Start with Self-Determination: Advancing Postsecondary Outcomes of Youth with Autism Spectrum Disorder

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Abstract

Youth with autism spectrum disorder (ASD) have the poorest post-high school, or postsecondary, outcomes in comparison to their peers with and without disabilities. They experience low levels of engagement or even lack of engagement in employment, education, independent living, and community activities. As a result, these outcomes place a heavier load on families, professionals, and communities that support the ASD population throughout their lifespan. Therefore, the cost of taking care of this population is rising, with a current estimate of over $40 billion per year. In disability literature, self-determination (i.e., autonomy and empowerment) has been identified as a predictor of positive postsecondary outcomes; however, there is limited research on ASD, including some findings that youth with ASD often report low levels of self-determination. This review of the literature will accomplish the following: (1) synthesize research on postsecondary outcomes of youth with ASD; (2) identify existing gaps; (3) define self-determination and the social-ecological model; (4) apply the model to support needs of the ASD population while they are still in school; and (5) discuss directions for future research and practice.

Keywords: autism spectrum disorder, postsecondary outcomes, transition to adulthood, self-determination, special education

Special education services under the Individuals with Disabilities Education Act (IDEA) aim to "prepare [students with disabilities] for further education, employment, and independent living" (Public Law 108-446). Therefore, at age 16, a student's Individualized Education Program (IEP) must include measurable goals related to training, education, employment, and independent living skills to prepare students with dis-

abilities for the transition out of high school and special education services into adulthood (IDEA, 2004). However, many reports indicate students with autism spectrum disorder (ASD) often leave high school without sufficient skills, experiences, and supports for adulthood (Carter, Austin, & Trainor, 2012). In fact, adults with ASD have the poorest post-high school, or postsecondary, outcomes in comparison to adults with other disabilities (Howlin, Goode, Hutton, & Rutter, 2004; Shattuck et al., 2012). Postsecondary outcomes include measures of engagement in employment, education, independent living, social and community engagement.

Autism Spectrum Disorder (ASD) and Prevalence Rates

ASD is a neurodevelopmental disorder characterized by limitations in social communication and the presence of restricted repetitive behaviors and interests (American Psychiatric Association, 2013). Over the past decade, the prevalence rate has dramatically increased. As of 2014, an estimated one in 68 children have been diagnosed with ASD (Christensen et al., 2016). Additionally, the ASD population is growing up, and increasingly more students are graduating from high school and approaching adulthood each year

(Shattuck et al., 2012).

Due to the lack of postsecondary engagement, caregivers and families spend a lot of time and money to support the needs of their adult family member with ASD across the lifespan. Ultimately, families, professionals, and communities spend a lot of money to support this population, with costs over $40 billion annually in the United States (Buescher, Cidav, Knapp, & Mandell, 2014). Therefore, with such high costs and the increasing number of youth with ASD approaching adulthood, it is important to have a better understanding of the needs of youth and adults with ASD as well as predictors associated with successful postsecondary outcomes.

Researchers suggest postsecondary outcomes for adults with ASD may be poor due to a number of factors, such as the lack of appropriate supports in high school, that leave students unprepared for adulthood (Chiang, Cheung, Hickson, Ziang, & Tsai, 2012; Gerhardt & Lanier, 2011). High school educators often report challenges in supporting their students with ASD, especially in transition-related areas (Hedges et al., 2015). Difficulties to meet the needs of students on the autism spectrum can also be attributed to the heterogeneity of ASD, resulting in wide-ranging needs for services

and supports that need to individual-ized (Hendricks & Wehman, 2009). In contrast, there are some predictors of positive postsecondary outcomes; higher levels of self-determination are associated with successful postsec-ondary outcomes for students with disabilities. By focusing on predictors of positive postsecondary outcomes (i.e., self-determination), educators, school personnel, and families may be better equipped to lay the ground-work for preparing students with disabilities, specifically those with ASD, for life in adulthood.

