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Secondary Student Adult Transitions: Challenges, Barriers, and Interventions for Students with Autism Spectrum Disorder

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SECONDARY STUDENT ADULT TRANSITIONS: CHALLENGES, BARRIERS, AND INTERVENTIONS FOR STUDENTS WITH AUTISM SPECTRUM DISORDER

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Abstract

While relatively little is known about the experience of adults with Autism Spectrum Disorder (ASD), disparity among approaches to transition planning indicates inadequate best practice. By evaluating the current state of empirical research literature, this review identifies the most common challenges experienced by adolescents and young adults with ASD. A thorough examination of several longitudinal studies, clinical trials, interview-based assessments, systematic reviews, and qualitative research, and preliminary findings indicate the urgency for increased and improved research regarding evidence-based interventions for the adult ASD population. Existing interventions confirm the necessity to avoid a one-size-fits-all approach. Recommendations for future research and implications for educational application are discussed.

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CHAPTER I: INTRODUCTION

Growing Challenges of Autism Spectrum Disorder

More than 400,000 students with Autism Spectrum Disorder (ASD) are enrolled and identified in various educational settings across the United States of America (Test et al., 2014). ASD belongs to a group of developmental disorders that can impact children and adolescents in many ways. Among the fastest-growing disability categories, children diagnosed with ASD increased from 1:88 in 2008 to 1:59 in 2018 (Center for Disease and Control, 2018). The increase has exponentially grown 290% over the last 12 years (Wei et al., 2015). Additionally, Pinder-Amaker (2014) wrote that factors contributing to this growth include increased general awareness of ASD and its identifiable characteristics and changes in diagnostic capabilities (as cited in Rowe et al., 2020). Increases in autism awareness have illustrated many challenges including a wide range of factors that may impact how an individual presents with ASD.

According to the American Psychiatric Association (2013), individuals with ASD may have communication deficits that impact social cues, rigid interests and thinking, and a range of symptoms that hinder skills in a multifaceted effect that includes work and daily living (as cited in US Department of Health and Human Services, n.d.). However, autism characteristics vary greatly for individuals and frequently change throughout various stages of life (Nowicki & US Government Accountability Office, 2017). As adolescents with ASD mature, students in secondary settings require transition services in preparation for life after high school. Students demonstrate a clear need that requires explicit teaching regarding adulthood. A significant lack of empirical research that specifically addresses the transition-related needs for adolescents with ASD exists (Test et al., 2014). According to Nowicki & the US Government Accountability Office (2017), about 85% of school districts within the US in 2015-16 administered transition

services to youth with ASD in preparation for independently functioning as an adult. Key findings in research have examined the most effective strategies for developing positive, lifelong social skills for secondary students and young adults with ASD despite many barriers.

IDEA vs. ADA

Educating students with ASD to meet educational, communication and social goals is the primary purpose of secondary special education programming. Disabled students receive services from the public school as mandated by federal law until age 21 under the Individuals with Disabilities in Education Improvement Act of 2004 (IDEA). Under IDEA, schools must "find" students who may be eligible for services through referrals, screenings, and observations.

Following high school, students may receive support under the Americans with Disabilities Act (ADA) but must seek the services themselves. The differences in support between IDEA and ADA acts can cause confusion and misjudgement for those with disabilities during navigating entry into adulthood. The systems differ in structure, accessibility, and level of collaboration.

IDEA (2004) stated that transition services for secondary students should include four parameters including: designing programming within a results-oriented process, the inclusion of vocational education, post-secondary goals, and a Summary of Performance (SOP) at graduation (Test et al., 2014). Additionally, the definition of transition services incorporates academic and functional achievement, the transition from education to employment, adult services, and independent living that reflect the individual's needs, strengths, weaknesses, and desires (IDEA, 2004).

However, the Americans with Disabilities Act (ADA) described protections for those with disabilities under an entirely different set of circumstances. According to ADA.gov (n.d.), a

disability is defined by an impairment of any kind that causes barriers or challenges in daily life, regardless of medical diagnosis. The defined disability barriers cause significant challenges for individuals with disabilities, particularly ASD, as familiar levels of support are eliminated. The difficulty measuring human social interaction is especially challenging for social skills deficits related to employment, community involvement, and personal relationships. The Nowicki & US Government Accountability Office (2017) found that young adults with autism endured many challenges with community participation and in personal relationships. Additionally, studies by Eaves & Ho (2008) and Newman et al. (2011) described reasons young adults with ASD struggled to hold employment compared to those in other disability categories (as cited in Xin et al., 2015). Therefore, students with ASD in secondary settings deserve to have transitional services that are individualized and specifically address academic requirements, IEP goals, and student post-graduation needs.

A Desire for Support

Two major social interaction challenges contributing to ASD include camouflaging and the deep human desire to fit into a community. Deficits in this area without explicit teaching and support may result in poor quality of life or negative long-term outcomes. Hull et al. (2017) explained that ASD individuals cope by intentionally camouflaging coherent individuals trying to appear socially competent to overcome disability related anxiety or shame. However, over time, this type of behavior may lead to negative self-perceptions, mimicking socially inappropriate actions, and a decline in mental health. Kelly et al. (2018) added that the intricacies of basic social communication and anxiety about how to react in unknown situations or emotions can be exhausting for people with ASD to navigate which adds another layer of fear in adolescence and adulthood. Existing research has indicated that many individuals with ASD

want help navigating social skills and need support to do so. Notably, Muller et al. (2008) explained many common setbacks in social settings including isolation, initiation, relatability, and lack of structure. These barriers prove the urgent necessity for social skills learning in preparation for adulthood.

Evaluating ASD Transition Needs

The following literature review describes a gap in the educational research literature regarding the most effective ways to address transitional needs for students with ASD who require social skills intervention. Social skills strength impacts life from a holistic standpoint, including relationships, employment, mental health, community involvement, and various types of further education. By considering the strong consensus for high-quality services and supports, researchers know there is still much to be learned regarding how to serve the transition-aged ASD population to meet individual needs (Test et al., 2014). Despite the relatively few research studies available, researchers have implied that proper transitional education requires “promoting rigor, relevance, and relationships” (Test et al., 2014, p. 87) and "a comprehensive and flexible approach" (Rowe et al., 2020, p. 97) in which many transitional barriers disappear. Carter et al. (2013) reiterated the importance of rigor, relevance, and relationships by explaining how these ideas are at the core of community life, human connection, personal growth, and self-determination related to making personal decisions. The state of infancy among research literature proves the high stakes need for increased, high-quality interventions for individuals with ASD who are transitioning to adulthood.

Guiding Questions

The existing research literature for practical, long-term social skills interventions severely lacks clarity, especially for students and young adults with ASD. The literature review for this thesis will address: How can a variety of teaching methods impact the positive long-term effect of learned social skills for students and young adults in secondary settings? By identifying the social barriers faced by those with ASD, post-high school functioning may improve in exponentially positive ways. The research will explain the impact of learned social skills, and determine the most effective methods for teaching secondary social skills. Finally, this thesis will explore how social skills impact students after high school.

CHAPTER II: LITERATURE REVIEW

Literature Search Procedures

To find literature and information for this thesis, searches of Education Journals, ERIC, and Google Scholar were conducted for studies and publications from 2005-2021. The key words that were used in these searches include "ASD and life after high school," "ASD social skills in adults," "social barriers," "adults with autism," "ASD independent living skills in adults," "ASD recreation," "leisure in ASD adults," "virtual reality and ASD," "technology and ASD," and "ASD transition interventions." This chapter will review literature on negative impacts of transition education for students and positive interventions for future success in the following order: Research Literature Procedures; Gradual Impact of Social Skills Training (SST); Post-Secondary Education Planning Best Practice; Support Beyond the Classroom; Factors Impacting Employment; ASD and Community Connection; Perceptions of Social Barriers; Adulthood and Independence; Recreation and Leisure for Reduced Stress; and Interventions for Transition-Related Needs.

Gradual Impact of Social Skills Training (SST)

Despite most children being diagnosed with ASD at a young age, few studies have studied the implications of social skills training beyond the classroom. Gillespie-Lynch et al. (2014) examined this gap by questioning how early childhood characteristics predicted transition-related skills in adults with ASD. Identifying these predictors may improve the way social skills interventions are programmed to improve overall adult social competence. Researchers made predictions about how responses to joint attention (RJA) and initiation of joint attention (IJA) impacted control of social interactions in adult outcomes (Gillespie-Lynch et al., 2014). While these variables have had different identifiable markers over time, the study by

Gillespie-Lynch et al. (2014) predicted that RJA was associated with positive adult results. Participants in the study included 20 individuals across multiple life stages between the ages of 3.9 years (early childhood) and 26.6 years (adulthood). The mean early childhood IQ was 55. According to DSM-III criteria, the participants were diagnosed with ASD in the late 1970s and early 1980s (Gillespie-Lynch et al., 2014). Evaluating the course of behavioral development in a person with ASD provided information about proper support services, curriculum, and post-secondary transition goals to foster success.

An evaluation of the longitudinal, mixed-method study by Gillespie-Lynch et al. (2014) identified expected adult outcomes including independence and social relatedness (social functioning), adaptive behavior skills, and autistic symptoms. In this case, social functioning was measured by employability, personal relationships, and independence. However, these outcomes were challenging to measure due to complications with bias, availability, timing of intervention strategies, and fluctuations in intelligence through maturation (Gillespie-Lynch et al., 2014). Researchers measured adult social outcomes via phone calls with caregivers and in-person interviews when the individual was 26.6 years. In addition, participants were assessed using standardized testing, behavioral observations, interviews, and questionnaires at three other time points with mean ages of 3.9 years, 11.7 years, and 18.3 years. The key informant interviews gave researchers a starting point to identify comparative measures throughout development for an individual with ASD. Researchers wanted to determine what drove the urgent findings that had implications in adulthood for students with ASD.

Gillespie-Lynch et al. (2014) used several assessment tools throughout the study. During the first assessment, the Early Social Communication Scales involved observations of a child's attention displayed through body language and levels of focus. Additionally, individuals

participated in intelligence assessments based on ability level, including the Cattell Scales of Development, Stanford-Binet, and the Mullen Scales of Early Learning to yield mental age equivalents (MA) (Gillespie-Lynch et al., 2014). Language was measured using the Reynell Scales of Language Ability or the Clinical Evaluation of Language Fundamentals-Revised (CELF-R) depending on speech fluency. The Autism Diagnostic Interview-Revised (ADI-R) was used to conduct the caregiver interviews to determine the progression of ASD characteristics at both the time of the interview and between the ages of four and five (Gillespie-Lynch et al., 2014). Lastly, the Vineland Adaptive Behavior Scales (VABS) supplemented the interviews and identified levels of self-sufficiency as it related to adult social needs. In addition, a borrowed 5-point scale from Howlin et al. (2004) indicated overall social functioning (Gillespie-Lynch et al., 2014). These standardized measurement tools aimed to eliminate bias and determine accurate research outcomes through identifying best practices in social skills instruction.

The summary of findings showed strong responses on early childhood measures related to adulthood, especially in adaptive social skills, with the exception of IJA (Gillespie-Lynch et al., 2014). Gradual improvement of overall social functioning may have been due in part to the opportunity for services and support received by individuals with ASD since the time of diagnosis (Gillespie-Lynch et al., 2014). The availability of support for families and individuals impacted by ASD has proven to be of continued importance to ensure the best outcomes in adulthood. Despite study barriers, as demonstrated by parent bias, the findings highlighted the urgency of social learning and the need for parent involvement and advocacy to encourage social growth (Gillespie-Lynch et al., 2014). Without these supports, individuals with ASD may still show progress through social interventions, but it may hinder the critical growth period of development.

Post-Secondary Education Planning Best Practice

Many transition-aged students with ASD have a desire to attend post-secondary education or training. However, the support that lacks in this area for students who are attending college significantly hinders their ability to achieve the highest degree of success. Roberts (2010) stated that the support required for individuals with ASD requires significant planning during their high school education. Many families face challenges in locating the necessary supports on their own. By creating and implementing a proper transition plan for individuals with ASD, high school students will be able to prepare for a successful college transition and experience.

The best way for students to receive support they need on an individual basis is for educators to build rapport with them and gather personal information. According to Roberts (2010), this holistic approach will bring success in academics and all areas of transition. Additionally, individual transition planning should be strength-focused and guide students towards their personal goals, desires, and dreams. Educators may help students explore areas such as careers, academics, self-awareness, support systems, and social opportunities. By creating a personalized plan, students will also be enabled to include their personal decision-making and life values leading to varied levels of independent adulthood.

