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IMPROVING TRANSITIONAL SUPPORT  
FOR STUDENTS WITH AUTISM SPECTRUM DISORDER

A MASTER'S THESIS  
SUBMITTED TO THE FACULTY  
OF BETHEL UNIVERSITY

BY

AMANDA H. WICKLUND

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BETHEL UNIVERSITY

IMPROVING TRANSITIONAL SUPPORT  
FOR STUDENTS WITH AUTISM SPECTRUM DISORDER

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APPROVED

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## Abstract

Despite access to transition programming and planning, students with autism spectrum disorder (ASD) face reduced post-secondary school outcomes compared to students in other disability groups. Research explores factors that diminish or increase success rates for students with ASD. Demographics, severity of disability, and transition planning age impact student post-school outcomes. Transition-planning research considerations highlight creating transition-related IEP goals. Increased self-determination and parental participation have a large effect on student outcomes. Emerging research and developing programs targeted gaps in evidence-based resources and practices that improve outcomes for students with ASD.

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## Chapter I: Introduction

Students with disabilities have historically faced a greater number of barriers to full participation in normative post-school society such as post-secondary education, employment, independent living, and participation in the community. To remediate this gap, the Individuals with Disabilities Education Act (IDEA) of 2004 mandated the inclusion of transition-programming in the Individualized Education Plans (IEP) of all students beginning minimally at the age of 16 (Individuals with Disabilities Education Act, 2004).

Transition planning involves developing goals to guide students toward desired post-school outcomes. Transition plans contain goals in three areas: post-secondary education, employment, and independent living. Post-secondary education goals refer to formal education institutions such a two- or four-year college, a vocational schooling, or informal on-the-job training obtained by individuals after graduation from secondary high school. Employment goals refer to vocational employment opportunities in the community including competitive employment, supported employment, or voluntary work experiences. Independent Living goals include outcomes relating to living arrangements, home living skills, leisure, and access to community participation.

Once special education students begin transition planning, transition goals are maintained and updated yearly during the IEP process. Although transition plans must begin at age 16, many secondary institutions begin transition planning at age 14. Secondary students with an IEP who are unable to graduate from high school based on credits are eligible for transition programming after high school. Transition programming begins after 12<sup>th</sup> grade and culminates the June after a student turns 21 (Individuals with Disabilities Education Act, 2004).

Transition programming includes students of all disabilities; yet, statistics show that the post-school outcomes for individuals with autism are significantly less optimistic than the post-school outcomes of individuals with other disabilities. All special education students utilize transition planning, transition programming, and supports to attain post-school goals and traditional life experiences. However, students with ASD experience higher unemployment rates, attend postsecondary education less often, and participate less in communities after graduating from high school compared to peers with other diagnosed disabilities (Bouck & Park et al., 2018; Kraemer et al., 2019).

Although students with ASD do not always achieve at the same rate as peers, studies show that students with ASD envision and work towards similar post-school goals as students with other diagnosed disabilities (Anderson et al., 2016; Sosnowy et al., 2018). Students with ASD want to obtain traditional markers of a successful life such as employment and autonomy (Anderson et al., 2016). However, the current models of transition planning and education models are failing the subset of students with ASD. While public schools have been found to minimally meet the needs of secondary students with ASD, evidence shows a gap remains in the area of transition (Kraemer et al., 2019)

Administrators design transition programs to assist students in attaining post-secondary goals. Independent living and vocational skills are focal points in transition programming. However, curriculum for transition programming is sparse and underwhelming. Many educators develop their own curriculum, lessons, and plans without minimal guidance or objectives. Research and program development for transition skills is emerging, but most transition



practices are designed to assist all special education students without considering the specific needs of students with ASD.

The achievement gap experienced by students with ASD shows that transition practices do not meet the needs of students with ASD (Bouck & Park, 2018). Transition curriculum often centers around skills to engage with the community, build independence, and rely on self-determination. Students with ASD face different barriers with communication, regulation, social skills, and self-determination skills making success harder to achieve in transition skills. Many transition programs rely on practice and generalization of skills in the community. However, students with ASD often need additional time, modeling, and prompting to learn skills before engaging in practice and generalization and may need additional time to develop transition-based skills when compared to peers with other disabilities (Aljehany & Bennett, 2019; Dean et al., 2021; Sreckovic et al., 2020).

I have worked in the transition setting (18-21) for five years. I currently work in the transition program of a small charter school district in the suburbs of a Midwest city. The charter school is dedicated to assisting students with ASD. Despite working with a dedicated team, I have experienced practices that do not meet individualized needs, consist of superficial transition goals, and parent fears about the future. I have witnessed students struggle to attain the post-school transition goals.

In my time as a transition teacher, I have worked to follow evidence-based practices, but very few evidence-based practices have been developed specifically for transition age students (Gorenstein et al., 2020; Ruble et al., 2018). Some basic transition materials are available but are delivered at an inappropriate skill level for many special education students.

Some materials are complex and require high levels of math skills or previous understanding of topics. Other materials might incorporate appropriate background knowledge or social skills but may target elementary-aged students. In many instances, materials for lessons that I have taught do not exist. I have resorted to researching and creating my own materials for young adult students who continue to learn basic daily living skills, social skills, and vocational practices. For example, I created a video modeling sample for cooking tasks, visuals for laundry skills, step-by-step instructions for using a self-checkout at a grocery store, scripts for asking for directions, and more. Most materials I have developed on instinct rather than using evidence-based practices that have been established for the subject and setting.

