often face important decisions early on regarding diploma options, academic and employment preparation, and post-school goals, transition assessment should begin in middle school and be an ongoing process as students progress through high school (Neubert, 2003). IDEA (2004) mandates that age-appropriate transition assessment serve as the foundation for the transition planning process to identify the strengths, preferences, needs, and interests of students with disabilities. In addition, teachers of students with disabilities are required to use transition assessment as a basis for

developing students' post-school goals. The Division on Career Development and Transition (DCDT) of the Council for Exceptional Children defined transition assessment as,

> The ongoing process of collecting data on the individuals' needs, preferences, and interests as they relate to the demands of current and future working, educational, living, and personal and social environments. Assessment data serve as the common thread in the transition process and from the basis for defining goals and services to be included in the IEP. (Sitlington, Neubert, & Leconte, 1997, p. 70)

Transition assessment can provide a variety of important information for transition planning (Neubert, 2003; Neubert & Leconte, 2013). First, it provides a method for identifying students' strengths, needs, preferences, and interests, which in turn allows students to make informed choices about their goals for post-school life. Second, it provides information to help IEP teams identify specific skills students need to achieve their post-school goals. Third, it can help students take charge of the transition-planning process by making them aware of their self-determination skills.

Transition-assessment information may come from a variety of formal and informal assessments to provide information regarding the student's (a) academic, (b) career, (c) self-determination, and (d) independent living skills to inform a conversation regarding desired post-high school environments. Most professionals recommend a combination of formal and informal assessments, as well as gathering information from multiple perspectives including student and family input to get the best understanding of each student's preferences, interests, needs, and strengths (Carter, Brock, & Trainor, in press).

When done correctly, transition assessment encompasses all areas of transition and provides in-depth knowledge of students' strengths, needs, preferences, and interests that can lead to specific skill development that allow students to meet post-school goals in the areas of employment, education, and independent living. Once a transition assessment has been conducted, teachers are better able to plan and implement effective transition services and supports to help students progress toward their post-school goals.

Research and Policy Needs

Although it has long been obvious that children with ASD eventually grow up to be youth and young adults, we are struck by the paucity of empirical research specifically addressing the transition-related needs of adolescents with ASD. Identifying evidence-based transition practices and policies that are responsive to the particular strengths, needs, and challenges of students with ASD is an important endeavor. Several areas of research inquiry and policy work hold particular promise for developing the knowledge base in compelling ways.

First, meaningful and ongoing assessment provides the foundation for individualized transition services and supports. Although critical features of high-quality transition assessment have been articulated (Neubert & Leconte, 2013), surprisingly little guidance is available on how to use such information to design, implement, and evaluate the impact of transition services and supports for students with ASD. Moreover, few transition assessments were designed for adolescents with ASD and most available tools are not appropriate for students with more complex communication challenges or severe cognitive disabilities (Carter, Brock, et al., in press). Future researchers should develop a strong set of tools and related planning strategies that enable practitioners to discern which practices associated with rigor, relevance, and relationships are most critical for a particular student.

Second, identifying evidence-based transition practices is only one part of the equation for improving the outcomes of students with ASD. As the new knowledge base continues to grow, the enduring question will be, "How do we ensure the best of what we know works in transition education actually penetrates the practices of secondary schools?" The relatively few studies addressing the extent to which evidence-based practices permeate special education services coalesce around a few general conclusions: (a) Use of evidence-based practices is the exception rather than the rule, (b) relatively few special educators actually participate in substantive professional development on these practices, and (c) approaches most widely used to deliver such training (e.g., one-shot workshops, print materials) are largely ineffective. In other words, much more needs to be learned about the most effective avenues for equipping transition personnel with the skills and knowledge needed to select, implement, and evaluate the most appropriate evidence-based transition-related instruction and experiences. As Cook and Odom (2013) stated "implementation, is the next, and arguably most critical, stage of evidence-based reforms" (p. 142). To this end, the professional development strategies suggested by Odom, Cox, Brock, and the National Professional Development Center on ASD (2013), as well as techniques for ensuring treatment fidelity suggested by Harn, Parisi, and Stoolmiller (2013), may help bridge the gap.

Third, the complex educational needs and diverse profiles of adolescents with ASD reinforce the need for comprehensive and intensive approaches to secondary education. Few students with ASD will require instruction and support in just one transition domain (e.g., academics, self-determination, social relationships, health, independent living). A comprehensive model of secondary education that collectively addresses outcomes in the areas of rigor, relevance, and relationships must replace intervention efforts that separately address different dimensions of a student's life. Research is needed to determine how best to sequence, combine, and deliver the range of interventions

and supports that will promote achievement of postsecondary goals in education, employment, and daily living. Furthermore, studies are needed to determine which strategies may be most beneficial for what types of students to improve outcomes for diverse student populations across the full spectrum of students.

Summary

Equipping students with ASD for a good life after high school is the overarching goal of secondary special education services and supports. As research accumulates, more definitive answers can be offered in response to questions about how best to design and deliver transition education for this particular group of young people. At present, an emphasis on promoting rigor, relevance, and relationships offers a promising approach for addressing the multifaceted needs of youth and young adults with ASD. We would emphasize, however, that rigor, relevance, and relationships should not be viewed as distinct or competing priorities. On the contrary, each should be considered essential and inseparable elements of comprehensive transition education for students with ASD.

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