Roberts (2010) also identified several barriers for establishing successful transition plans. First, the differences in support between high school and adulthood vary drastically. It is up to the students and the current support system stakeholders to access the accommodations or assistance required for success. Many students need explicit instruction in self-advocacy and knowing how to disclose their disability to others such as employers, landlords, or new friendships. Being able to self-identify personal areas of strength and weakness will allow individuals with ASD access to these necessary resources to gain progress.

Second, individuals with ASD who desire to attend postsecondary education should be held to high academic standards. Educators should help students plan their high school course load and identify classes and skills that may help them be successful in other educational environments. Additionally, Roberts (2010) referred to the importance of striving for standards equal to same-aged students or higher. This may include designing work training programs, online college courses, modified graduation requirements or other opportunities to explore educational interests. Students may also require access to reasonable accommodations related to their disability such as tutoring, assistive technology, or alternative grading.

Lastly, transition planning is most beneficial when Individual Education Plan (IEP) teams work in close collaboration with outside service providers such as county social workers, work-based learning coordinators, or college representatives. Roberts (2010) suggested that representatives from agencies who may be useful to students in their future should be invited to attend annual meetings. Oftentimes IEP teams aim to provide support while the student is in high school, but teams could improve on involving other support individuals for the future such as career agencies or mental health support staff. Establishing a stream of continual support for individuals with ASD has proven to allow students to create the life they desire. Practical action steps in the stages of transition planning will encourage students to self-advocate and lead happy, successful adult lives.

Effective transition planning strategies for young adults with ASD as they enter adulthood will promote increased success. Test et al. (2014) found significant efficacy through the use of three key elements: rigor, relevance, and relationships. These offer crucial ideologies to address the multifaceted needs and programming supports within individualized transition services.

A successful transition plan should be composed of the following elements: student-focused planning, student development, interagency collaboration, family involvement, and structure. Within these needs, Test et al. (2014) identified five additional requirements to promote success including school-based preparatory experiences, career preparation and work-based learning experiences, youth development and leadership, connecting activities, and family support. Many schools plan for transition needs using available resources, but inadequately consider an individualized approach to creating natural opportunities. Additionally, students should be given the chance to reach their full potential through the reflection of high expectations.

Test et al. (2014) examined inclusion as one of the highest predictors for transitional outcomes in all categories of adulthood. For special education students aged 12-17 who received autism services, less than half spent most of their day in general education, while the other half were educated in support settings (U.S. Department of Education, 2011, as cited in Test et al., 2014). Rigor posed significant implications for student success related to the different levels of student support in high school and following graduation. More specifically, while paraprofessionals play an irreplaceable role within special education, overreliance on support for students with ASD has detrimental effects for adulthood.

Support staff within special education powerfully influence ASD adulthood trajectories. As formal support begins to decrease, students must be enabled and encouraged to build upon their strengths and newly acquired skills to achieve their personal goals. Test et al. (2014) explained how individualization must be related to career exploration and development, aptitude and career counseling, and self-determination. Evidence-based strategies such as video-modeling and visual support promote positive reinforcement and allow for pre-rehearsal of new concepts.

Additionally, ASD students learn considerable independence and self-advocacy when they are actively involved in their IEP programming where they participate in designing, programming, and planning for their future.

Lastly, relationships with families and peers provide ASD students with additional transition support. Test et al. (2014) reiterated that when ASD students feel a sense of belonging, responsibility, and acceptance of themselves within the community, it creates a powerful influence for learning. Additionally, young adults with ASD improve substantially when post-secondary outcomes do not rely entirely on educational and adult services. Natural community supports play a large, defining role in the way students with ASD perceive their place in the world.

Decision-making related to adult choices for ASD students relies heavily on proper assessment. On-going data collection through informal and formal assessment related to student needs and desires serves as a critical tool for planning. Test et al. (2014) enhanced the comprehensive approach of traditional transition planning by encouraging educators to ensure that ASD students were active participants in incorporating rigor, relevance, and relationships into adulthood.

Making a Post-Graduation Choice

There are a plethora of options for students with ASD after high school. Wei et al. (2015) evaluated the percentage of students who pursued post-secondary education, employment, or neither. The sample of 120 ASD transition students identified their situation as follows: post-secondary education 57.4%, employment 13.6%, and neither 29.0%. Continued research evaluated each factor considered by individuals in the decision-making process. By taking a

deeper look at the choices, educators may be able to assist students in making the best decision for their desires and goals.

For individuals with the need for predictable routines, change is challenging and can cause significant resistance. It can be extremely challenging and burdensome to make life-changing decisions while entering adulthood for neurotypicals, even more so for those with ASD. In consideration of postsecondary education, Wei et al. (2015) explained that individuals with ASD were more likely to attend college with greater functional independence, experience fewer limitations in functional areas, demonstrate better high school academic performance, attain a higher income, non-Hispanic/non-African American racial/ethnic status, high parental expectations, and a longer time out of high school (p. 4). Employment rate statistics identified that among 19 autistic individuals ages 21-26, 73.7% had never had paid employment (Howlin, Mawhood, & Rutter, 2000, as cited in Wei et al., 2015). Alarmingly, these problems have only been identified in a snapshot in the life of an individual with ASD. Wei et al. (2015) aimed to identify the life choices for adults with ASD on a lifelong continuum.

The holistic perspective of in-depth longitudinal analysis has proven to show significant useful data. For example, two years after high school, Wei et al. (2015) identified the top four common activities among youth with ASD after high school: i. Unemployed, 34.7%, ii. Unemployed and college, 23.8%, iii. Employed part time and no college, 12.1%, iv. Employed part time and college, 11.5%. With the exception of combining employment and college, all of these scenarios decreased significantly as the individuals matured. Additionally, students enrolled in post-secondary education were more likely to come from a high-income family, have high functional cognitive skills, or have little to no trouble conversing. However, ASD

enrollment in college was still lower than that of their same-aged peers. This information will be useful in determining the long-term impact of adulthood choices for students with ASD.

According to Wei et al. (2015), youth who are disengaged in making adult choices run the risk of poor mental and physical health, increased involvement in the criminal justice system, and dependence on public assistance. While many youth struggle with making these types of decisions for varying reasons, it is useful to encourage them to explore the choices before high school graduation in preparation for adulthood. Additionally, research warns educators that "services and supports can only be effective if youth with ASDs choose to use them" (Wei et al., 2015, p. 15). Education about self-determination would be useful to enable students in making adult choices with the proper support. Information regarding options, supports, and services may also be communicated with families to help them make the most practical and successful decision for their student. Increased understanding of adult choices for students with ASD promotes a holistic understanding of how to prepare students for success.

Barriers of Post-Secondary Education Support

Higher Education transition planning for students with ASD poses several limitations. Sefotho & Onyishi (2021) suggested that existing supports for transition-aged students are blind and do not clearly define how to best provide proper guidance. The limitations experienced by ASD students actually hindered their unlimited potential. Increased support requirements to help students successfully transition into adulthood should be primary considerations for all high school special educators. Individual interviews for individuals living with ASD yielded five major support themes.

While overall societal inclusion of individuals with ASD has increased, individuals enrolled in higher education are not properly supported. According to Sefotho & Onyishi (2021),

major challenges have emerged in regards to admission and completion of post-secondary education. Students experience significant changes in routines, structure, and pressure to self-disclose their disability to receive social, functional, and academic support. This is often the first real-world experience for an individual with ASD to gain the accommodations they require. This significant adjustment can involve difficulties with coping, anxiety, and daily independent functioning. Without experiencing positive responses to the compounding challenges, hardships may create a domino effect that involves even greater struggles.

Several additional factors make navigating the post-secondary education world with minimal supports more challenging. Communities that have not experienced many disabled people have minimal understanding of how to provide support. Sefotho & Onyishi (2021) suggested students with ASD may experience rejection, shame, and exile. Determining best practices for how to support students with ASD is important. The research findings included struggles in the area of academic functioning, social difficulties, structural issues, mental health, and a lack of resources and academic supports.

Academic functioning difficulties pose a major threat to educational success. In many post-secondary settings, deadlines are stricter and requirements more complex; also expectations for juggling classes must be well organized. Sefotho & Onyishi (2021) pointed out that independent executive functioning requires increased self-regulation and time management skills. Additionally, higher education facilities are structurally more complex and may require traveling long distances from class to class. Individuals with disabilities often struggle with complex planning and such travel, which can hinder accessibility and accommodations.

Additionally, social difficulties and mental health issues can be significant barriers. Sefotho & Onyishi (2021) found several common themes in their interviews including fear,

isolation, and loneliness. By definition, students with ASD classically struggle with initiating and maintaining social interactions across several settings. Social cues may be confusing and it may be difficult to find friends with similar interests in large environments. Students identified being afraid of social stigma, which adversely affected their mental health and quality of life.

Lastly, lack of resources and support negatively impacted academic success. Disability support staff was identified as difficult to access; also, students described trouble finding reasonable accommodations and classroom assistance. Sefotho & Onyishi (2021) related this problem to a lack of general disability knowledge in many settings and attributed additional struggles to the juggling act that many students with ASD experienced. This eventually led to students vocalizing feelings of burnout and dissatisfaction in furthering their education. Solutions may involve personalized education reflecting the IEP experience, generalized support in planning, and social acceptance.

The challenge for transitioning students with ASD presents differently for every individual. The transition between high school graduation and college, for example, presents several new environments, expectations, and demands. Adreon & Durocher (2007) have identified several key domains that produce challenges including socialization, communication, independent daily living, academic functioning, and self-advocacy. It is imperative that students independently manage these domains with increased community awareness and support. While many students with ASD will require support throughout their lives, seasons of change deserve more attention and keen awareness by caregivers in their circle of support.

As ASD students increasingly enroll in postsecondary education, the need for ASD awareness also increases. Adreon & Durocher (2007) examined how social skills by definition have been a hallmark struggle for individuals with ASD. However, this social difficulty

overcomes their social desire to find and maintain close relationships. Social miscues in combination with others' lack of ASD puts individuals at risk for being misunderstood by members of the post-secondary education community and evokes negative impressions of the autistic community. Additionally, social vulnerability within ASD can cause hardships leading to exploitation, bullying, social avoidance, or relational disinterest.

Repetitive or restricted interests, also known as circumscribed interests, pose another problem in building relationships. Many individuals with ASD enjoy and fixate on particular areas of interest which creates hardship in finding and maintaining friendships. According to Adreon & Durocher (2007), the rigid nature of these interests makes it increasingly difficult to find others who share the same. It may also make friendships appear uninteresting, unmotivating, and unpredictable for others. The intense desire for sameness and routine appears to be a major barrier many ASD individuals identify as an area of struggle.

Within the transition to postsecondary education, many decisions have to be made; decisions such as where to attend college, level of academic rigor, and living arrangements cause significant life challenges for individuals with ASD. Adreon & Durocher (2007) found that for some, easing into sudden changes can make the impact less sudden. For example, attending college courses during high school, taking a gradual course load, or careful class scheduling may help. Additionally, living arrangements must take into consideration sensory sensitivity, problem solving skills, and self-advocacy. An observation found that some individuals with ASD found success using a guideline book that included items such as insurance information, emergency phone numbers, and how to handle minor medical care.

Lastly, individuals with ASD need overall support in executive functioning. Executive functioning includes the skills involved in planning, organizing, self-monitoring, and working

memory (Adreon & Durocher, 2007). Students may also need assistance from a tutor in the areas of study skills, task management, and meeting deadlines. Regardless of how transition impacts a student with ASD, the personalized needs required should be addressed with support and made available to each student through the explicit teaching of the necessary skills needed. The more prepared a student is for an upcoming change, the more likely that overall success will be experienced.

Each transition experience from high school to college is unique for students with disabilities. Students must understand their personal strengths and areas of weakness as they navigate the hurdles necessary to a major life change. Van Hees et al. (2014) examined the challenges, benefits, and support needs of 23 students with ASD enrolled in higher education through open-ended, semi-structured interviews. Data was analyzed using Grounded Theory, a qualitative system that analyzes themes within a set of data. The significant changes in a college setting paired with the vulnerable nature of ASD creates an urgent need for quality, evidence-based support.

While many colleges, universities, and other educational institutions recognize it is necessary to provide equal opportunities for disabled students to participate within the community, many lack the necessary depth of knowledge to truly understand the ASD student experience. Van Hees et al. (2014) recognized that this type of support was blind, unfocused, and generalized. The lack of knowledge impacts students' quality of life as they navigate the unknown "real world". Van Hees et al. (2014) suggested that to create the proper supports, voices of individuals with ASD are required to avoid building support systems filled with bias, stigmatization, and inadequacy. In fact, 20 studies since 2014 have included only 69 personal experiences from ASD individuals (Gelbar et al., 2014, as cited in Van Hees et al., 2014).