Despite having completed 12<sup>th</sup> grade, most of the students that I case managed were unsure of their future. Many students struggled with advocacy, making choices, and other areas of self-determination. In many instances, students had only a vague idea of potential post-school outcomes. Many parents harbor fears related to the uncertainties of the future. Both students and parents struggled to find and obtain appropriate adult services as their student “aged out” of the transition program.

My experiences have led me to question traditional transition planning methods, practices, and programs. It is clear that many stakeholders are dedicated to student success, yet students continue to struggle. I am often left wondering how to increase student and parent knowledge about post-secondary options while promoting student autonomy and skills with individualized curriculum.

### **Guiding Question**

Prior research has clearly established that students with autism are not reaching their post-secondary goals at the same rates of other students with disabilities (Bouck & Park et al., 2018). The following thesis will explore research to provide educators with a better framework to support secondary students with autism. The guiding question of this thesis is as follows: How can secondary special education programs best support the transition of students with autism to adulthood? This issue will be addressed in three ways. First, factors that impact the success rates of students with ASD will be examined. Next, research regarding the Individualized Education Program (IEP) and transition planning process will be evaluated to determine how to best support students with ASD. Finally, emerging programs, developing practices, and evidence-based practices that best support students in post-secondary goal attainment will be explored.

## **Chapter II: Literature Review**

When exploring research for this thesis, searches of Education Journals, Academic Search Premier, ERIC, and EBSCO MegaFile were conducted for studies and publications from 2014-2022. The key words that were used in these searches included “autism,” “autism spectrum disorders,” “transition,” “transition planning,” “postsecondary,” “planning,” “evidence-based practices,” “factors of postsecondary success,” “postsecondary goals,” “transition goals,” “secondary,” “transition outcomes,” “employment,” and “work skills.” This chapter will review the literature on methods for educator use to support postsecondary goals and transition to adulthood for secondary special education students with ASD in three sections: Success Rate Factors; Planning for Transition; and Evidence-Based and Promising Practices.

### **Success Rate Factors**

The undeniable gap in the postsecondary success of students with autism spectrum disorder leads many researchers and stakeholders to question the curriculum and practices used in the public school system. Kraemer et al. (2019) explored the quality of high school curriculum programs for students with autism in the United States using the Autism Program Environment Rating Scale (APERS) to determine which aspects of the high school experience did not meet the minimal needs for students with autism. APERS, developed by the National Professional Development Center on Autism Spectrum Disorders in 2008, is a five-point rating scale that measures the quality of school programs through eleven different domains.

Kraemer et al. (2019) questioned the overall program quality for students with autism, the relative strengths and challenges in specific domains, the differences between the standard

diploma program and modified curriculums, and the community and school characteristics associated with program quality. The study predicted that programs for ASD students must be low quality due to achievement rates and success gaps. Raters received training in the APERS system to participate in the randomized clinical trial. The raters evaluated 60 different schools in three states (Wisconsin, North Carolina, and California) through observation, interviews, and record review.

The APERS results found that the public schools evaluated met the minimum standards needed for students with autism spectrum disorder. While the results between schools had an 18.1% variance, the demographics of those attending the school did not significantly affect the score. However, suburban schools scored higher than both urban and rural schools. Kraemer et al. (2019) explored the composite scores of the schools to find which domains were strongest and which needed the most improvement. Scores were highest in domains that referred to structure and safety: learning environment, learning climate and family participation. Schools scored the lowest in areas that addressed individualized learning: assessment, communication, social, independence, functional behavior, and transition. Transition programming for students seeking standard diplomas scored lower in transition than programs involving a modified curriculum.

The study demonstrated that schools need a stronger transition emphasis for students with autism. Kraemer et al. (2019) suggested the importance of including more work-based learning programs and self-advocacy education for all students with autism. Schools lacked emphasis of transition education for diploma-seeking students. Peer-mediated interventions and social group skills activities could improve communication and social scores. Staff members

should also have proper training and education regarding autism spectrum disorder. Kraemer et al. (2019) suggested that a more comprehensive study using APERS over a period of time would better illustrate the changes needed in programming for students with autism.

While it is important to analyze the current state of public schools to determine if they meet the minimum standards necessary for students with ASD, it is also important to evaluate student success over time. Bouck and Park (2018) noted that previous research had not examined the success rates of students with ASD through an extended lens. The researchers evaluated both immediate and longer-term post-school outcomes to determine how long-term outcomes over time compared to the immediate post-school outcomes of students with ASD.

To answer these questions, Bouck and Park (2018) completed a secondary analysis of the National Longitudinal Transition Study-2 (NLTS2) using quantitative research. The study included information from four waves of data collected from 2001 to 2007 that included 4,665 secondary students with ASD. Students chosen were primarily age 17 or 18 during the first wave of participation. Of the students included in the sample, 58.7% were Caucasian, 93% were male, 68% were native English speakers and more than half lived in suburban areas. Data was collected primarily through 60-minute phone interviews. Parents completed the first wave of interviews while students, if able, completed the interviews for the subsequent waves.