Predictors of Postsecondary Outcomes

Various predictors have been considered regarding what promotes successful postsecondary outcomes, including environmental and person-al characteristics. Researchers have also examined a number of potential correlational factors, such as the as-sociation of independent living with postsecondary employment among young adults with developmental disabilities; however, there is not a significant relationship (William-son, Robertson, & Casey, 2010). Another predictor researchers have hypothesized to influence post-school outcomes is self-determination, and a small body of research has suggested a relationship between higher levels of self-determination when exiting

school and positive adult outcomes (Powers et al., 2012; Wehmeyer & Palmer, 2003; Wehmeyer & Schwartz, 1997).

In the disability and transi-tion to adulthood literature, a num-ber of practices have been identified as predictors of positive postsecond-ary outcomes. Test and colleagues (2009) specifically identified self-de-termination as an evidence-based practice for students with disabilities. Self-determination is the combi-nation of behavioral autonomy, self-regulated behavior, psychological empowerment, and self-realization (Wehmeyer, 1999). Higher levels of self-determination are associated with successful postsecondary outcomes for students with disabilities. Ex-posure to self-determination inter-ventions and practices while in high school may also lead to more stability in student outcomes over time (Weh-meyer & Palmer, 2003).

Youth with ASD report lower rates of self-determination and sat-isfaction than peers with disabilities (Wagner, Newman, Cameto, Levine, & Marder, 2007). When asked about characteristics of self-determination (e.g., personal autonomy and psycho-logical empowerment), youth with ASD report they do not think they have a high level of personal auton-omy (22.9%), a percentage that was significantly lower than their peers'

ratings. Although a greater percentage felt a high level of psychological empowerment (64.2%), this was still much lower than the percentage reported by their peers with other disabilities (Wagner et al., 2007). Additionally, caregivers highly valued self-determination skills in their child with ASD, but the degree to which they rated their children performing these skills was low (Carter et al., 2013).

This review of the literature will accomplish the following: (a) synthesize research on postsecondary outcomes of youth with ASD; (b) identify existing gaps; (c) define self-determination and the social-ecological model; (d) apply the model to support needs of the ASD population while they are still in school; and (e) discuss directions for future research and practice.

Postsecondary Outcomes of Youth with ASD

Research examining postsecondary outcomes of youth with disabilities has grown since the early 2000s. Researchers primarily use data from the National Longitudinal Transition Study Wave 2 (NLTS-2). The NLTS-2 is an initiative funded by the U.S. Department of Education to document adult outcomes across ten years of a sample of students with disabilities who received special education services in school (Institute of Educational Science, 2012). The sample is nationally representative, consisting of data collected with caregivers and young adults with disabilities on young adults' participation levels in postsecondary employment, education, adult programs, and community experiences. Postsecondary outcome research broadly studies engagement in employment, education, independent living, and social and community experiences.

Employment

Overall, adults with ASD have low rates of employment, which becomes apparent after high school graduation. Employment includes paid competitive, full-time, part-time, and internships. Using the NLTS-2 sample, Shattuck and colleagues (2012) found that two years after high school more than 50% of young adults with ASD had no type of employment whatsoever. Additionally, in comparison to other young adults with disabilities, young adults with ASD have the lowest rate of employment after high school (Roux, Shattuck, & Cooper, 2013). Those with jobs also tend to work fewer hours and earn less per week in comparison to peers with and without disabilities. Employees with ASD across a variety of occupations and

organizations work an average of five hours per week (Eaves & Ho, 2008), and their overall yearly earnings are consistently below the poverty level for single adults each year (Cimera, Burgess, & Wiley 2013).

A couple of the underlying issues for under- and unemployment may be the lack of adequate training and opportunities for full-time employment for this population (Burgess & Cimera, 2009). Adults with ASD can also access training, job coaching, and jobs within the Vocational Rehabilitation (VR) services system. Within the VR system, Cimera and Cowan (2009) examined 11,569 cases of adults with ASD and found that an increasing number is served each year (121% increase over four years in the early 2000s) and slightly higher rates of employment (53%). This study also found that adults with ASD were among the most costly groups to serve, which the researchers suggest may be due to meeting the individualized needs of their clients with ASD (Cimera & Cowan, 2009). However, over time only about one-third of those receiving VR services achieved successful employment (Burgess, & Cimera, 2014). Finally, their findings are consistent in that adults with ASD who received VR services still work fewer hours.