By allowing individuals with ASD to speak freely about their experiences, several insights emerged from the collected data. Van Hees et al. (2014) noted that many individuals explained struggling with new and unexpected changes, exhausting but necessary social contacts, lack of processing time, feelings of fear and doubt, mental health struggles, and adequate support. Students noted that many of the challenges unfolded other barriers such as anticipating the unknown, lacking predictability and structure, and frequently worrying about the future. Students described having to resist their natural inclinations in order to handle the new environment, yet becoming exhausted and burnt out in the process. Additionally, inflexible thinking led many students to feel socially stuck and incapable of overcoming their deficiencies despite a strong desire for connection.

As students matured into adulthood, they became more aware of social problems prevalent in post-secondary education settings. Students compared themselves to their peers in terms of sensory overload, fixation on minute details, and poor time management as problems that appeared on the surface of daily living. Van Hees et al. (2014) attributed these comparison challenges to a general lack of knowledge by the public regarding ASD that added unwanted stress to navigating if, when, and how to disclose disability-related information. However, students identified they were able to successfully disclose when they felt safe, could not cope any longer, or needed specific support. On the other hand, the overload on students' mental health and fear of negative perception that results in excess stress could be eliminated by teaching students to handle significant changes in smaller amounts.

In addition to navigating life adjustments in systematic steps, many students with ASD reported that focusing on their strengths helped make transitions easier. Van Hees et al. (2014)

noted common ASD characteristics such as strong memory, eye for detail, analytical thinking, observation, and strong focus to alleviate some of the daily stressors.

Additional support recommendations included a holistic, personalized approach in conjunction with sufficient planning and communication by an individual's support team. Students with ASD voiced a desire to have a transition life coach as opposed to group training and setting aside adequate time for rest and recuperation. These strategies can assist students in experiencing a more positive, enjoyable college experience that encourages them to continue learning.

Post-Secondary Education Supports

Students with ASD entering post-secondary education may benefit from more than general support accommodations. Rowe et al. (2020) investigated the areas in which many university and college institutions are lacking when supporting students with ASD. Common areas of support include separate testing environments, additional work completion time, alternate note taking strategies, and modified course loads. Rowe also identified the types of progress that students may experience with proper social and community guidance. A baseline survey was conducted with 20 university students to gain a better understanding of their perspectives.

The biggest challenge while transitioning to postsecondary education included the legal differences between laws meant to provide equal access for disabled students, namely the Individuals with Disabilities Education Act (IDEA) and the Americans with Disabilities Act (ADA). Rowe et al. (2020) explained that in the absence of an Individual Education Plan (IEP), students who transitioned to college were required to disclose their disability and advocate for themselves to gain reasonable accommodations. To prepare for this responsibility, students need

explicit teaching and priming to deeply understand their skills, strengths, needs, and limitations. However, with this major life transition, students often face feelings of fear, anxiety and loneliness. It is clear that students who face these difficulties may be missing an important educational component.

A diagnostic tool known as THRIVE (Transition to Healthiness, Resourcefulness, Independence, Vocation and Education) was developed to aid students with ASD using a peer mentor to supplement their necessary support. Rowe et al. (2020) described that through this program, several key domains emerged as lacking support including social skills, independent living skills, and career development. The mentors, composed of individuals from a variety of educational majors, committed to 10-15 hours per week of guidance. Mentors received training on social skills and other support areas individualized to each student. Each student who enrolled in the program was guided by their mentor to identify areas of need through the promotion of goal-setting. This strategy was designed to allow students with ASD to take control and demonstrate confidence in their desires and to be held accountable for adequate progress. Goals included things such as getting a driver's license or attending graduate school.

Results of the THRIVE mentorship program included improvements in: overall student success, retention of enrollment from year to year, long-term goal setting, career exploration, and self-advocacy. Rowe et al. (2020) emphasized the importance of allowing individuals with ASD to have a voice and communicate their own desires and goals within disability programming. Students learned how to seek help, problem solve, initiate social interactions, and use resources in a safe, pressure-free environment. Additionally, data from the peer mentorship showed increases in other areas such as confidence, socialization, and generalization of skills across several settings. By incorporating self-reported measures for students with ASD in a transition

setting, educators may begin to establish best practices for increased student-led involvement and advocacy regardless of an official mentorship program.

Support Beyond the Classroom

Transition-aged students need social skill interventions in preparation for life beyond high school and employment beyond the classroom. Assistive soft skills and employment training (ASSET) programs can help students overcome employment barriers. Unfortunately, the majority of job loss for disabled individuals stems from poor social communication skills (Sung et al., 2019). Aligned with the lack of research in this area, only 1% of funding for autism research has been elected for skills necessary in adulthood (Sung et al., 2019). As defined within the study, soft skills for effective communication involved teaching targeting a positive attitude, teamwork, workplace professionalism, rule compliance, problem solving, and self-advocacy (Sung et al., 2019). While identifying the need for such interventions, the purpose of the study aimed to analyze the feasibility and acceptability of the ASSET program and answer questions related to the efficacy of soft skills (Sung et al., 2019). Participants included in the ASSET program study totaled 17 young adults with High Functioning Autism Spectrum Disorder (HFASD) who resided with a caregiver and were involved in post-secondary education such as college, a transition program, or career services (Sung et al., 2019). Participants ranged between 18-25 years old, were previously diagnosed with ASD, Asperger's, or PDD-NOS and had social problems reported by themselves or a caregiver. Subjects had an IQ of 70+, minimum second-grade reading level, and no other participation in soft skills training (Sung et al., 2019). The subjects needed support as noted by their caregivers. The self-identified needs would ultimately aid them using the critical self-advocacy and self-awareness skills required to have positive social skills in adulthood.

Using a variety of teaching methods has been shown through research to provide a sense of individuality and high-level expectations. The structure of the ASSET program aimed to accommodate individuals with ASD by incorporating group work, peer interaction, group facilitation, immediate feedback, video modeling, visual agendas, and a social hour for additional practice (Sung et al., 2019). Measurements were taken with each individual using standardized evaluation tools including WASI-II, WJ-III, SRS-2, PESE, PSSE, and URP-IR (Sung et al., 2019). Data was gathered using a mixed-method quantitative and qualitative design. The results found that tremendous improvement was noted in social confidence, reduced nervousness, social awareness, career networking and communication skills (Sung et al., 2019). Since few studies have explicitly focused on overall work-related social competence, the need for targeting the skills in youth with ASD has proven significant for group and community-based interventions (Sung et al., 2019).

Factors Impacting Employment

The lifelong diagnosis of ASD can elicit many questions from caregivers beginning at an early age. As families impacted by ASD begin their quest for "normal," the fear and uncertainty about the future adds to the tremendous difficulty making decisions about proper support. Shattuck et al. (2012) sought to uncover the overarching factors that determine post-secondary outcomes for students with ASD as they enter adulthood. By evaluating a national representation of the ASD population aged 19-23, research interviews revealed gaps in transition planning associated with poor outcomes. Overall, rates of participation among youth with ASD were concerning for post-secondary education and employment in comparison with same-aged peers and other disability categories.

The careful analysis of the research population noted that despite discrepancies between an ASD medical diagnosis and school district-identified service categories, all individuals displayed barriers within the same core features. Shattuck et al. (2012) noted that postsecondary participation rates among ASD young adults may be impacted by functionality level, comorbidities, and lack of education and knowledge about transition services. About 25% to 50% of adults with ASD participated in any type of employment and 12% to 24% were not engaged in any type of productive activity. Many ASD adults who were employed possessed jobs below their education level and had difficulty maintaining stability. Several additional factors have contributed to these poor outcomes including behavioral outbursts, low family income, and limited functional independence.

The data collected from over 500 parents of ASD adults identified levels of functionality among categories such as overall health, conversation skills, independence, and the amount of time passed since high school graduation. Results indicated that among youth with ASD, the following post-secondary choices were identified: paid employment 55.1%, 2-year college 28%, 4-year college 12.1%, combined 2 and 4-year college 34.7%, and technical education 9.3%. Additionally, one-third of the national sample, 34.9%, had not participated in either postsecondary education or employment. Notably, low involvement also impacted Hispanic, African-American, and low income families. The findings indicated significantly lower statistics compared to three other disability categories including speech/language impairment, learning disability, and mental retardation. Shattuck et al. (2012) noted that the outdated term “mental retardation” was used in this instance to maintain consistency with the previous data collected within the sample.

This study identified several key elements within research literature that determined unique adult challenges for youth with ASD. Shattuck et al. (2012) noted that there appeared to be varied amounts of time that individuals with ASD needed to transition successfully from one event to another. Information within transition research highlights the need for an increased demand for services and proper transition planning. Additionally, factors such as race, socio-economic status, autistic symptomatology, and service availability played a role in post-secondary outcomes. Future research implications indicated additional work to be evaluated in light of educational best practice.

ASD and Community Connection

The role of educators in special education, specifically in secondary settings, is to equip disabled students with skills for adulthood. Research has indicated, however, that many young adults feel unequipped and ill-prepared for this transition. Relationships and the role of community inclusion play a major role in providing additional moral support. Carter et al. (2013) stated that this finding should lead to increased accountability for service providers to give students opportunities to thrive in adulthood. By using an intentional, team-based approach to programming, students can participate in a full and supportive community.

Helping young adults with ASD find meaningful relationships and experiences may have a positive ripple effect for other transition areas. Carter et al. (2013) discussed several key elements that provide adequate support. First, individual goals and interests should be the core of every transition decision made for autistic individuals. Engaging in meaningful discussion about future aspirations, potential career paths, and relevant barriers will lead to the development of a successful transition environment. Second, time should be considered to give enough planning

related to exploration and important decisions. Students should be provided opportunities to experience a well-rounded education that may lead to future self-discovery.

Students also need to understand their options and what is available to them. Carter et al. (2013) suggested that students should have significant variety. In some cases, this can be made available through dual enrollment programs to help students ease into their next desired step. Similarly, ASD students also require careful class planning. Educators must think about what future skills students will need in the area of executive functioning. Instruction may also focus on areas such as independent living, work skills, and self-advocacy. With this in mind, academic plans should include high expectations to promote a variety of potential achievement options.

For students to be engaged in the decision making process, educators must consider providing options relevant to individual student lives. "When secondary learning opportunities build on and deepen students' strengths and interests, provide links to experiences in authentic community settings, and teach youth the knowledge and skills to be active citizens, transition education is presumed to be more engaging" (Carter et al., 2013, p. 892). It is essential to ensure that decisions are made using a student-minded approach. While this may be difficult at times, it is also important to note that while ASD students can be particularly rigid, educators must use gentle persistence to help students explore areas outside of their comfort zone. Balancing these elements will ensure that students do not become complacent and begin to explore their true capabilities.

Several strategies serve as recommendations for proper transition support. First, school teams must be organized and use information guides to determine what supports exist in their school districts and communities. Carter et al. (2013) described this "menu-based" approach to facilitate useful planning and keep students on track with their aspirations (p. 893). It is also

useful to consider experiences outside the classroom and to promote learning through community involvement. Lastly, educators must help students discover the types of strengths and weaknesses they possess to promote adequate levels of independence.

In regard to social support structures, Carter et al. (2013) suggested three interventions including social skills instruction, social skills awareness for the general population, and positive social skills environments facilitated by adults. By providing explicit instruction, skills can be presented in a personalized manner to engage the student. Additionally, general social skills awareness will allow autistic individuals to seek out social interactions with confidence. With the support of adult modeling, ASD students will learn appropriate ways to maintain and build relationships. Creating meaningful connection opportunities will greatly assist young adults with ASD in becoming involved in their communities, escape ASD stereotypes, and experience authentic interactions.

Perceptions of Social Barriers

Social impairments control young adults with ASD in every aspect of life. Throughout the transition from high school to adulthood, these challenges may lead to a domino effect into adulthood. Sperry & Mesibov (2005) conducted a question and answer style evaluation regarding the perceptions of social barriers among 18 adults with ASD in a longitudinal social group between the ages of 22 and 49. By asking problem and solution questions, research identified several key emergent themes that may stem from social naivety within ASD. Notably, social naivety may lead to relationship barriers including being taken advantage of, emotional misunderstanding, misinterpretation, and confusion.