Bouck & Park (2018) used the NLTS-2 data to find information related to the student demographics and post-school outcomes over time. Information from the first two waves included primarily demographic data while Wave 3 and Wave 4 related to post-school outcomes. Finally, data related to immediate school outcomes and longer-term post-school outcomes was compared.

The research team highlighted results related to post-secondary education, independent living, and employment. In the area of post-secondary education, about one quarter to a third of the students attended some form of post-secondary education within six years post-secondary school. Most participants who sought post-secondary education attended community college while others participated in vocational training or a four-year institution. The likelihood of attending post-secondary education increased related to the length of time out of secondary school. Independent Living results were inconsistent. The majority of students continued to live at home with their parents after secondary school. Students were more likely to live independently (alone, with a spouse, in a dorm, or with roommates) four years after graduation (23.4%) than six years after graduation (4.4%). In the area of employment, the study found inconsistent results with a peak increase in participation at four years (63.9%) and a drop at the six-year mark (52.6%). Participation in full-time employment decreased over the six-year span. While 84% of those employed at the six-year mark enjoyed employment, only 9.6% of participants had full-time employment. The research team noted that while many of the students in the sample were employable at graduation, they may have lacked the supports necessary to keep and maintain employment (Bouck & Park, 2018).

### **Perspectives & Expectations**

Improving the gap in post-school success for students with autism includes understanding the perspectives of all stakeholders in the transition process. Hume et al. (2018) compared how students perceived skills and priorities compared to parent and teacher perceptions. The research team collected reported skill levels from students, parents, and teachers and compared the results. The researchers also examined the perceived importance of

the skills for each group. Finally, the researchers analyzed the relationships between the perceived importance of the skills via the hypothesis that parents and teachers would have the most similar results of the group triads (Hume et al., 2018).

Hume et al. (2018) used the Secondary School Success Checklist (SSSC) to identify skills in four different transition areas: independent behavior, transition, social, and academic. There were 547 student/teacher/parent groupings from three states that completed the checklist. Participants were aged 13-22, met the educational criteria for ASD in their state, intended to remain in school for at least two years, had no vision or hearing impairment, and had a participating parent. Each student completed the SSSC with a trained staff member who read questions aloud along with printed words and visual supports provided. Parents had the option to answer 105 questions either through mail or online in English or Spanish. Teachers answered the same questions online as the parents. All responses were based on a Likert scale to answer questions. Along with the SSSC, trained staff assessed students through the Leiter International Performance Scale-3, Social Responsiveness Scale-2 (SRS-2), and the Vineland Adaptive Behavior Scale-II (Vineland-II). Researchers weighed and compared the SSSC results using Cohen's kappa.

Although Hume et al. (2018) hypothesized that parent and teacher responses would be the most similar, the four top skills reported for each group were identical. All groups prioritized navigating the high school campus, looking clean for others, following rules, and bringing materials to class. However, each group placed different items in the lowest priority category. Students, teachers, and parents rated the majority of skills listed as a priority. Students rated their perceived skill levels as higher than the ratings by parents and teachers.



Teachers and parents evaluated student skill levels similarly, matching the original hypothesis. An inter-rater reliability test indicated that low agreement persisted across all raters. The study showed that all stakeholders hold different perceptions of student skill abilities.

Hume et al. (2018) illustrated a disconnect in common IEP goals for students with autism based on the results of this study. IEP goals for students with autism should be individualized based on student and family needs and desires. Hume et al. (2018) emphasized that all stakeholders, including students, should actively participate in the transition process to consider all viewpoints. The researchers suggested that goals matched with student priorities would increase intrinsic motivation of goal attainment.

Educators need to also understand the perspectives and desires parents have for their children. In a qualitative study, Chen et al. (2019) examined how parents viewed the future of youth with ASD during transition to adulthood. The purpose of the study was to build a detailed understanding of parent future visions for their children. The study set out to answer two questions. The researchers wanted to know which “adult life domains” were a concern or consideration for the children with ASD. The study also explored how parents described the potential adult future of their child (Chen et al., 2019).

Researchers interviewed a subset of 18 participants chosen from a larger set of 25 from another study originally found through community organizations, clinics, and schools in the state of Massachusetts. The 17 children were aged 14-22 at the time of the interviews and identified with an educational disability of ASD. The sample included 16 mothers and two fathers who had 15 male and two female children with autism (Chen et al., 2019).

Parents were interviewed in a semi-structured format by one of three researchers. The interviews took place in six focus groups and three individual interviews. The semi-structured interview covered four topics. The researchers asked parents about their children's current daily activities and functional living skills. Next, interviewers asked how parents envisioned the future and which skills the youth needed to address to obtain the goals. The interviewers asked about parent preparation for adulthood. Finally, researchers explored family experiences with support services related to daily functioning. The researchers independently analyzed the interview transcripts seeking adult domains and "qualifying statements" related to the research questions. Eight main domains were identified: community mobility, community participation, living situation, peer relationships, personal safety, post-secondary education opportunities, self-care, and work (Chen et al., 2019).