Education

Based on NLTS-2 data on individuals with disabilities who were up to eight years out of school, adults with ASD were less likely to pursue postsecondary education than peers with disabilities (Newman et al., 2011). In comparison to other young adults with disabilities, young adults with ASD have the lowest rates of participation in postsecondary education, and the highest rates of nonparticipation (Shattuck et al., 2012).

For students with ASD who have accessed postsecondary education, there are a number of challenges they face in these settings. Although students with ASD have the potential to perform well academically, they are at a heightened risk for academic and personal struggles during their college years (Kapp, Gantman, & Laugeson, 2011; Pinder-Amaker, 2014). Compared to other disability categories, students with ASD have low graduation rates due to stressors and demands unique to higher education (Sanford et al., 2011; Shattuck et al., 2012; Taylor & Seltzer, 2011). Frequently reported challenges include non-academic issues such as difficulties with social skills, interpersonal situations, organizational and time management difficulties, and lack of self-advocacy skills, all of which build and contribute to problems meeting academic

demands (Fleischer, 2012; Gelbar, Smith, & Reichow, 2014; Madriaga, 2010; Madriaga & Goodly, 2010). From the perspective of professionals working in postsecondary education settings, they report the frequent struggle in figuring out how to support the growing number of enrolled students with ASD (Barnhill, 2014; Pugliese & White, 2014; White, Ollendick, & Bray, 2014).

Van Hees, Moyson, and Roeyers (2015) conducted semi-structured interviews with 23 college students with ASD and investigated their challenges and related support needs. Students reported that they faced difficulties navigating social situations and relationships, staying organized, being a self-advocate, and being safe. Their findings demonstrate that students are not adequately prepared for the complexities of postsecondary education settings and therefore experience a number of challenges. Moreover, it should be reiterated that young adults with ASD are capable of attending school in the higher education setting, however, they do need a range of supports to ensure their success (VanBergeijk, Klin, & Volkmar, 2008).

Independent Living

Most youth with ASD remain very dependent on their families or other support services during adulthood and often live at home (Billstedt, Gillberg, & Gillberg, 2011; Howlin et al., 2004; Newman et al., 2011). Anderson, Shattuck, Cooper, Roux, and Wagner (2014) examined the prevalence and correlates of three living arrangements: with a parent or guardian, independently or with a roommate, or in a supervised setting among postsecondary adults with ASD. Compared with young adults with other disabilities, those with ASD were more likely to live with a parent or guardian and to live under supervision since leaving high school, and least likely to have ever lived elsewhere outside of the home. Young adults with ASD also have the highest rates of residential continuity with 79.1% of participants having lived in the same residence since leaving high school (Billstedt et al., 2005).

Community Engagement

After high school, youth with ASD experience a sharp decrease in community engagement. Community engagement comprises of structured or unstructured activities set in the community, including clubs, meet-up groups, and meeting with friends. Based on secondary data analysis of NLTS-2, community engagement significantly decreases from adolescence to adulthood (63% to 46%) (Myers, Davis, Stobbe, &

Bjornson, 2015). In addition to independent living, many parents support their adult child with ASD by coordinating community engagement activities (Järbrink, McCrone, Fombonne, Zandén, & Knapp, 2007).

Gaps in the Literature

Over the past 10 years, researchers have used the NLTS-2 sample as a starting point to understand what happens to students who received special education services and exited high school. These studies have examined patterns and trends within a large data set and contributed to our understanding of adulthood for an individual with a disability. Few researchers have explored the needs of adults with ASD, their families, professionals who serve them, and other community stakeholders. It is necessary to consider these groups' complex needs to better support the postsecondary outcomes of adults with ASD. For example, White (2016) used mixed methods to explore the needs of high school and college students with ASD and supported previous findings on negative social experiences, but also discovered challenges in emotional regulation. Immersing in this methodology will shed light on perspectives from such a heterogeneous population and the people

who surround and support them.