Personal and intimate relationships are difficult to maintain and sustain for many individuals with ASD. In particular, it may be difficult to identify appropriate behaviors, acts of

kindness, and interpret figurative language. By evaluating the personal reflections of individuals with ASD, Sperry & Mesibov (2005) pinpointed underlying themes including: poor judgement, inadequacy, personal doubt, literal thinking, and low self-esteem. Poor reality judgements may lead to social miscue. Adding to the complexity of the social world, many members of the general community have already made assumptions about what individuals with ASD are capable of understanding and achieving. While many young adults have a strong desire for human connection, the question of how to navigate the varying expectations of each social environment remains tremendously exhausting.

Amidst the complexity of social interaction, ASD participants identified several key strategies for navigating human connection including incorporating positivity, behavioral outburst control, taking breaks, and thoughtfulness. Other appropriate behaviors included keeping hands to themselves, avoiding criticism, and evaluating body language. These necessary skills helped each individual generate and define personal limits within relationships. Notably, each subject identified strategies that worked best in regard to a personalized, situational approach (Sperry & Mesibov, 2005).

Additionally, work relationships are very taxing to maintain. A commonality among all ASD relationships is weighing pros and cons. Sperry & Mesibov (2005) identified a variety of employment placements and educational achievement among the ASD participants and asked questions regarding basic, everyday tasks. Subjects identified a range of solutions including following directions, using humor, compromising, or involving a manager. Alarmingly, many concerns were also raised regarding perceptions from the community about ASD. Specifically noted by ASD individuals included stereotyped feelings of pre-limitation and expectations of

incapability from non-disabled people, resulting in behavior exhibiting resentment and negativity.

The social challenges faced by young adults with ASD in public and personal environments impact day-to-day functioning. There is no question that navigating social presumptions along with internal pressure and doubt may lead to significant connection barriers. Sperry & Mesibov (2005) provided hope that improvements in self-confidence, communication practice, and problem solving skills would undoubtedly result in equal opportunities for social relationships. Additionally, relevant and useful information provided by individuals with ASD can aid in development of relevant and useful social skills training to prepare for adulthood transition. Eliminating barriers and providing proper support will promote personal self-determination and meaningful independence.

Trouble with Communication and Relationships

Communication deficits are determined by ASD individuals to be one of the most challenging experienced setbacks. Throughout the period of adolescents and young adulthood, social identity begins to be characterized by factors that include peer involvement, relationship building, self-discovery, and social belonging. Social barriers classically associated with ASD individuals continue to require support in advanced areas such as conversation nuance, humor and non-literal language, politeness, and body language. Kelly et al. (2018) used information from five individuals with ASD between the ages of 15 and 17 to explore the current communication barriers in existence, whether or not subjects would like support, and how to incorporate strategies already being implemented.

As youth with ASD begin to mature, social complexity increases significantly. However, social challenges also increase and pose risks to mental health. Despite a strong desire for

connection, Kelly et al. (2018) described barriers including few friends, bullying, victimization, and rejection. These problems ultimately lead to poor self-esteem, isolation, and intense feelings of sadness. With maturity, overall awareness of these deficits also begins to climb. Increased social skills interventions will be required to overcome long-term social communication barriers.

In particular, many individuals struggle with social initiation. Kelly et al. (2018) found that the most effective strategy to determine what young adults view as helpful is to ask them directly. This small study spent considerable time building rapport with the participants to achieve the most honest responses. Four main themes for desired support emerged including specific components of communication, managing challenging feelings, increased opportunities for social communication, and strong motivations to improve. Unfortunately, when social challenges become too strong, it often leads to anxiety that results in social avoidance.

All participants noted challenges with verbal and non-verbal communication. Kelly et al. (2018) found that while many desired and were interested in communication, common interactions lacked personal interest and thus led to misinterpretation. Additionally, participants voiced concerns about the social risks of making a mistake. In particular, having conversations with unfamiliar people was significantly challenging. There were also noted differences between peer and adult interactions. Individuals felt it was easier to converse with people who were mature and understood them.

Managing challenging feelings also contributes to additional social stress. All participants revealed that they were afraid of judgement, isolation, and rejection. Kelly et al. (2018) found that one effective strategy included the use of internet communication. Many found this form of communication “less assertive” as it provided more processing time. However, this may not work for everyone because it is difficult to read social cues such as tone and body language

online. Lastly, all participants had a strong desire for concrete conversation and social rules such as described or explained in a guidebook. Communication interventions may be achieved through the use of structured, small groups or pairing with a communication mentor.

Young adults with ASD deserve to have access to social support that gives them an opportunity to share their voice. Educators will influence teaching practices best when they incorporate the views and experiences of their students. Kelly et al. (2018) suggested that generalizing social skills across several settings allows students to discover increased self-understanding and acceptance, which ultimately leads to increased positive experiences.

Social participation with the neurotypical community, especially for young adults, is a trademark ASD barrier. Many times, social participation and involvement is a strong indicator of quality of life and happiness. Orsmond et al. (2013) measured the social networks of a nationally representative US Sample of more than 600 young adults with ASD to determine areas of comparison with people in other disability categories such as Intellectual Disability (ID), Emotional Disturbance (ED) and Learning Disabilities (LD). Overall, results indicated that young adults with ASD were, “significantly more likely to never see friends, never get called by friends, never be invited to activities, and be socially isolated” (Orsmond et al., 2015, p. 2710). This information was analyzed to identify areas where educators and other support individuals may encourage increased social participation.

With the overarching goal to increase community involvement and mental health among young adults with ASD, significant research is lacking in this area. Orsmond et al. (2013) noted that nearly one-half to two-thirds of this population have no close friendships, and are far less likely to be in close, supportive relationships compared to same-aged peers. The troublesome nature of transitioning to adulthood puts a vulnerable population at risk for increased

vulnerability in the areas of social connectedness. Through comparing results from studies in other school-identified disability categories, challenges unique to ASD were identified. Additionally, a framework for adequate interventions must also be established.

Semi-structured interviews were conducted with individuals regarding their personal-social interactions. Individuals included in the study varied in demographic categories such as race, gender, socioeconomic status, employment placement, and living arrangement. Additionally, Orsmond et al. (2013) noted that information was collected in five waves, each two years apart, between 2001 and 2009. Participants entered the study between the ages of 13 and 16. This longitudinal data collection style allowed researchers to identify areas of growth and decline in several social categories.

Results identified that young adults with ASD were less likely to see friends, get called by friends, or invited to activities compared to all other disability control groups. Orsmond et al. (2013) reiterated this by adding that ASD individuals were from three to 14 times more likely to be socially isolated in adulthood. This may be due, in part, to poor conversational ability, lack of confidence, inability to initiate relationships, and overall social anxiety. As causal-related information was limited, researchers were unable to identify true precautionary markers for this behavior. However, it was increasingly clear that poor social participation had a negative, long-term impact on young adults with ASD.

Based on this informational cross-analysis, social connectedness among ASD youth did not appear to show significant changes following a high school exit transition. Orsmond et al. (2013) indicated that despite many environmental changes, further research will require questions related to if, when, and how individuals become keenly aware of their situation, social satisfaction, or lack thereof. Additionally, factors such as preferences and goals come into play

as students make personal decisions. In light of finding proper support strategies, Orsmond et al. (2013) made it clear that positive social relationships significantly impact the reduction of autistic comorbidities such as anxiety and depression. However, counterbalancing these elements will require explicit teaching in preparation for this anticipated transition.

Communication relies heavily on effective transfer of information. Crompton et al. (2020) evaluated the Double Empathy Theory, which stated communication difficulties among people groups, particularly those with ASD, were attributed to mismatched neurotypes. This suggests that communication between autistic-autistic individuals was more successful than cross pairs. To study communication, 72 individuals participated in a series of diffusion chains to further investigate the effectiveness of human communication regardless of disability.

It is clear that disabilities significantly impact human connection. Crompton et al. (2020) interestingly pointed out that neurotypical individuals struggled when communicating with the ASD population. Many with ASD have significant challenges reading verbal and nonverbal expression and can be unwilling to relate to others. Neurotypicals often over or underestimate the cognitive abilities of those with ASD. The communication disconnect between social groups was identified by Milton (2012) and Milton et al. (2018) as the Double Empathy Problem (as cited in Crompton et al., 2020). This might explain the disappearance of such disconnect within populations with similar cognitive skills and considerably challenge the stereotypical notion that autistic individuals lack communication ability. Not surprisingly, however, autistic individuals noted they prefered to communicate with others with ASD and could accurately detect social implications with higher success and fewer autistic barriers.

The study consisted of nine groups of eight individuals; three autistic, three non-autistic, and three mixed groups. Crompton et al. (2020) described the procedures that gave the first

person in the chain a 30-point story about a bear on a surreal adventure. The story was shared throughout the chain, one person at a time, much similar to the popular American game of telephone. Each diffusion chain line was ordered strategically to include the following characteristics: the mixed chain alternated between autistic and non-autistic participants, each chain was ordered in ascending age order to eliminate memory decline, chains used minimal switches in gender, and the mixed chain started with a non-autistic participant. All members of the study were aware of their peer's diagnostic status.

Surprisingly, the autistic and non-autistic chains did not differ from each other regarding the amount of accurate information shared. Both groups displayed significantly more comprehension recall than the mixed group. Crompton et al. (2020) identified a much steeper decline for the mixed chain. Position within the diffusion chain also played a role in information comprehension in combination with chain type, accounting for 87% variance in recall. This indicated that diagnostic mismatch identified significant communication barriers. Following the experiment, participants additionally rated their level of rapport with those beside them in the chain. Once again, levels of self-rated comfortability varied in the mixed chain compared to no significant difference in the autistic or non-autistic chains.

Implications from the results were profound. Difficulties in autistic communication were apparent only when communicating with different neurotypes. Crompton et al. (2020) attributed these selective challenges to poor rapport and connectivity. In fact, poor autistic communication was not really a deficit, but rather a human-to-human disconnect which supported Double Empathy Theory. These findings have significant implications for future classifications of ASD within the DSM-V and how individuals with ASD acquire information needed for daily living. One possibility suggested for this communication deficit may have been related to the awareness

of participants' diagnostic status. If it is true that non-autistic people oversimplify or guard information to alleviate perceived communication deficits, significant implications for special education programming and support the increased peer-to-peer support observed within the ASD community.

Mental Health Implications on Social Interactions

The major transition that occurs as adolescents with ASD enter adulthood can cause fluctuation in mental health problems. Mazurek (2014) believed this was part of a general increase in the ASD person's self-awareness of shortcomings such as social deficit, level of independence, and community acceptance. Simply, social issues may manifest in comorbidities such as anxiety and depression and increase significantly with age. More information on the relationship between loneliness and emotional functioning will lead to greater quality of life and positive well-being in relation to mental health. It would also be useful to evaluate the connection between ASD and life satisfaction and self-esteem.

The study sample included 108 adults with ASD between the ages of 18 and 62. Individuals participated in controlled interview measurements that evaluated several identifying factors including autistic symptoms and perceived levels of loneliness, friendship, and well-being. Despite previous data, Mazurek (2014) stated that many individuals with ASD did not prefer social isolation. In fact, a majority of the sample population reported generally not knowing how to initiate or maintain social relationships. For the purpose of this study, loneliness was defined as an unfulfilled social need. While solitude may be a positive experience in some cases, loneliness may also be experienced in the presence of others. Research literature seeks to distinguish between the two ideologies and determine a healthy social balance for ASD individuals.

There is no question that humans require varying levels of connection to maintain community. Unfortunately, individuals with ASD continue to struggle with personal relationships. In a study conducted by Orsmond et al. (2004), less than 10% of the sample population had at least one close friendship and 29% had one friendship that shared similar interests. Alarmingly, over half the sample size had no relationships (as cited in Mazurek, 2014). In general, social participation was significantly lower among this population in comparison to other disability categories. Previous research identified data discrepancies in quality versus quantity of reciprocal friendships and the protective function it may play in guarding against poor mental health in adulthood.

Through the use of several standardized measures, such as the Autism Spectrum Quotient-Short (AQ-Short) and Unidimensional Relationship Closeness Scale (URCS), participants were assessed by answering open-ended questions regarding their social status. Mazurek (2014) analyzed data to identify several positive and negative correlations that had no impact on other descriptive demographics such as gender and race. As suggested, “loneliness was significantly correlated with all emotional functioning variables. Specifically, loneliness was positively correlated with depression and anxiety, and negatively correlated with both satisfaction with life and self-esteem” (Mazurek, 2014, p. 228). Additionally, the quantity of friendships impacted loneliness negatively, significantly related to quality.