Chen et al. (2019) found that parents demonstrated a common thought pattern. The researchers noted parent descriptions of hopes were often discounted with a fear, uncertainty, or reason the hope would not occur. The interviews showed that parents were uncertain and felt that they lacked guidance or assistance in the steps following secondary education. Parents were unsure that their child would be able to navigate real life scenarios, unexpected changes and live up to the expectations of others outside of school. Parents were also uncertain how to navigate or obtain services outside of secondary school and wished for a "road map" or plan with necessary steps.

Chen et al., (2019) suggested that educators and providers work to understand parent visions for the future. The researchers noted that it would be helpful to provide structure in the planning process to share parent hopes as well as what they may believe to be a more realistic

choice. The study also indicated that it was beneficial for educators to include experiences that mimicked real life such as volunteer work, work experiences, time away from home, new social situations, and community experiences.

### **Self-Determination**

Researchers concluded that self-determination was a vital skill in the transition-to-adulthood (Cheak-Zamora et al., 2020; Kraemer et al., 2019). Cheak-Zamora et al. (2020) aimed to gain insight on the self-determination skills of young adults with ASD. Self-determination Theory allows youth opportunities to make choices and participate in designing outcomes that build autonomy. Young adults with ASD have lower rates of self-determination than other young adults with disabilities. Cheak-Zamora et al. (2020) questioned how self-determination was associated with demographic variables, severity of disability, caregiver variables, and family variables. The researchers hypothesized that young adults with ASD would demonstrate low levels of self-determination and that the levels of self-determination for individuals would correlate with age, level of education achieved, intellectual disability, and various caregiver factors.

Cheak-Zamora et al. (2020) chose caregiver assessments to complete the study. Self-reporting was believed unavailable, unreliable, and some cases impossible due to communication levels of participating youth. The study included 479 caregivers of young adults aged 16-25. Data collection occurred in five states at Autism Treatment Network (ATN) clinical sites. Minority representation was ensured by the geographic distribution of the clinic sites with families recruited by mail or through clinic appointments.

The researchers administered caregiver assessments related to self-determination, demographics, and severity of symptoms related to autism. Self-determination was measured through the American Institute for Research (AIR) Self-Determination assessment that included two of the three components within the assessment: “Things My Child Does” and “What Happens at Home.” The demographic survey included questions related to the young adult and the caregiver. The young adult survey related to severity of symptoms asked about ASD diagnosis, daily functioning, and whether the young adult also had an intellectual disability (Cheak-Zamora et al., 2020).

Cheak-Zamora et al. (2020) noted that opportunities to practice self-determination exceeded the capacity of the young adults of the study. Strong predictors of self-determination included severity of symptoms, frequency of symptoms, communication levels, and presence of an intellectual disability. Demographics showed that 80% of the young adults showed moderate to severe symptoms of autism and 34% of the young adults also had an intellectual disability. Age, level of education, and caregiver education level were hypothesized to predict but did not influence the results. Race, age, gender, and poverty level also proved insignificant predictors. Rated opportunities for self-determination practice were high (80%), but the participants maintained low capacity to engage with self-determination at an average level.

Cheak-Zamora et al. (2020) contended that the results showed that young adults must be provided with more education and supports in the area of self-determination. The researchers suggested self-determination skills should be introduced as early as age 12 or 13. The study suggested that the study should be replicated with additional stakeholder perspectives included.

## **Post-Secondary Education**

Successful transition to adulthood beyond secondary education can include a transition to post-secondary education. Elias et al. (2019) explored student transition from secondary to post-secondary institutions by isolating and addressing the types of challenges faced by students with disabilities.

The qualitative study included focus groups of educators, administrators, instructors, and support staff from both secondary and post-secondary settings. The researchers recruited 25 participants from three school districts and several post-secondary institutions within a 65-mile rural area. Each participant attended only one focus group. Discussions included seven pre-selected questions that covered participant experiences with ASD students (Elias et al., 2019).

The transcribed interviews were coded according to the Seven Vectors of Student Development which described how college-age students build their identity (Chickering & Reisser, 1993). Three vectors were discussed as prominent issues in each focus group. First, Elias et al. (2019) noted “moving through autonomy toward interdependence” (p. 262) as a continuing theme. Participants described student reliance on parents and people of authority. Students struggled to become self-sufficient, make their own decisions, and know when appropriate support was needed. Participants also discussed issues related to “developing competence” (Elias et al., 2019, p. 262). The competence vector related to interpersonal competence that included listening, cooperating with others, and communicating needs. In this vector, participants described interactions with peers as a weakness but also noted that receiving feedback was a strength. Finally, Elias et al., (2019) described “developing mature

interpersonal relationships” (p. 263). Participant descriptions indicated difficulty with building intimate relationships. The observed students with ASD struggled to gain and maintain friendships or intimate relationships.

All three vectors identified by Elias et al. (2019) related to common areas of need for individuals with autism. The researchers believed that students should build skills in the areas of self-determination, self-sufficiency, and interpersonal communication. They also suggested that students should be placed in situations where they could safely experience failure to build competence before entering post-secondary education.

### **Community Participation**

As key elements in adulthood, community and social participation help prevent social isolation for young adults with ASD. Myers et al. (2015) examined trends in community and social participation as young adults with ASD transitioned into adulthood via a secondary analysis of the NLTS-2 data. The study also explored the intrinsic and extrinsic factors correlated to community and social participation. The study hypothesized decreased participation as young adults aged into adulthood. The researchers believed that intrinsic factors would correlate with participation while extrinsic factors would affect both community and social participation. Participants chosen for this study were aged 13-16, identified with ASD as the primary disability, and participated in Wave 5. In total, information from 17,818 respondents was included in the research.