Self-Determination

The functional theory of self-determination centers on concepts of the individual (i.e., individual as a causal agent) and interdependence between the individual and the environment (Wehmeyer, 2001). Interdependence occurs because individuals are not completely independent or autonomous, and they function in relations to other individuals and the environment. This theory has been empirically validated (Shogren, Wehmeyer, Palmer, Rifenbark, & Little, 2015; Wehmeyer, 1996) and operationalized (Wehmeyer, 1996), which has in turn supported the growth of research on self-determination (Wehmeyer, Palmer, Soukup, Garner, & Lawrence, 2007).

Conceptual Framework

The social-ecological model of self-determination builds upon the functional theory of self-determination and Bronfenbrenner's (1979, 2005) ecological systems theory, which proposes that individual development occurs at four levels: microsystem (i.e., direct daily environment, interactions with family members and teachers), mesosystem (i.e., connections, interactions between home and school), exosystem (i.e., indirect environment, parents'

employment), and macrosystem (i.e., social and cultural values). Thus, the social-ecological model captures reciprocal interactions between personal and environmental factors that occur in self-determination. The social-ecological model consists of the following elements: (1) person- and environment-specific factors, (2) person- and environment-specific interventions and practices, (3) mediating variables that impact efficacy of intervention, (4) practices that impact the mediating effect of variables in interventions, and (5) expected self-determination and other outcomes from interventions (Walker et al., 2010). Research on self-determination employs the social-ecological model to understand the interaction of the person and the environment of self-determination. Wehmeyer, Shogren, and Zager (2010) also applied the social-ecological model to describe self-determination in relation to the needs of youth with ASD and future intervention research. This model will be also used in this review of the literature to link gaps with future intervention research.

Interventions

Research in special education and transition has established the need for the development and implementation of interventions that target the self-determination of students with disabilities, including students with intellectual disability (Wehmeyer et al., 2007), learning disabilities (Pierson, Carter, Lane, & Glaeser, 2008), emotional and behavioral disorders (Carter, Lane, Pierson, & Glaeser, 2006; Pierson et al., 2008) and ASD (Wehmeyer & Shogren, & Zager, 2010). Of these groups, students with ASD have the lowest levels of self-determination. Using interventions to develop self-determination has resulted in positive academic outcomes and transition outcomes, including increased engagement in postsecondary employment and education as well as independent living (Lee, Wehmeyer, Soukup, & Palmer, 2010; Martorell, Gutierrez-Recacha, Pereda, & Ayuso-Mateos, 2008; Wehmeyer & Palmer, 2003; Wehmeyer & Schwartz, 1997).

A type of intervention used to develop self-determination is teaching students with disabilities to become active members of the IEP process, especially at their IEP meetings (Held, Thoma, & Thomas, 2004). There are a number of widely used evidence-based strategies to promote active student involvement in IEP meetings for students with mild to moderate disabilities (Test et al., 2009). With a more targeted approach to developing self-determination, these curricula teach high

school students with disabilities to actively participate in their IEP meeting. Students are provided with instructions and opportunities to plan and write goals, as well as to learn about their interests, skills, and challenges (Field, Martin, Miller, Ward, & Wehmeyer, 1998). The curricula also equip students with strategies to work with others and generalize skills to transition planning and IEP meetings (Cease-Cook, Test, & Scroggins, 2013), and have been modified to meet a variety of individualized needs, including using technology (Kelley, Bartholomew, & Test, 2013). The following curricula are the most commonly used in high schools with students with disabilities: *Self-Advocacy Strategy* (Test & Neale, 2004; Van Reusen & Bos, 1994), *Self-Directed IEP* (Martin, Marshall, Maxson, & Jerman, 1996; Martin et al., 2006), and *Whose Future is it Anyway* (Wehmeyer et al., 2004; Wehmeyer, Palmer, Lee, Williams-Diehm, & Shogren, 2011).