The research identified an interesting data relationship between loneliness and well-being. Mazurek (2014) stated that the findings suggested that loneliness may be a secondary consequence of ASD characteristics and more factors may play an underlying role in mental health. Social vulnerability for ASD individuals may be alleviated by friendships and social support systems. Additionally, other evidence suggested that fulfilled social needs may lead to

decreased comorbidities over time (Cacioppo et al., 2006, as cited in Mazurek, 2014). Continued research in this area will be required to determine the direct cause of mental and social hardship in order to provide direction in social instruction for educators and support staff.

A Social Coping Strategy

Due to the tremendous number of challenges faced by individuals with ASD, many experience the highs and lows of defense mechanisms in an attempt to relieve severe stress. Camouflaging, a common deceit strategy, influences an autistic individual's ability to cope and control daily situations and social interactions. According to Hull et al. (2017), camouflaging is motivated by several factors including appearing socially competent, internalizing problems, attempting to fit in, and achieving increased personal gains such as job placement or advancement. However, while camouflaging presents as a tempting strategy, many autistic individuals experience troubling repercussions. Research identified 92 adults ranging in age from 18-79 who described their camouflaging experiences.

Camouflaging is a type of manipulation exhibited as a social imitation technique. However, this behavior causes major trauma to the identity of individuals with ASD. Notably, many who experience autism struggle to balance ASD as either a condition or as part of who they are. Hull et al. (2017) pointed out that camouflaging could also delay diagnosis for many individuals. Females, in particular, may experience diagnosis of other conditions such as personality disorders or eating disorders. Camouflaging impacts autistic symptoms such as hyperactivity and conduct problems in males and anxiety and depression in females. Camouflaging poses a significant threat to both the general and ASD community as it relays misconceptions of a true representation of autism.

Additionally, camouflaging may cause autistic individuals to be perceived as if they are functioning better or worse than is true. This leads to problems identifying capabilities, proper support structures, and areas of strength and weakness. Hull et al. (2017) identified that the pressure of success or failure for those who camouflaged, caused significant fluctuations in mental health for the ASD individuals. This unwanted consequence led to long-term implications including high stress, low mood, and poor self-esteem. The cost of this exhausting behavior did not always result in the desired outcome to appear "normal."

Many young adults with ASD have genuine, thought-provoking reasons for their desire to camouflage themselves. To overcome social barriers, young adults with ASD described strategies to temper the consequences of camouflaging. Hull et al. (2017) uncovered compensation techniques including role-play practice or creating rigid social rules or guidelines to deflect social pressure and close communication gaps. Masking perceived weakness or shortcoming seemed to be at the core for many individuals. Hull et al. (2017) identified several other motivations such as the necessity for acceptance, feelings of inadequacy, reducing social threat, minimizing social expectations, and providing mental safety.

Interestingly, some individuals compared their experiences to neurotypicals by stating, "camouflaging was simply seen as the way in which everyone tries to fit in or hide less desirable aspects of their personality" (Hull et al., 2017, p. 2524). Other participants described feelings of social invisibility, the strong desire for human connection, and reduced risk of embarrassment. Considering all the challenges that young adults with ASD faced, it was also noted that many felt the need to ease the social discomfort and awkward interactions with the general public to avoid unwanted attention.

Within the ASD community, however, some view camouflaging as a betrayal or denial of the true self. In severe cases, the general public may view autism as "not really being autism" when symptoms are camouflaged. Authenticity, as noted by Hull et al. (2017), is in jeopardy. Some also viewed the relationships earned by camouflaging as deceptive and not true representations of acceptance or connection.

Two main motivations for camouflaging, assimilation and connection, will require more research as individuals with ASD share their experiences with social barriers. The strong desire for acceptance and avoiding discrimination should, in return, motivate educators and other members of the ASD community to continue advocating for increased disability awareness among the general population. The exhausting experience of masking true authenticity and overcompensating weakness should not be the sole burden of ASD individuals. Hull et al. (2017) noted the true underlying factor may be due in part to the difference between desire and ability for connection and true self-knowledge and self-acceptance. However, Hull et al. (2017) also warned against removing this layer of protection for young adults with ASD with the general public, as unwanted treatment may increase. Results from this research indicated that public education should only be in consultation with the ASD community as the communication gap continues to close.

Adulthood and Independence

Transition-aged students with ASD require additional support in the area of functional living skills to develop adequate independent care skills. However, Hong et al. (2017) noted that while independence was important, independence was not always correlated with community contributions. Individuals with ASD who require support can still be productive members of

their community. Hong et al. (2017) identified and analyzed 32 case studies in order to evaluate the strategies that have proven to be the most effective in providing adequate functional support.

Functional living skills are defined as, "skills needed for being an independent individual in society" (Sparrow, Cicchetti, & Balla, 2005, as cited in Hong et al., 2017). Many individuals become dependent on their families and unfortunately become burdensome over time due to the lack of competent living skills in young adults with ASD. Notably, approximately 80% of young adults live at home (Shattuck et al., 2012, as cited in Hong et al., 2017). Promoting independent living continues to be the subject of deep research inadequacy.

Many strategies have been identified to assist with functional education approaches such as prompting, reinforcement, and modeling techniques. Ninci et al. (2015) noted that additional interventions included the use of video, audio, and visual cues (as cited in Hong et al., 2017). However, discrepancies were noted in data for particular strategies used and the age of students. Data was potentially impacted by IQ and acquisition of target skills. Research in this area was difficult to analyze in relation to the variety of research designs and outcomes but aimed to answer questions related to the most effective differentiation strategies.

Hong et al. (2017) analyzed 32 research studies focused on adult ASD individuals and functional skill interventions including tasks such as housekeeping, employment, transportation, hygiene, public conduct, and money management. From there, identifiable coding categories were identified to distinguish summarizing variables including video modeling, audio cueing, behavioral in-vivo strategies, and visual cues.

Although how to identify the best intervention strategies for independence remains unclear, information from investigating each technique proved "Strong effects were found for all four independent variables, indicating that they are all effective for teaching functional living

skills to adolescent and adult-age individuals with ASD" (Hong et al., 2017, p. 276). Individuals with ASD often have strong adaptive behavior skills, and simply need guidance to implement their strengths. Additionally, all four dependent variables showed strong effects, indicating that individuals with ASD successfully completed the tasks. Future application of skills in the real world will be necessary to measure generalization across settings.

Smith et al. (2012) identified and studied 397 participants with ASD ages 10-52 and compared with a control group of 167 individuals with Down's Syndrome. Over 70% of the ASD sample was male with a comorbid intellectual disability diagnosis. Over a 10-year period, the evaluation sought to determine the developmental trajectories of autistic individuals in terms of independent daily living. In the past, research explored ASD symptomatology and behaviors throughout adolescence and adulthood with significant lack of independence noted. This longitudinal decline in functional skills indicated the need for additional research. Overall, independent living skills improved when individuals reached their early 20's, plateaued during late 20's, and began to decline by age 30.

Daily living skills are a category of adaptive behaviors essential for living independently. Deficits in major developmental milestones can be identified in developing children as early as 36 months when considering ASD diagnosis (Smith et al., 2012). The delays become more pronounced compared with neurotypical peers over time. Additionally, results by Freeman et al. (1999) showed that students with an IQ of 70 or above improved faster than those with lower IQs (as cited in Smith et al., 2012). In fact, as ASD children developed into and throughout adulthood. They increasingly lagged behind typically-developing peers. This decline may indicate an overreliance on support and elucidates the importance of informed decision-making during transition years.

Smith et al. (2012) predicted concomitant improvements in daily living throughout research with decreases noted over time. Hypotheses were also made regarding associations between daily living skills, age, and intellectual disability. Assessments included measurement tools such as the Waisman Activities of Daily Living Scale (W-ADL), a measure of independence domains.

Results indicated that, "by the end of the study, the average score for the group was 20.59 on a scale where a score of 34 reflected complete independence" (Smith et al., 2012, p. 626). The interpreted information meant that for various moments in time, there was an altered rate of change. Significant independent living skills improvement occurred at the beginning of the study, but gradually declined near the end. Results also indicated that intellectual disability was a significant predictor of independent living skills with poorer beginning and ending levels. The present study showed overall improvement during adolescence and early 20's, a plateau during late 20's, and decline by age 30. A cause for great concern, this period of improvement did not indicate mastery of skills.

By the end of the study, nearly all ASD individuals failed to complete more than one-third of the independent daily living tasks. Positively, however, independent daily living was less correlated with the core features of ASD, which indicated that improvement was possible with continued guidance. Lack of competence in daily living skills poses a significant stumbling block to achieving lifelong goals for individuals with ASD. Critical future research should consider how to address the needed intervention strategies in adulthood.

Recreation and Leisure for Reduced Stress

Participation in leisure activities is important for overall well-being throughout adolescents and adulthood. Ratcliff et al. (2018) researched the similarities and differences

between typically developing individuals and those diagnosed with ASD between the ages of six and 17 years using longitudinal analysis. Overall, engagement in recreation and leisure activities showed increased quality of life (QOL), positive self-perceptions, and community involvement. Within this research, leisure was defined as time spent without demands. On the other hand, recreation was described as participation in leisure activities for a variety of purposes.

Throughout previous research leisure participation has been poorly defined, Ratcliff et al. (2018) analyzed a variety of assessment measures to aid in comparing populations. Historic assessment tools included: The Children's Assessment of Participation and Enjoyment/Preference for Activities of Children (CAPE/PAC), Home and Community Activity Scale (HCAS), and The Participation and Environment Measure for Children and Youth (PEM-CY).

QOL measured several life elements including health, well-being, independence, relationships, beliefs, and education. Among earlier research literature, differences have been shown among social, physical, and self-improvement activities but not skill-based or recreational. This indicated that particular activities that could be completed alone were more desirable and less demanding for individuals with ASD. Similarly, most leisure activities were categorized as home-based, solitary, and passive. Recreation usually incorporated more socialization.

Children with ASD typically spend more time watching TV, on the computer, playing video games, or engaged in other sedentary activities compared to their same-aged peers. Additionally, children with ASD were less likely to participate in more complex activities such as crafts or board games. Time spent out of school or home was also significantly less for the ASD population. Out of school activities include community programs, athletics, scouting,

lessons, school activities, and service clubs. Additionally, children with ASD demonstrated difficulty executing the physical demands including sports and team activities. Ratcliff et al. (2018) hypothesized that the most significant differences in recreation activities would be in the categories of physical activity and jobs/chores. Additionally, researchers expected widening gaps with age.

The Ratcliff et al. (2018) findings indicated that children with ASD demonstrated less participation in physical activities, such as sports, and skill activities, such as art or music. Additionally, no significant differences were found for recreational activities, likely because individuals enjoyed these activities which did not change over time. Social activities, such as eating a meal with family or attending a club, demonstrated increased differences over time.

The age differences may be explained by inconsistent activity levels and defining characteristics. For example, younger children who participated less in school activities, spent more time pacing or engaging in self-stimulatory behaviors, which could be considered physical activity (Badia et al., 2013, as cited in Ratcliff et al., 2018). Interventions in all categories, however, were necessary to signify areas where educators could provide additional focus. Reduced participation in these categories may predict decreased adult involvement in areas such as employment, community activities, and independent living.

Garcia-Villamisar & Dattilo (2010) sought to investigate the impact of leisure activities on quality of life including stress for individuals with ASD. Within one year, 37 participants between the ages of 17 and 39 were crossexmained with a control group of 34 participants between the ages of 24 and 38 who did not receive interventions. The identified intervention included a leisure-based companionship program to facilitate positive outcomes. Researchers predicted a significant decrease in overall stress scores and increase in the four factors for quality

of life: satisfaction, independence, competence, and social interaction. Participation in individual high-interest activities proved to positively impact several areas of transition throughout adulthood.

The research target included quality of life measured within the individual context of goals, standards, and achievement concerns. Relative to measuring objectively, quality of life also affected physical health, psychological state, independence, and social relationships impacted by the environment. Individuals with ASD classically struggled in this area due to limitations initiating and maintaining social involvement. This was especially true for ASD considering that ASD was present throughout the individual's life. It will be necessary to maintain and build upon secondary growth and instruction to promote generalization of skills (Garcia-Villamisar & Dattilo, 2010).

For all humans, regardless of disability, when stress becomes too overwhelming it becomes difficult to efficiently and effectively complete day-to-day tasks. Similarly, those with ASD struggle with maladaptive behaviors such as aggression, self-injury, tantrums, and property destruction as a result from excessive stress. Garcia-Villamisar & Dattilo (2010) noted that levels of stress were often overlooked in individuals with ASD and resulted in feelings of marginalization. Leisure activities could be used as a coping strategy to discover rejuvenation, enjoyment, and relaxation.