Myers et al. (2015) defined and determined both community participation and social participation through survey questions. Community participation questions asked participants if they participated in non-school or community activities in the 12 months prior to the survey.

Considering the previous 12 months, social participation questions asked about the number of days participants interacted with friends per week, if they had been invited to social activities, and if friends had contacted the participants on the phone. Any affirmative answers resulted in a positive answer for data calculation (Myers et al., 2015).

Intrinsic and extrinsic variable factors were inferred from the survey. Variables such as race, gender, and environmental setting were answered via demographic questions; however, other variables were more complex. Communication fluency was based on a question regarding communication difficulty using a scale from one to four. Mental cognition questions were not asked using the NLTS-2, so cognition was inferred using four scaled questions related to daily functioning. The questions asked about ability to count change, read and understand signs, look up a phone number, and tell time. Behavioral difficulties based on answers related to participant behavior in the community and within the home using scaled scores (Myers et al., 2015).

Myers et al. (2015) compared the positive participation percentages from Wave 1 and Wave 5 to examine trends. During Wave 1, 63% of participants participated in community activities outside of school; however, only 46% of participants participated in community activities in Wave 5. The results indicated a drop in community participation as students transitioned to adulthood. During Wave 1, 74% of respondents engaged in social participation. This percentage increased by Wave 5 where 80% of respondents engaged socially.

Myers et al. (2015) used multivariate logistic regression to correlate the relationship of intrinsic and extrinsic factors to community and social participation. Odds Ratios (ORs) for most variables were not consistent showing no strong relationships to participation. However, higher

family income and engagement in case management services positively correlated to increased community participation. Higher cognitive function and engagement in case management services positively correlated with increased social participation. However, low communication fluency and high behavioral issues negatively impacted social participation (Myers et al., 2015).

The secondary analysis supported anecdotal evidence showing that community participation for young adults with ASD trended down as students entered adulthood. However, social participation was more influenced by intrinsic and extrinsic factors such as cognition, communication ability, and behavioral difficulties. Myers et al. (2015) recommended that educators and other stakeholders should consider ways to support and encourage community and social participation for students with ASD when creating a transition plan.

### **Employment**

Employment is a critical component to adulthood. Teen work experiences have a positive long-term impact on individual future employment outcomes. Roux et al. (2020) aimed to gain insight on the early work experience of students with ASD. The researchers used data in the National Longitudinal Transition Study 2012 (NLTS-2012) to compare the high school work experiences of students with ASD, students with developmental disabilities, and general education students. Additionally, the study looked for correlates related to the attainment of both school-based and community-based high school work experiences for students with ASD. The researchers predicted that fewer students with ASD would have either school-based or community-based work experiences in high school than students with other disabilities or general education students.



The researchers used data from NLTS-2012 for this study. The NLTS-2012 results included participants from both special and general education. Data used in this study came from Phase I (2011-2012) and Phase II (2012-2013). All participants attended public high schools and aged 16-19 during the time of the surveys. A total of 630 participants were included in the group with ASD. Data from 570 students with intellectual disabilities (ID) was used as the comparison group. No students in the ID group with autism were included. A total of 910 students were included in the general education group (Roux et al., 2020).

The researchers initially compared demographic and disability characteristics of the students with ASD with the students with ID. The data showed that students in the ASD group were more likely white, Caucasian, and spoke English at home. Students in this group also more likely had families with incomes 185% over the poverty line. Parents attended ASD student transition planning meetings 60% of the time. Students with ASD had generally better health than students with ID but were less healthy than non-special education peers. Students with ASD were more likely than either group to take medications for behavioral or mental health issues (Roux et al., 2020).

Roux et al. (2020) separated work experiences into four groups: school-based work experiences, community-based paid work experiences, any work completed for pay, and any work performed (paid or unpaid). Students who did not receive special education participated in the least amount of school-based work experiences (8.4%). The study found that 20.2% of students with ASD experienced school-based work experiences compared to 25.1% of students with ID. Students with ASD also had the least amount of experience in paid community-based work. Only 25.3% of students with ASD had paid community-based work experience compared

to 32.2% of students with ID and 55.3% of general education students. Students with ASD also worked fewer hours at paid jobs compared to both other groups of students. When looking at performing any paid work experience (combining school-based and community-based paid experiences), the students with ASD had the fewest experiences with only 30.8% earning money for work. Both comparison groups fared better with 38.1% of ID students working for payment and 55.9% general education students working for pay. Finally, the researchers compared any work completed for pay or unpaid outside of the home. In this category, 41.8% of students with ASD had experience compared to 50.6% of students with ID and 58.5% of students in general education. Overall, fewer students with ASD had experiences in any category of work experience (Roux et al., 2020).