These studies are helpful in establishing a groundwork in the self-determination literature, however, there are a number of limitations. Firstly, most of these studies are isolated within classroom and school settings and often relied upon the efforts of a research team to implement. Also, the performance of self-determination is not generalized beyond IEP and transition planning meetings. Although self-determination has been measured at follow-up time points years after high school (see Wehmeyer & Palmer, 2003), self-determination assessments primarily rely on self-report because there are no observational measures of self-determination. Therefore, this limits our understanding of self-determination as a skill and behavior, as well as the generalization of self-determination into home and community settings during adulthood.

Self-Determination and ASD

The four characteristics of self-determination (behavioral autonomy, self-realization, psychological empowerment, and self-regulation) are challenging for all youth as they transition into adulthood. But it is even more of a struggle for youth on the autism spectrum because these challenges are combined with the core diagnostic characteristics of ASD, as well as lack of support and low expectations from adults and the communities they reside. Despite current poor postsecondary outcomes, it should be noted that adolescents and young adults with ASD have a potential for growth in self-determination skills and better outcomes (Wehman et al., 2014). Although, they are currently not active participants in the transition plan-

ning process (Shogren & Plotner, 2012), research shows that students with ASD can acquire self-determination skills with appropriate educational supports and accommodations (Wehmeyer et al., 2010). Researchers and practitioners have the opportunity to prepare students with ASD with the necessary self-determination skills while they are still in high school. This is the ideal place to practice these skills and receive feedback from school staff. The following subsections will apply the social-ecological model of self-determination to identify personal and environmental factors that currently exist for the ASD population.

Personal Factors

This subsection is focused on personal factors within the social-ecological model. These personal factors are hypothesized to influence the level of one's self-determination, and are salient for youth with ASD because self-determination exists in a social context and relies on skills that are a limitation for individuals with ASD. For example, participating in a transition planning or IEP meeting requires the student to ask questions, seek clarification about expectations, and express preferences (Hurlbutt & Chalmers, 2004).

Limitations in social communication skills are also a contributor

to difficulties in independent functioning (Howlin et al., 2004). Hume, Boyd, Hamm, and Kucharczyk (2014) identified a number of issues related to independence that are applicable to self-determined behavior: executive functioning (Ozonoff & Schetter, 2007), dealing with new situations and processing complex information (Minshe, Meyer, & Goldstein, 2002), limitations in imitation and observational learning (Plavnick & Hume, 2013), lack of generalization of skills and simply practicing skills in a rote manner (Fullerton & Coyne, 1999), and prompt dependency, which refers to students who primarily respond to cues provided by others rather than those naturally occurring in the environment that are expected to elicit a behavior (MacDuff, Krantz, & McClannahan, 2001). Any future self-determination interventions for the ASD population will need to consider these challenges, especially generalization of skills. This challenge is especially important to tackle because individuals with ASD will need to practice self-determination outside of school to develop connections within the community, for employment, and other experiences as they prepare for adulthood.

Additionally, there are more critical personal factors to include in this discussion, such as the influenc-

es of gender, cognitive ability, race/ethnicity, and ASD severity. Research is limited regarding the association of these personal factors with self-determination; however, there is evidence elsewhere that these factors are important to consider. Expanding our knowledge of race and ethnicity in this literature may challenge some notions of self-determination, due to differing cultural expectations of expressing self-determination at home and in the community.

Environmental Factors

Within the social-ecological model of self-determination, environmental factors include all people who interact with the person with ASD, family characteristics, community, culture, and interventions. Interventions focus on the malleable variables within the social-ecological model. Overall, there are few interventions focused on advancing the postsecondary outcomes of youth with ASD. However, in recent years, focus has shifted to high school settings to prepare students for better outcomes (Test, Smith, & Carter, 2014).