When evaluating the chronic stress conditions of individuals with ASD, four positive outcomes were identified: positive distraction strategy, sustaining other coping efforts, social support, and sustaining optimism in the midst of stress. Garcia-Villamisar & Dattilo (2010) also found that leisure-based companionship reflected positively in the areas of rigor and relevance for austic individuals. The program consisted of two hours of group recreation five days per

week. Participants chose from a list of preferred activities at varying difficulty levels. Researchers provided support to ensure participants could become involved at their skill level. Leisure program guidelines also required understandable (well-structured), reactive (providing feedback), comfortable (with adequate challenge), and active (frequent activity change) choices for each participant.

Within one year, total quality of life scores improved for the treatment group in comparison to the control group. Garcia-Villamisar & Dattilo (2010) demonstrated findings that indicated participation in preferred leisure activities reduced levels of daily stress in autistic individuals. Surprisingly, however, there was no improvement on social integration or independence measures. This may be explained by ASD central deficits that require a longer intervention period to show adequate improvement. Regardless, leisure activities proved as a positive coping strategy to reduce stress throughout adulthood for autistic individuals.

Interventions for Transition-Related Needs

Group-Based Social Skills

Alarmingly, comorbid health disorders run rampant among adolescents and young adults with ASD for a variety of reasons. While there is no cure for autism, researchers have begun to profoundly consider how to properly support this growing population of adults. Spain & Blainey (2015) evaluated group social skills interventions for adults with ASD by investigating five experimental trials. The trials analyzed three social skills interventions (SSI) for a total of 100 combined participants with the overarching goal to improve communication impairments, relationships, emotional awareness, problem solving, and secondary difficulties that arose from ASD symptomatology.

The main benefit of group SSI was that it provided peer-to-peer support. While little is known about the implications of the interventions for adults, understanding the usefulness of each tool can enable educators in making student-centered decisions alongside ASD individuals. Spain & Blainey (2015) identified five studies by Gantman et al. (2012), Turner-Brown et al. (2008), Hillier et al. (2007, 2011), and Howlin & Yates (1999). All evaluated group SSI including PEERS, Social Cognition and Interaction Training in Autism (SCIT-A), and the Aspirations program which included an age range of 18-55 years, where every participant held an average IQ and an autism diagnosis.

All groups met weekly or monthly for between eight to 18 sessions that lasted for 50-150 minutes and was supported by two staff facilitators. Spain & Blainey (2015) noted that some of the studies incorporated parent or caregiver involvement. All groups focused on topics ranging from underlying social deficits to social problem solving and social interactions. More specifically, the Aspirations groups by Hillier et al. (2007, 2011) focused on social integration as it related to employment (as cited in Spain & Blainey, 2015). Additionally, all groups incorporated a variety of strategies to meet participant learning needs including didactic teaching, discussion formats, practical tasks, technology, visuals, and rote practice. All groups encouraged participants to practice newly learned skills between sessions to promote development and maintenance.

Interestingly, all SSI groups measured the outcomes in a significantly different manner. While pre- and post-interventions were used consistently, no studies included follow-up data. For this reason, Spain & Blainey (2015) noted that lack of follow-up data was the major challenge of determining the most effective intervention strategies. Overall, each study observed positive outcomes in some regard that were grouped into four main themes: social knowledge and

cognition, social functioning, anxiety and depression, and satisfaction with the intervention (Spain & Blainey, 2015).

Participants self-reported improvements in social knowledge compared to a control group. More specifically, Spain & Blainey (2015) summarized improvements in empathy, Theory of Mind, and emotional recognition in three of the five studies, including PEERS, Aspirations, and SCIT-A.

Similarly, social functioning results were noted despite the objectivity. Spain & Blainey (2015) criticized that this could only be evaluated if the participant was able to articulate improvements. Despite this fact, significant changes were observed in relation to perceived loneliness, social attitude, and communication skills in over 90% of ASD participants. The variability of cross-examined results could also be attributed to the level of comfortability that could be assumed to increase overtime through participation in the SSI, in addition to the credibility of guardian or self-reported outcomes.

Hillier et al. (2011) focused primarily on mental health examination (as cited in Spain & Blainey, 2015). Surprisingly, 70% of participants noted reduced anxiety despite no significance in measured statistics. This could indicate the individuality that occured as participants applied learned content to real life situations. Lastly, feedback from all groups indicated the acceptability of SSI.

Through evaluating the similarities and differences of the five studies, Spain & Blainey (2015) noted that no single SSI was measured throughout. This increased the difficulty in determining a “magic” intervention for evidence-based use in education. However, all participants expressed improvements in social knowledge, social functioning, and mood. While there was no magic intervention, this study reiterated information from previous literature by

confirming that each individual with ASD must implement what works best in a trial and error format. The heterogeneity of ASD explains this finding.

Considerations for SSI in educational settings should incorporate several ideologies. First, educators or clinicians must consider the goal of group interventions. Spain & Blainey (2015) encouraged a pragmatic approach in which all educational content was student-centered. Caution should be taken when considering which social topics to cover as many groups covered several topics per session. Out of respect for ASD individuals with information processing deficits, educators should consider slow-paced learning to increase meaningful associations. Practically speaking, this could be accomplished by using a similar structured daily agenda with specific time allowances.

Second, educators must consider the audience of learners. Spain and Blainey (2015) noted the importance of individual grouping and incorporation of pairings related to desired outcomes. For example, men and women with ASD present significantly differently. When discussing topics such as relationships or dating, it may be wise to group individuals in accordance with demographic characteristics such as age, gender, and cognitive functioning. Similarly, group sizes should be carefully planned to minimize an over stimulating environment.

Lastly, educators should use a variety of interventions to promote engagement and growth. Spain and Blainey (2015) indicated that students benefit from a mix of learning opportunities that allow for realistic practice, problem solving, and improved confidence. This could also assist educators in data collection as one medium of instruction could result in bias or objectivity.

Due to various levels of motivation for young ASD adults to engage socially, it is difficult for educators and support staff to select appropriate interventions to increase outcomes.

Hutton & Coles (2016) evaluated the effectiveness of group social skills training for adolescents and adults with ASD by investigating 13 evidence-based studies published in the last 20 years. Social competency skills are important to address to minimize disadvantages experienced by those with ASD such as bullying, stereotyping, or victimization. Additionally, effective social skills training has implications for psychological well-being and community involvement throughout adulthood.

While the spectrum of autism is complex, several previous researchers have developed theories regarding the causes of social strife. Theory of Mind (ToM), for example, explained the lack of ability to understand the mental states of others. Underdeveloped ToM skills cause individuals with ASD fear or anxiety about making mistakes. Additionally, other cognitive researchers believe ASD was caused by mirror neuron deficiencies. Cortical areas of the brain in autistic individuals are attributed to social impairments such as poor empathy and imitation. Lastly, weak central coherence, or poor processing speed resulted in reduced social motivation (Hutton & Coles, 2016).

These social limitations often result in limited social opportunities which hinder the development of adequate skills. Brownlow (2010) notably added that some argued that poor social skills in ASD individuals results from lack of adequate accommodations (as cited in Hutton & Coles, 2016). However, positive intervention outcomes have resulted from Social Skills Training (SST) groups. Previous research on social skills groups reported groups of two to six participants focused on a particular skill or group of skills for several consecutive weeks. Since individuals with ASD do not outgrow their diagnosis, these interventions become increasingly important with age.

The UCLA Program for the Education and Enrichment of Relational Skills (PEERS) intervention has significantly grown in popularity. Four of the thirteen identified studies evaluated this intervention in depth. Participants were evaluated several times including a post-evaluation to determine growth over time. Hutton & Coles (2016) noted that combined PEERS intervention study data resulted in significant improvements in interpersonal interactions, social self-awareness, loneliness, and increased relationships. This led to several other areas of growth including mental health for ASD individuals and their families.

Another intervention, the Aspirations program, was evaluated. With aims to increase outcomes in adults, Aspirations included one-hour sessions over an eight-week period and incorporated pre- and post-reflections from all participants to track overall growth. Hutton & Coles (2016) described the discussion-based format that taught skills related to social communication, independence, and employment. Although improvements were rather small, researchers noted improvements in all targeted domains in addition to positive mental health outcomes.

Mitchel et al. (2010) evaluated positive outcomes through another group-based social skills training adopted from "Navigating the Social World" (as cited in Hutton & Coles, 2016). Researchers used pre, post, and follow-up evaluations to measure social skills and quality of life in autistic adolescents. This small group of individuals aged 15-19 focused on skills related to relational introductions, social participation, and problem solving. Improvements were noted for all participants and maintained after conclusion of the program.

Tse et al. (2007) also conducted a SST group that lasted once weekly for 12 weeks. The intervention involved psychoeducation and experiential learning (as cited in Hutton & Coles, 2016). Researchers noted improvements in overall social competence. Similarly, Turner-Brown

et al. (2008) held a Social Cognition and Interaction Training for Adults (SCIT-A) program that focused on emotional regulation within 18 weekly sessions. Unfortunately, no significant improvements were noted in social functioning despite participants rating the group as useful. This suggests that SST groups vary in effectiveness and requires further research.

Lastly, Liu et al. (2013) established a workplace training group for six hours a day, five days a week for six months (as cited in Hutton & Coles, 2016). By far the most rigorous program, participants studied and practiced social communication skills and emotional regulation within the workplace environment. The group showed significant improvements in overall work-related behavior such as personal hygiene, impulse control, and supervision.

Although not every group-based intervention program noted significant improvements, Hutton & Coles (2016) cautioned that these intervention methods increased participant self-awareness which led to greater social understanding. Additionally, future SST groups should involve increased input from participants regarding individual goals and perceived social difficulties. Educators must always provide differentiated, person-centered teaching to guide special education programming.

Technology Tools

Supplemental Apps

To aid the transition to adulthood, the use of assistive technology has proven highly effective. While students with ASD have a plethora of options after graduating from high school, many students fail to complete their goals without guidance or support. Grogan (2015) noted that "only 20% of students with disabilities, including ASD, graduate from college, in contrast to 59% of students without disclosed disabilities" (as cited in Francis et al., 2018, p. 112). The true culprit of this problem remains unknown but researchers conclude that many students with ASD

struggle with key domains including academics, social interactions, independent living, executive functioning, and mental health. As a supplement to evidence-based practices, software applications (apps) have supported adequate skill development.

Within the five areas of transition success, ASD students experience lack of adequate accommodations to counteract the struggle to meet their needs. On the other hand, autistic students also lack the self-advocacy skills necessary to acquire the proper support. Francis et al. (2018) explained that the complexity and overwhelming nature of such a large-scale transition causes students to withdraw from initiating and maintaining a self-structured environment. Classically, ASD students struggled with prioritizing and self-managing day-to-day obligations using executive functioning skills, with regulating their emotions, and dealing with mental health issues.

Throughout the world, daily technology use has woven its way into practically every essential function or task. Apps are commonly designed to be flexible, universal, and accessible, motivating users to increase their use. For ASD students, apps provide opportunities for additional practice and provide positive reinforcement for previously learned skills that continues throughout adulthood. Francis et al. (2018) identified the feasibility and functionality of 10 apps for young adults through the evaluation and reflection of seven college students with ASD.

In regard to academics, apps such as myHomework and Penultimate help students in the classroom. Francis et al. (2018) examined that myHomework could help students track classes, stay organized with coursework, and set reminders for due dates. Additionally, myHomework features tracking for long- and short-term projects. Penultimate, on the other hand, helps students organize note-taking. Using an iPad, students can translate notes into electronic documents

without having to type. Penultimate also includes a copy and paste function, editing, sharing, and linkability to websites.

Social interaction skills also can be addressed through the use of apps. Sit With Us allows students on campus to connect with each other in a variety of ways. ASD students can find others to share meals, special interests, or community events. Luckily, Sit With Us constantly updates the most relevant information and meet-up schedules. Similarly, Francis et al. (2018) identified Circle of 6. This app was originally created to protect college students against sexual predators or harm. Users have the ability to add their 6 closest friends or family and connect with them quickly in case of emergency. With the press of a button, Circle of 6 can send a students' GPS location, a message requesting a phone call, or a 6-way chat. This is highly effective for ASD students who may unexpectedly find themselves in unsafe situations.

Independent living also has the potential for app use. While many autistic individuals engage in impulsive behavior, apps such as Shopping List Ease helps students plan and maintain their spending. Impressively, the app can also alert users when items in their pantry might be running low. ASD students have the ability to scan items within the store for future reference and can share with friends or family. Another budgeting tool identified by Francis et al. (2018), Left for Spending, monitors and sets financial goals and informs students how much money is available to spend.