Considering work experience correlates for students with ASD, Roux et al. (2020) found that race, parent participation in transition planning, and student functional skills were significant factors. To explore correlates, the researchers used demographic variables from the student, household, and parent characteristics. Information regarding health and disability characteristics such as functional abilities, medication usage, and communication skills were also included. The study found that African American students with ASD were the least likely to experience either school-based or community-based work. A student with ASD was 70% more likely to gain work experience if their parent participated in transition planning meetings at school. Students with ASD who had greater functional skill needs were more likely to experience school-based work experiences, but students with more proficient functional skills were more likely to gain paid community-based work experiences.

The study emphasized the importance of early work experiences for transition-aged students with ASD. Researchers suggested that students should leave secondary education with the goal to have a job or a plan towards obtaining a job. The research team also suggested that employment transition goals should be specific and planned as the central focus of student IEPs. To increase employment outcomes, students with ASD should explore multiple types of jobs in various settings with or without pay throughout the high school experience (Roux et al., 2020).

Wong et al. (2020) aimed to quantify the factors correlated with positive employment outcomes for students with ASD. The study evaluated which school-based services should be prioritized for secondary students before graduation to predict employment outcomes. The researchers sought to answer two main questions with the research study. First, Wong et al. (2020) determined how factors influenced employment outcomes for students with ASD. The researchers predicted that family, student, and school-based factors would have the most impact on student outcomes. Next, the study aimed to quantify if school-based transition supports mediated latent independent variable associations such as family factors or parent participation in special education. The researchers predicted that school-based transition supports would be a critical influence in the mediation between independent variables and employment outcomes.

Wong et al. (2020) used NLTS-2 data to answer the research questions. The sample size included 570 participants with an educational disability of ASD were chosen if they had participated in Wave 1, Wave 2, and Wave 5 of the NLTS-2 study. To quantify the data, information was separated into eight variables: family background, parent participation in

special education, academic performance, daily functioning, self-determination, school-based transition supports, employment outcomes, and graduation year. The Structural Equation Modeling (SEM) process determined direct and indirect associations (Wong et al., 2020).

The findings showed two separate models for students with high and low daily functioning. Age, gender, self-determination, vocational-related supports, and parent expectation were not found to significantly impact the data. However, parent participation, academic performance, and school-based transition supports were impactful when looking at student employment outcomes. Parent participation mediated academic performance and school-based transition supports in both sets. Students with low daily functioning were greatly influenced by school-based transition supports. This variation in results relied on the emphasis of services for particular students while in school. The researchers noted that the three most influential factors towards positive employment outcomes were variables that could be improved through relationship-building and emphasis on services (both academic and transition). Parent participation in special education services proved to be critical to student success (Wong et al., 2020).

The federal government mandates access to Vocational Rehabilitation (VR) services for all transition age individuals with disabilities, yet only 60-70% of young adults eligible for services apply and receive them. Roux et al. (2021) analyzed national level patterns of VR service usage among young adults with ASD. The researchers compared the receipt patterns between secondary students (age 16-21), non-students (age 16-21), and young adults (age 22-39) to explore employment outcomes for individuals who entered VR services as secondary

students. The study also explored correlates of secondary student utilization of VR services and determinates that lead to increased successful employment at the culmination of VR services.

The researchers included 44,094 closed case files from the Rehabilitation Services Administration (RSA) in the analysis. Case files were included in the data if the individual was aged 16-39, received services after being deemed eligible, and had ASD as the primary or secondary diagnosis. All case files were closed in 2015, 2016, or the first two quarters of 2017. Three sub-groups were formed from the accumulation of files: secondary students (18,773), non-students aged 16-21 (12,710), and young adults aged 22-39 (12,611) (Roux et al., 2021).

Roux et al. (2021) used service receipts, employment outcomes, service types, mean number of services used, mean number of days in service, the total cost of services, and successful employment as dependent variables. The researchers used the RSA definition of successful employment including individuals with full or part-time jobs with or without supports in an integrated inclusive employment setting of 90 days or more. Independent variables included demographics, impairment characteristics, acceptance of Social Security Income (SSI) or Social Security Disability Insurance (SSDI), level of education at application, co-occurring Intellectual Disability, co-occurring Psychiatric Disability, and “most significant” level of disability.

When exploring the differences in VR service usage within the three groups, Roux et al. (2021) found differences in the types of services received by secondary students compared to the other groups. Assessment services and VR counseling were the top service categories of services for all groups. However, non-student youth received more assessment. Secondary students were least likely to gain job-related services but were more likely to receive

job readiness training. Young adults experienced the opposite, receiving the most job-related services and the least job readiness training. Transportation services were not highly utilized by all groups; however, youth non-students gained the most services related to transportation.

The study showed that secondary students received the most days of service with moderate employment success. Service length was defined as the date of the Individualized Plan for Employment until the day the case was closed by VR. Secondary students, who on average used 4.1 services at one time, remained in VR services for an average of 837 days. Youth non-students remained in services for 811 days, while young adults exited the most quickly at 515 days. Although student services were the longest, the secondary student group incurred the least amount of cost. Young adults were the most likely group to gain successful employment through VR services (66%). Only 52% of secondary students exited services with successful employment. When employed, secondary students were also paid less money per week than the other groups (Roux et al., 2021).