Caregivers, families, professionals, and other community stakeholders have an influence on the self-determination of youth with ASD. Parental expectations have been found to be influential on their adolescent child's level of self-determination (Carter et al., 2013). Due to low levels or lack of community engagement, adolescents and young adults with ASD often rely on caregivers and family members to coordinate services and day-to-day activities. Therefore, this reliance does not promote autonomy for transition-aged youth on the autism spectrum. Additionally, higher levels of coordination also impact the stakeholders because more of their time, effort, and money is directed to these activities, rather than focusing on developing natural support networks for youth with ASD. In the U.K., natural supports have been studied and deemed supportive for adults with disabilities to live independently and navigate the community (Duggan & Linehan, 2013). Their review of the literature revealed limited research on natural supports to facilitate independent living. The stakeholders involved within the net of natural supports were primarily caregivers, family members, and already assigned professionals. A limitation to this study and to the growth of natural support in research and in practice is the loose definition of 'natural supports' and lack of an established framework. As with intervention-based research, the natural supports framework will need to be individualized per indi-

vidual and per community; however, this seems to be next logical step for future directions of this work. Additionally, Duggan and Linehan (2013) suggested natural supports to shift towards including more stakeholders (e.g., peers) and to establish more long-lasting connections within the community.

It is also important to note other environmental factors (e.g., culture, household income, parent education level) from findings across research in disability, ASD, and postsecondary outcomes (Chiang et al., 2012). For example, family household income corresponds to higher rates of service use in adulthood (Roux et al., 2013), whereas adults with ASD from families in lower income households are generally more vulnerable to poor postsecondary outcomes (Shattuck et al., 2012). These characteristics are not necessarily malleable at the intervention-level but should be considered as a starting point or a way to target needs specific to these characteristics. There is very limited knowledge of the influence of these types of factors, and it would be helpful to expand upon this research in the future. The social-ecological model simulates realistic interactions between the person and their environment, and there still remains a lot to be studied regarding the influence of environ-

mental factors on self-determination.

Directions for Future Research and Practice

Developing self-determination skills in high school has an impact on postsecondary outcomes for students with disabilities. Shogren and colleagues (2015) conducted a follow-up analysis of 779 students with disabilities, including some students with ASD, who previously participated in a group-randomized control trial study designed to examine the efficacy of self-determination interventions in high school. They found that higher levels of self-determination after high school contributes to more positive outcomes and consistently remains positive in the years following high school (Wehmeyer & Palmer, 2003; Wehmeyer et al., 2013). Therefore, it is critical to focus on preparation for adulthood and include means to develop self-determination in youth with ASD while they are in high school. There is a growing number of school-based interventions that are responsive to the challenges of a high school setting in addition to serving as a practice setting for adulthood (Carter et al., 2014). While focusing on high school, there are some supports to consider in relation to the social-ecological model fueling future research and practice with this population.

The following sections will focus on recommendations for research and practice for those working closely with youth on the autism spectrum.

Evidence-Based Practices

Over the past ten years, researchers have identified and compiled evidence-based practices in special education. Specifically, including special education and transition literature, Test and colleagues (2009) systematically reviewed evidence-based practices for students with disabilities focusing on transition and career preparation. Although the review does not specifically target students with ASD, there are a number of practices ready to be applied with this group of students. In the autism literature, Wong and colleagues (2014) identified 27 evidence-based instructional and support practices for students with ASD. These evidence-based practices paired with those identified by Test et al. (2009) can be applied to develop self-determination skills. There is also some overlap between the two reviews, for example, self-management, which involves teaching students to monitor, record, and reinforce their own behavior. Video modeling is another evidence-based practice previously used to teach a wide variety of skills (Bellini & Akullian, 2011) and holds promise in teaching self-determina-

tion behaviors, such as practicing appropriate social communication skills during an IEP meeting or accessing transportation services in the community. Professionals can modify existing evidence-based practices or develop new strategies to incorporate evidence-based practices for students with ASD. To aid implementation of self-determination interventions for students with ASD, Wehmeyer and colleagues (2011) identified component elements of self-determination: goal-setting, choice-making, problem-solving, decision-making, self-regulation and self-directed learning skills, and self-advocacy. These component elements can easily be embedded within existing practices and strategies and further studied. Also, as a reflection of research trends in autism, most evidence-based practices for individuals with ASD have evidence centered on younger children. Applying these practices with adolescents and adults with ASD will help broaden the scope of this research.