Habitica, an app designed for executive functioning, provides students with a structured format for logging habits. Positive and negative patterns of behavior can be tracked in the form of a video game. Francis et al. (2018) explained that the app features an avatar that can "level up" and collect rewards or compete against friends on task completion. Students noted the usefulness for reinforcing healthy habits such as exercise. Additionally, Be Focused was

designed to help maintain task focus. Students can break down large tasks into smaller, more manageable pieces through a process commonly known as chunking to allow for short breaks.

Lastly, MoodPanda keeps students accountable for their mental health. Francis et al. (2018) identified this mood diary as a way for students to track their mood cycles and patterns. The app also allows students to connect with others online through a social platform for emotional support. Similarly, Breathe2Relax can help autistic students calm down in stressful environments. Through guided meditation, this app facilitates breathing techniques that are customizable to relaxing sounds or music.

While assistive technology provides intervention options for educational support staff, Francis et al. (2018) concluded by reiterating that assistive technology can be part of instructional best practice complementary with other evidence-based practices. Educators must evaluate the strengths, weaknesses, goals, and desires of individual students to meet their learning needs. This can be accomplished through informal and formal assessments in everyday classroom lessons. For example, explicit instruction models outline an anticipatory set, lesson objectives, pre-teaching of necessary skills, and guided and independent practice opportunities. Schools can also partner with families to facilitate meaningful generalization between school and individual environments to establish cyber safety.

Video Recording Techniques

Many studies have evaluated the effectiveness of using technology with young children and students with ASD. However, lack of research indicates the need for continued study regarding various types of assistive technology for secondary students. Parsons (2006) identified that many students with disabilities, particularly those with ASD, struggled with social deficits. This may be caused by poor skills in Theory of Mind, interpretation of social cues, auditory

processing, or lack of exposure to social opportunities. This small study included 12 middle and high school students aged 14-21 involved in a bimonthly social group called Survivor Bunch.

This social group aimed to provide students with opportunities to learn social interaction skills through the use of videotaping and rehearsal. Students with ASD are classically visual learners which inspired this intervention technique. Similar to college athletes watching game film or dancers critiquing their form in a mirror, teachers videotaped role-play activities to allow students to learn by watching themselves, as others see them, in a variety of social situations experienced on a daily basis. Parsons (2006) noted that students participated in social activities including physical education, games, computer time, and lessons. Teachers and staff observed students and took notes regarding authentic student conflicts such as finding where to sit, sharing equipment, interpreting rules, or responding to unkindness. These interactions fueled social intervention leaders to design student-specific role plays.

Phases of this study involved parent and student interviews, controlled practice sessions, and concluding reflections. At the beginning of the program, parents often reported negative student behaviors including self-isolation, social anxiety, poorly perceived social ability, and loneliness. Students self-reported a general lack of self-awareness, impulsivity, executive functioning challenges, lack of social opportunities, and poor hygiene. Parsons (2006) noted that ASD students historically struggled with application and generalization of learned skills across settings. However, through the use of rehearsal techniques, improvements were observed in overall positive social attitudes, problem solving abilities, reduced social conflict, increased self-control, and growing self-confidence by the end of the program.

While videotaping methods initially made students uncomfortable, learning through controlled self-analyzing helped ASD individuals tremendously. Teachers and staff promoted

levels of academic rigor and challenges to enhance student learning along with providing positive reinforcement. Using evidence-based instruction paired with appropriate assistive technology, improvements across settings were observed in 100% of reflection surveys returned from both parents and students. Facilitating parent and family involvement in educating students with ASD demonstrates strong potential for significant positive outcomes.

Virtual Reality Practice

Many new intervention tools for supporting young adults with ASD have begun to emerge. Mesa-Gresa et al. (2018) evaluated 31 journal reviews dated 2010-2018 regarding the effectiveness of virtual reality to teach children and adolescents with ASD. With the goal of merging real and virtual worlds, virtual reality (VR) was defined as, "an artificial environment which is experienced through sensory stimuli provided by a computer and in which one's actions partially determine what happens in the environment" (Mesa-Gresa et al., 2018, p. 1). Previous literature has not yet included significant ASD research. Originally designed as a clinical tool in medicine, VR has impacted students with ASD in a variety of positive ways and has effectively complemented other traditional interventions.

The greatest advantage of VR technology within special education programming is the adaptability and flexibility of creating individualized teaching. With the exception of one study, 30 previous studies indicated significant statistical effectiveness for VR-based treatments for students with ASD, with a total of 602 participating subjects ranging from 6-20 years old. Mesa-Gresa et al. (2018) also indicated future uses for ASD individuals such as continued work in emotional recognition, collaboration, social interaction, daily living skills, attention, phobias, and physical activity.

Hallmark indicators of autism spectrum disorder are social and emotional skill deficits. Mesa-Gresa et al. (2018) evaluated VR-based training that allowed students to practice skills that transferred to many situations in a safe, controlled environment. Notably, students could also create personalized avatars to help them see themselves in the virtual world. The training was facilitated within the construct of social norms, social responses, initiation of relationships, and analytical thinking. Additionally, students could improve skills related to emotional well-being, expression, social reciprocity, objective processing, and flexibility. Respectively, results contributed to growth in daily living skills such as shopping, driving, and sharing public spaces.

VR training has also proven to be motivating for ASD students who must learn essential life skills. Mesa-Gresa et al. (2018) pointed out that VR was the most effective in combination with other traditional therapies to improve autistic symptoms across generalized settings. Virtual environments can be controlled by therapists or support staff and personalized to meet specific areas of student need. VR has proven an effective, low-cost intervention option with the possibility for additional, feasible home-based therapy programs for all individuals on the autism spectrum.

Virtual reality intervention for children and adolescents with ASD can lead to significant outcome improvements into and throughout adulthood. Didehbani et al. (2016) led a study evaluating 30 ASD children aged 7-16 for social cognition growth in the areas of emotion recognition, social attribution, executive functioning, and analogical reasoning through the use of Virtual Reality Social Cognition Training (VR-SCT). Findings suggested the feasibility of VR use in special education programming for all ages of ASD students.

Many students with ASD experience social, attention, and executive functioning barriers. However, Didehbani et al. (2016) pointed out that students may exhibit higher intellectual

abilities in specific areas that can result in misinterpretation of true overall ability. Students often use compensatory or camouflaging strategies in the midst of stereotypical autistic behavior. This is very frustrating for students and their support systems and puts ASD individuals at risk for additional socioemotional challenges. Previous research identified ways computer and virtual-based therapies emulate real-life situations and present several educational advantages.

First, VR training provides a safe and unlimited experience for students to practice a wide range of skills. Second, VR provides students with alternative teaching methods in contrast to rote learning. This is especially important for real-life contexts that are dynamic and complex. Third, VR environments allow for supported mistakes which communicates safety and reduces anxiety in ASD students. Lastly, technology-related activities are fun and motivating for many individuals with ASD which can establish a foundation for engagement. Overall, Didehbani et al. (2016) noted that previous students increased problem solving skills, social understanding, and generalization of learned strategies.

A few drawbacks to VR training were also noted. Didehbani et al. (2016) explained that many VR applications only trained specific skills in isolation and not in context. Additionally, VR was rather passive at times which did not allow for spontaneity. The single user environment also presented limitations for social practice. A partnered experience would be more beneficial for students to experience realistic interactions. Lastly, many VR applications did not specify appropriate age or developmental stages for use.

Didehbani et al. (2016) introduced VR-SCT as an interactive environment where students experienced real-time social interactions along with trained staff support. Together, clinicians and students guided an avatar in a pair-based training. Additionally, several avatars interact together and imitate real social interactions. Interestingly, peers received feedback from each

other and their coach. In previous studies, VR-SCT has shown significant social cognitive improvements for participants aged 17-35.

The present study aimed to evaluate the feasibility of VR-SCT and the primary improved domains through the use of pre and post-testing. Didehbani et al. (2016) explained the use of Second Life VR Island that included locations such as “a school classroom, a school lunchroom, a playground, a campground, a race-track, a fast food restaurant, a technology store, an apartment, a coffee house, a sports store, and a central park” (Didehbani et al., 2016, p. 706). Each avatar was intended to represent the participants and aid in making students' interests relevant. Each VR-SCT session included a peer and two trained clinicians; one clinician took the lead and one acted as another character within the VR environment.

Social scenarios were designed to simulate real situations faced by students such as dealing with a bully, meeting new people, or handling a social dilemma. Throughout each session, students were prompted with the scenario and were allowed to respond independently. Clinicians provided loosely scripted responses and subtle hints whenever necessary. Interactions typically lasted for 10 minutes and were always followed by corrective or reinforcing feedback, giving redirections as needed. For example, a student was presented with a situation where a friend was sad because they had lost their puppy. Students were asked questions such as, “Why were they sad? How could you cheer them up?” (Didehbani et al., 2016, p. 708). During the same interaction, a clinician approached the student with a conversation that offered a puppy if they followed directions. Feedback was given accordingly based on student choices.

After students experienced VR-SCT training, improvements were noted in affect recognition, Theory of Mind, and analogical reasoning. Didehbani et al. (2016) explained that students may experience significant improvements in a short period of time through the use of

VR-SCT. Additionally, real-life social interactions may improve with significantly decreased social anxiety. Teaching students with ASD through realistic practice in a protected environment proved to have positive implications for continued use in unpredictable and rule-based settings.

Social functioning demands are magnified in adolescents and young adults with ASD as they age. A majority of previous research literature evaluated intervention strategies for children, but severely lacked when describing adults. Limited information in regard to adults explained strategies with technology that were evaluated by objective observations and self-reported measures. Kandalaft et al. (2013) investigated the implementation of Virtual Reality Social Cognition Training (VR-SCT) in eight young adults aged 18-26 during 10 sessions across five weeks to measure feasibility and quantify social change including a six month follow up.

Previously, research aimed to identify changes in emotional recognition and Theory of Mind (ToM), but failed to recognize the implications for real-world, everyday situations. Kandalaft et al. (2013) criticized existing research by additionally pointing out the amount of time that adolescents and young adults with ASD spend with others outside the spectrum. VR-SCT gave participants the opportunity to practice social interactions in a safe, natural replication of realistic environments with unlimited repetitions. Virtual programming flexibility can give service providers insight about how to best serve ASD community needs in social support.

Life-like interactions created by VR-SCT were supported by clinician-structured scenarios. Kandalaft et al. (2013) examined the challenge of virtual interventions in the absence of standardized practice. However, VR-SCT proved to have enormous benefits while measuring social domains such as verbal and nonverbal emotions, social perception, ToM, and conversation skills using a variety of standardized assessment techniques. Standardized assessments included:

Wechsler Adult Intelligence Scale (WAIS-IV), Reading the Mind in the Eyes, Triangles, and Social Skills Performance Assessment (SSPA).

VR-SCT was conducted using a software called Second Life Island. Kandalft et al. (2013) utilized several social locations including: an office building, a pool hall, a fast food restaurant, a technology store, an apartment, a coffee house, an outlet store, a school, a campground, and a central park. After participants were trained in navigating the software, individuals with ASD were guided to complete tasks assigned by a physical coach and an on-screen clinician. Social scenarios were designed to mimic situations faced by adults such as financial decisions, conflict, meeting new people, and interviewing for a job (Kandalft et al., 2013). For example, after a participant completed an interview, the on-screen coach asked follow up questions and provided feedback. Immediately following the interaction, participants were prompted to go to another location for a second interview to incorporate the newly received feedback.

Results indicated improvements in all measured domains including verbal and nonverbal emotions, social perception, ToM, and conversation skills. Kandalaft et al. (2013) noted that all participants completed the program and all expressed enjoyment and satisfaction for how much they learned in a short period of time. The greatest improved outcomes included emotional facial recognition, verbal and nonverbal communication, conversation skills, understanding point of view, and boosted confidence. The results confirmed VR-SCT feasibility. Future research should explore facial tracking and bodily movement that are oftentimes subtle in real-life scenarios.

While transition-aged youth with ASD have the necessary skills to perform various careers and trades, adequate interview skills to obtain employment are a barrier experienced by many. Interviewing is a profound step in achieving post-secondary work. Luckily, several

motivating, engaging, and enjoyable interventions use technology that can help students prepare for employment transition. Smith et al. (2021) observed 48 autistic high school students who received pre-employment services and Virtual Interview Training for Transition Age Youth (VIT-TAY) and compared with 23 autistic students who only received pre-employment services. Researchers hypothesized that VIT-TAY supplementation would yield improved interview skills, reduced anxiety, increased job placement, and overall positive mental health.