When exploring correlates to secondary VR service utilization, the researchers found variable results. African American and female students were the least likely to receive job search services. African American students were also less likely to gain on-the-job support. Hispanic students were more likely to use VR counseling and job search services but were least likely to be placed into a job. Students with an Intellectual Disability, a Psychiatric Disability, who receive SSI, or who receive SSDI were least likely to engage in job search services, VR counseling, or obtain a job placement. Students labeled in RSA records as having “most significant” disabilities had higher odds of obtaining VR counseling, job placement, and on-the-job supports (Roux et al., 2021).

Roux et al. (2021) found that students were most likely to gain successful employment access to on-the-job supports and job placement. Job search services also increased the chance of successful employment. Although age was a significant factor in successful employment with chances increasing each year for the individual, researchers emphasized the importance of utilizing of VR services in the secondary school setting.

## **Planning for Transition**

### **Transition Planning Perspectives**

It is important to acknowledge the perspective of transition age youth with ASD to evaluate the transition plans for adulthood. Most transition plans are formed around normative adult transition choices; however, Anderson et al. (2016) questioned if students with ASD strove to attain traditional transition goals such as further education, jobs, living independently, romantic relationships, and community participation. Anderson et al. (2016) used interviews from a larger study to create a fundamental qualitative description of the views of ASD students regarding post-secondary life. The study aimed to define “adulthood” in the terms of participants. To complete this study, 31 high school students with ASD from Wisconsin and Tennessee were interviewed regarding friendships, community activities, and transition to adulthood. Eligibility requirements included having an IQ above 70 and a verbal ability to speak in sentences or clauses. Interviewers asked the students identical questions with a limit of two follow-up questions for clarification.

Anderson et al. (2016) used descriptive validity in coding the interview transcripts in the descriptive study. Answers were divided into two sets for each objective. The first was to determine what goals students aimed to achieve after graduation. Answers were coded to see

if they fit traditional norms, if they did not fit traditional norms, or if the student did not know. The second objective sought student answers to, “What do you think someone has to do to be considered an adult?” (Anderson et al., 2016, p. 18). Student answers were divided among meeting traditional transition roles, individualistic transition criteria, and qualities of character.

The majority of participants expected or planned to attain traditional transition goals in adulthood. Almost all of the participants (90%) planned to attend additional schooling. All participants acknowledged they would have to work at some point, and 62% described working as a rule of adulthood. Participants described wanting to complete many traditional markers of adulthood; however, only 42% stated that they planned to live independently. Participants noted that some adult goals were dependent on the success of other goals such as obtaining a job (Anderson et al., 2016).

Rather than listing goals or markers to define adulthood, participants described adulthood with individualistic criteria such as financial independence, specific independent living skills, or character qualities such as responsibility or maturity. Participant responses were inconsistent regarding traditional markers such as romantic relationships or obtaining a job. Although it was not originally listed in the questions, two thirds of participants listed age as a criterion (Anderson et al., 2016).

Overall, participants defined adulthood both traditionally and non-traditionally. Anderson et al. (2016) suggested that non-traditional goals and criteria should be included in education and planning for students with ASD. The study also showed that many students were unaware of life uncertainties such as unexpected plans or changes. The researchers suggested



increasing community-based services for students with all abilities to help assist students after graduation.

Sosnowy et al. (2018) wanted to explore the desired transition outcomes and the planned method of goal attainment of both parents and young adults. The researchers acknowledged that many previous secondary analyses had been performed regarding factors that affected postsecondary outcomes. However, the study stated that most prior studies defined success through traditional postsecondary concepts.

The research team interviewed 21 parents and 20 young adult for the study. The parents in the study all had children age 18 to 29, and all young adult participants were aged 18-29. Only four parent child pairings participated in the study. The study relied on self or parent reported autism diagnosis and other co-morbid conditions. Interviews took place in-person, over the phone, or through email (Sosnowy et al., 2018).

Parent and young adult participants discussed self-determination and independent living themes. Most parents reported that their children continued to live at home, but all parents acknowledged that their children would eventually need to live separately or independently at some point in the future. Parents discussed taking an active role in the planning of their child's future, while young adult participants saw living independently as an opportunity to gain autonomy from their parents. The young adults wanted to live independently in the future and acknowledged the need for supports to gain independence. Financial independence, transportation, and dependence on parents played a role in their reasons to continue to live at home (Sosnowy et al., 2018).

In the area of post-secondary education, both parent and student participants were disappointed in the supports available. Parents found that young adults needed more all-inclusive services than provided in post-secondary settings. Many parent participants felt compelled to take an active role in post-secondary settings to ensure success for their student. Most of the young adult participants had at least some post-secondary education experience. Student participants wanted or needed accommodations, but the young adults struggled to obtain services appropriate for their needs. Other student participants also reported social anxiety in post-secondary settings and struggled to find relatable peers (Sosnowy et al., 2018).

Parent and young adult participants had differing perspectives regarding employment opportunities. Parent participants desired employment opportunities for their children to increase community involvement to interact socially outside of the home, but young adult participants saw employment opportunities as a path to financial independence and autonomy. Both groups agreed that work environments should be individualized to young adult needs and saw many barriers within the workplace. Disappointed in available services, parents felt that there were few appropriate opportunities for youth with ASD. Young adult participants found accommodations critical to success, but many feared disability disclosures would hinder success and opportunities in the workplace (Sosnowy et al., 2018).