Prior to implementing interventions to support self-determination, current skills and needs should be assessed first (Shogren, Kennedy, Dowsett, & Little, 2014). Given the association between self-determination and postsecondary outcomes, researchers and practitioners developing interventions should consider

multicomponent interventions that simultaneously address self-determination and other transition-related needs. Similar suggestions have been made for multicomponent interventions targeting social and academic needs of students with ASD (Fleury et al., 2014). Educators and professionals supporting students with ASD may find multicomponent interventions beneficial in tackling multiple skill domains. For example, students who complete career exploration activities, including career assessments and job shadowing, are not only completing work experiences in high school (Carter et al., 2011; Test et al., 2009), but also practicing self-determination (i.e., making choices and decisions).

Include Families and the Community

Recently, there are early findings supporting family-centered interventions for families with an adolescent or young adult child with a disability. Hagner and colleagues (2012) created and conducted a group training session for families of youth with ASD to learn about the transition planning process, and found a positive impact on families and their young adult on the autism spectrum. As families become more engaged and educated, they will be better prepared for the transition

between high school and adulthood. Additionally, those families who learn and implement practices that promote greater independence, will increase the likelihood that their child with ASD will live independently or at least be less dependent on them (Test et al., 2014). Educators who partner with families can facilitate generalization and independence of skills between school and home settings.

Providing students with ASD opportunities to practice skills in the community with peers, professionals, employers, and supervisors fosters learning experiences in self-advocacy and community connection (Carter et al., 2013; Griffin, Taylor, Urbano, & Hodapp, 2014). Gerhardt and Lanier (2011) identified significant needs to (a) develop and research programs for adolescents and young adults in the community, and (b) establish evidence-based practices to guide community-based services. Students who complete service-learning and volunteer experiences while in high school experience greater community engagement, apply skills in real-life settings, and expand awareness of career and community activities (Carter, Sweeden, Walter, & Moss, 2012). Even students with ASD who are interested in becoming more involved in faith-based communities and related youth groups

have received supports from these communities (Ault, Collins, & Carter, 2013; Farley et al., 2009).

Ultimately, relationships are at the center of being engaged in the community and being an active participant in life (Carter et al., 2013). Social skills interventions are an evidence-based practice for individuals with ASD (Wong et al. 2014), but peers without disabilities can benefit from these types of interventions as well. Some social competence interventions have focused on improving the attitudes and skills of peers without disabilities, while specifically addressing the supports and opportunities provided by educators, initiating broader school wide efforts and engaging families (Carter et al., 2014). One such effort at the school-level is initiating a direct link between peers and students with ASD. In a study by Koegel and colleagues (2012), social clubs were formed around a high school student with ASD and their interests, and peers participated in these clubs. Their findings demonstrate that both students with ASD and their peers experienced benefits from mutual participation in club activities. Overall, peers became more accepting of differences, and the student with ASD increased social communication skills (Koegel et al., 2012). This is an important connection for peers

because they are often overlooked members of the community, but over their lifespan, will become employers, colleagues, neighbors, and friends with adults with ASD.

Conclusion

Multiple gaps exist in outcomes for students with ASD, starting with the lack of supports in school and ending with poor postsecondary outcomes. The ASD population is growing, and is also growing up; therefore, there is a significant need for greater attention to the needs of youth with ASD. Reflection on post-school outcomes is driving the field to consider how special education and transition services might be best designed and delivered to meet the needs of these adolescents, indicating that more individualized accommodations are needed for students with ASD, including connections with others in the community. With the appropriate training and education in preparation for adulthood, youth with ASD can work competitively, attend college, live on their own, and integrate meaningfully into the community. Finally, families, professionals, and community stakeholders will ultimately benefit, due to decreasing the costs of support and dependence, as adults on the autism spectrum become autonomous in their own lives.

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