Unemployment among autistic adults causes significantly poor quality of life. “Within the next 10 years, approximately 800,000 autistic youth will exit high school and transition into adult roles” (Maenner et al., 2020, as cited in Smith et al., 2021, p. 2). High schools lack quality, evidence-based interventions to promote successful employment transitions. However, previous studies found positive outcomes through the use of virtual simulations that can be replicated within school settings. In particular, students improved when they received immediate feedback and freely made mistakes without fear of embarrassment or shame.

Participants between the ages of 16-26 were identified among five diverse high schools. All five schools had already implemented some type of work-based learning program such as volunteering, job shadowing, or workplace readiness. Smith et al. (2021) explained how VIT-TAY implemented exposure therapy via the Internet would differentiate instruction to meet student needs. VIT-TAY also incorporated scaffolding techniques including three difficulty levels and four levels of feedback. The “easy” level targeted interview skills that included confidence, positivity, professionalism, and interest in the job. “Medium” level addressed skills such as honesty, dependability, and the ability to work well with others. Lastly, the “hard” level taught students in the areas of sharing strengths and skills, sharing past experiences, and sharing limitations. Four modes of feedback allowed students to experience real-time critique: an on-

screen virtual help coach, an in-depth transcript describing areas of improvement, a score out of 100 to reflect interview-question interpretation, and a performance assessment reflecting each of the three difficulty levels. After the trial period, Smith et al. (2021) also conducted a 6 month follow-up to identify real life outcomes in response to the newly learned interview strategies.

VIT-TAY participants were instructed throughout 15, 45-minute sessions and progressed after achieving adequate scores. Smith et al. (2021) additionally noted that several participants reported their levels of depressive symptoms, cognitive abilities, and behavioral challenges. By participating in a pre-test job interview, evaluators collected data regarding these three domains and measured overall performance outcomes using VIT-TAY.

Results indicated that VIT-TAY was highly effective based on documented improvements in job interview skills, reduced interview anxiety, and better employment outcomes. Individuals who participated in VIT-TAY experienced competitive and integrated employment compared to the control group. Notably, Smith et al. (2021) reported that VIT-TAY participants scored significantly higher in “likeliness to be hired” compared to their peers. Other successful domains included autistic social challenges and interviewing ability. Additionally, although 48.6% of the sample reported moderate-to-severe autism, participants were highly engaged and several completed many “hard” level interviews. The rigorous performance displays allowed autistic students to discover their true capabilities.

Improvements in overall interview skills led students to experience other areas of success including confidence, professionalism, self-awareness, and self-advocacy. Smith et al. (2021) reiterated this by helping to facilitate access to desired employment opportunities and attain vocational outcomes of all kinds including jobs, internships, and volunteer positions. This

highly-effective exposure therapy resulted in significant increases in job placement over time and provided positive, long-term effects well into adulthood.

As a result of significant social barriers, many individuals with ASD experience feelings of isolation despite possessing strong relational desires. Muller et al. (2008) observed and noted the absence of insight from individuals with ASD related to the supports that would best support them. Adolescents and young adults with ASD should be provided opportunities to express their voice as a basic human right. Eighteen adult participants with ASD expressed their experiences navigating the social world and recommended support strategies to improve their perceived social connectedness.

Information was gathered by asking open-ended questions in a one-on-one interview in the location of the participant's choice. Notably, one member of the research team had an autism diagnosis. Muller et al. (2008) noted that audiotaping techniques aided researchers in evaluating and transcribing each session to determine common themes among the responses. Six themes emerged regarding the social experiences of individuals with ASD including "intense isolation, difficulty initiating social interactions, challenges relating to communication, longing for intimacy and social connectedness, desire to contribute to one's community, and effort to develop greater social and self-awareness" (Muller et al., 2008, p. 177).

The complexity of learning about the social world is challenging for everyone regardless of disability or social status. Muller et al. (2008) described several experiences of having minimal friends, perceived alienation, social guessing, poor mental health, strained relationships, unpredictability, internal confusion, self-doubt, and social exhaustion. The weight of these social consequences takes considerable compensation efforts to overcome. Most importantly,

individuals identified several recommendations for support including external, communication, self-initiated, and attitudinal supports.

Commonly, individuals expressed the necessity for joint attention practice that could be addressed by incorporating shared interests. The experiences provide social opportunities for ASD individuals to naturally initiate social interactions. Muller et al. (2008) noted that communities allowed individuals to meet others like themselves with minimal effort required socially due to being surrounded by a common interest. This supports a common behavior noted in children with ASD known as parallel play, where individuals would rather play or mimic behavior near another peer versus engaging with them. Structured activities also increased predictability and removed the guessing element of what to expect.

Individuals with ASD in the study also identified preferences for one-on-one dialogue in personal conversations and small group academic settings. Muller et al. (2008) explained that sometimes individuals with ASD felt lost in large settings. Small groups serve as a place to discover more intimate connections and master group dynamics, while additionally giving students opportunities to learn in a safer environment. Individuals expressed their desire to work in small groups towards a common goal, such as creating a project or solving a problem.

Lastly, communication was often most beneficial when conversations were facilitated by a support team member or peer. Muller et al. (2008) suggested that it allowed individuals with ASD to follow a lead and expend energy on building connections rather than on how to control their behavior. Observing and modeling techniques also served as an explicit way to learn social norms and nuances with additional provided support. Other communication recommendations included self-initiated coping strategies such as personal creativity, physical activity, spirituality,

and alone time. Individuals who found ways to positively deflect the stress were able to expend their energy on other desires such as human connection, acceptance, and independence.

CHAPTER III: DISCUSSION AND CONCLUSION

Summary

Overall, the transition from high school graduation to adulthood is challenging for all young adults, but more so for individuals with ASD. Adolescents and young adults with ASD require a thorough, comprehensive, and individualized transition plan to promote success entering adulthood. It is imperative that educators, case managers, special education teachers, paraprofessionals, and all IEP members are adequately prepared and trained to guide ASD students during this critical and oftentimes defining period in their lives.

Specifically, post-secondary education success involves appropriate accommodations, class planning, career exploration, and individualization (Sefotho & Onyishi, 2021; Roberts, 2010; Test et al., 2014). With the option for continued education, students must be encouraged to self-advocate and take responsibility for their futures. Similarly, educators must be held accountable to promote academic rigor with high expectations focused on teaching related to executive functioning.

Employment and vocational skills are influenced by exploring high-interest activities and goals (Rowe et al., 2020; Sung et al., 2019). Educators must teach ASD students the importance of goal setting and career readiness. Students with ASD may need additional explicit instruction in soft skills such as professionalism, problem solving, hygiene, punctuality, and interview skills to experience successful employment.

Community participation and relationships also prove to be undeniably important for ASD adults (Carter et al., 2013). Students need social networks in a variety of settings to support them as they experience a major life change. Community and interpersonal connection is essential to support positive mental health and overall well-being. Relatably, independent living skills relies heavily on supported guidance to build confidence on individual strengths and promotes appropriate reliance on support services or systems.

In regard to the mountain of challenges faced by individuals with ASD, involvement in recreation and leisure activities gives students opportunities to find healthy ways to become involved and cope with stress when necessary (Ratcliff et al., 2018; Garcia-Villamisar & Dattilo, 2010. Young adults with ASD who find human connection surrounded by common interest typically experience improved quality of life.

Lastly, the interventions explored in this literature review included group work and several types of technology. While no strategy was identified as the most effective, researchers continued to validate the existing best practice of using a multidisciplinary approach that allows students the opportunity to explore several modes of learning.

Professional Application

Current research literature confirmed the successful implementation of a variety of interventions within secondary transition planning. Specifically, there was no one best strategy to promote success but rather an individualized approach that incorporated student goals, desires, and interests. A variety of evidence-based interventions included small groups, visuals, technology, and hands-on community experiences, to name a few. Most importantly, adolescents and young adults with ASD should be held to high expectations and become more involved in

the transition planning process by attending IEP meetings and accepting responsibility for portions of planning with appropriate guidance.

Transition planning can also be supplemented by involving transition services and stakeholders within the community. School administrators, case managers, and special education staff should discuss the options within their community by creating a transition map with local available resources. Building rapport with community members and alleviating the stigma of disabilities will aid in creating more public involvement and positivity surrounding employment, post-secondary education, and community engagement for young adults with ASD.

Lastly, educators can encourage the least restrictive environment (LRE) for students enrolled in special education services to promote preparation and mimic adult experiences. Teachers and staff can learn to identify major stressors and camouflaging behaviors in students and comprehensively identify appropriate levels of support with other team members. Additionally, the LRE involves bridging the gap between special education and the experiences of peers in general education. Educators can establish mentorship programs and opportunities for engagement within the student population to create community cohesion. By reducing the social stigmas associated with ASD, young adults are encouraged to use their voice to self-advocate and achieve greater potential. Special education students with ASD need individualized programming and guidance to conceptualize personal relevance, accept rigor, and engage in relationships to achieve adequate readiness for adulthood.

Limitations of the Research

Research was limited in several areas. First, no single best strategy was identified in any of the intervention trials. This indicated it was necessary for an individualized approach to include multiple modes of learning and encouraged the urgency for improved research on

evidence-based interventions specifically for and during adulthood. Limited research was available about any retention promoted by the interventions. Researchers should continue to evaluate methods for improved longitudinal application of newly learned strategies.

Additionally, the number of studies was extremely limited. Several studies examined the same studies repeatedly. Research groups should continue to explore a broad range of interventions and identify areas of ingenuity.

Second, research was limited regarding the relationship between ASD and various world cultures. A majority of the literature included in this review incorporated white male participants. This may impact the acceptability and stigma of all disabled people among communities. Other factors were attributed to socioeconomic status and accessibility to services and supports.

Third, a majority of the studies were small scale with limited significance in results. Continued research should be conducted with large numbers of participants. Additionally, all research studies in this review included a minimal range of ASD heterogeneity. In other words, a majority of participants were considered high-functioning and verbal.

Lastly, none of the studies incorporated transition services or related education to peers across settings. The interventions reviewed mainly focused on special education programming and compared groups to those in other disability categories.

Implications for Future Research

Due to the alarmingly minimal research available about educating students who are transitioning to adulthood, there are many implications for future research. More information guiding transition support would significantly improve the overall success of properly planning for adulthood.

First, research implications involve urgent needs for information evaluating ASD individuals and the concept of identity. Improved research could address the following questions: Is autism part of who you are? Is autism just something you deal with? Would individuals still be themselves without it? Additionally, only one out of 32 research journals in this review included "non-binary" as a gender option. More research is necessary to identify how the stressors, demands, and camouflaging tendencies impact ASD symptomatology relating to Theory of Mind and self-awareness. Other questions relating to ASD identity are as follows: Are social demands different within gender standards? Should individuals with ASD resist their natural tendencies in order to fit in? How can the general population and disability advocacy groups work together to allievate disability-related discrimination? How can disability support and advocacy groups incorporate the voices of ASD individuals?

Second, camouflaging is commonly documented behavior among ASD individuals. In particular, increased research is necessary to explore the extent in which camouflaging positively and negatively impacts ASD adults. Additional research questions in this category are as follows: Are self-reporting measures of ASD individuals credible? How can educators identify camouflaging? Are certain camouflaging behaviors more harmful than others? How does camouflaging impact undiagnosed individuals with ASD? How does the neurotypical population camouflage similarly? Is camouflaging unintentionally promoted within educational settings? Are camouflaging rates higher or lower depending on functional impairments or the presence of an intellectual disability? Is camouflaging impacted by mental health or higher IQ? What are the long term consequences of camouflaging?

Lastly, future research should explore ASD transition success rates among all adult choices including employment, post-secondary education, and community relationships and

involvement. Potential research questions could include: How does socioeconomic status impact transition success among ASD adults? Do individuals who receive special education programming until age 21 experience improved success rates? Are certain careers more accepting and encouraging of ASD individuals? How could the involvement of a separate transition coach influence overall transition success? Are adulthood choices impacted by special education qualification? What interventions are available for reteaching skills throughout adulthood if necessary?

Conclusion

While the major life transition into adulthood can be daunting for adolescents and young adults with ASD, educators can be equipped to prepare students for success in a multitude of ways. Continued research in the area of transition services will amplify best practices to support students beyond the high school classroom in every area. With the variety of postsecondary options made available to students, educators must be confident in their ability to promote an individualized, student-centered education that enables young adults with ASD to take responsibility, use their voice for self-advocacy, and experience success in spite of their disability. Educators have the unique ability to enhance this monumental achievement with appropriate guidance to emulate the least restrictive adulthood experience.

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