Sosnowy et al. (2018) found that various domains of transition to adulthood were interconnected and not discrete entities. Parent participants emphasized overall growth for young adults, while youth participants yearned most for both financial and personal independence. Both parent and young adult participants used normative or neurotypical adulthood goals when defining their personal post-secondary goals.

## **Transition Planning Participation Factors**

Student involvement is a critical component in transition planning. Currently, IDEA requires that transition-aged students are invited to transition planning meetings. However, students with ASD attended or participated in fewer transition planning meetings than students with other disabilities. Griffin et al. (2014) investigated which factors lead to IEP attendance and participation for students with ASD using NTLS-2 data. The study aimed to determine which variables lead to increased involvement in the IEP transition process.

Griffin et al. (2014) used information and survey results from 320 students for the study. Participants were chosen by age and participation in Wave 2 data which included the School Program Survey. Data included information regarding the level of instruction for transition planning within student schools. The survey also rated the frequency of discussions related to post-school outcomes and goals at home. The final sample included mostly males (84.2%) and a majority of Caucasian students (66.5%).

The researchers separated participants into two groups and found connections to both attendance and participation in IEP/transition planning meetings. The first group included students who did not attend IEP/transition meetings or attended but had little to no participation while at meetings. The second group included students who attended meetings and had moderate or high participation levels while at meetings. Researchers analyzed variables to participation including student demographics, family demographics, co-morbidity of Intellectual Disabilities, functional skills, communication fluency, social skills, self-advocacy, educational settings, and parent involvement. Overall, 62.5% of students in the study did not attend or attended but had little to no participation in meetings. Of those that attended and

participated, 80.5% were Caucasian and spent the most amount of time in general education settings. Attendance predictors included greater expressive communication skills, more time in inclusion or general education settings, frequent discussions of post-school plans at home, and parent involvement at school. Students with lower functional skills and greater communication needs were less likely to attend meetings. Participation predictors included race, age, greater self-advocacy skills, increased time in inclusion or general education settings, and more frequent discussions of post-school plans at home (Griffin et al., 2014).

The study found that students with increased communication and self-advocacy skills were more likely to attend meetings. The researchers strongly encouraged educators to ensure that students with poor expressive communication skills or low functioning skills had opportunities to be involved in transition planning. They suggested using materials made prior to the meeting event such as recordings or digital presentations. The researchers also noted that African American students were less likely to attend, participate, or have frequent discussions of post-school outcomes at home and encouraged educators to encourage minority students to participate in planning (Griffin et al., 2014).

Holmes et al. (2018) questioned which factors predicted parent expectations for young adults with ASD. The researchers explored how both family and youth factors shaped the expectations of students with ASD. Parent participants were asked which steps had been taken in preparation for transition to adulthood. The study compared parent actions to reported expectations. The researchers hypothesized that parents with children who had lower cognition or more severe ASD symptoms would have lower future expectations for youth. The study also

hypothesized that greater parental expectations would correlate with more preparatory activities for the transition to adulthood.

A total of 298 parents with children aged 12-18 who had formal ASD diagnoses participated in the study. The researchers emphasized recruitment of parents with female youth totaling 47.3% of the sample. While this number was not representative of the diagnosed population, it allowed the researchers to compare the expectations of parents based on gender. Parent participants completed an online transition survey along with the Social Responsiveness Scale – 2<sup>nd</sup> edition (SRS-2) assessment. The online survey consisted of 50 survey questions including demographics, youth ASD symptom severity, parent future expectations, and actions taken towards preparation for transition to adulthood (Holmes et al., 2018).

The first aim of the study was to determine which factors lead to greater parental expectations for youth with ASD. The researchers used multivariate linear regressions to determine which youth characteristics correlated to increased parental expectations. Gender, IQ level, and SRS-2 scores proved to be the most significant. Parents of male children had greater expectations than parents of female children. As hypothesized, parents of children with lower IQ scores (borderline IQ or IQ below 70) had low future expectations for their children than those of children with average or above average IQ scores. Parents whose children had higher SRS-2 scores, and therefore stronger ASD symptom severity, also had lower expectations than children with low SRS-2 scores (Holmes et al., 2018).

In the second aim of this study, Holmes et al. (2018) explored parent-led preparatory activities in transition planning. Chi Square results found that male children were more likely to engage in paid or volunteer work. However, female children were more likely to

participate in opportunities to engage in adult roles or roles with responsibility while at school. Youth with average or above average IQ scores were also more likely to engage in paid or volunteer work. Students with Borderline IQ scores were most likely to be given chores and put in roles with responsibility. Students with an IQ below 70 were least likely to complete chores (Holmes et al., 2018).

Holmes et al. (2018) correctly hypothesized that parent expectations played a role in engagement of transition activities. The researchers illustrated that parents of male children had different expectations than parents of female children. Parents participated in preparatory planning more often with students with higher IQ scores and/or lower severity of ASD symptom severity.

### **Parent Involvement in Transition Planning**

For a more in-depth analysis on parent involvement and transition planning, Ruble et al. (2019) performed a secondary analysis of information gathered in a randomized control trial (RCT). In the original research, researchers worked to establish Collaborative Model for Promoting Competence and Success (COMPASS) for attainment of transition related goals (Ruble et al., 2018; Ruble et al., 2019). In the secondary analysis, Ruble et al. (2019) reviewed data from both the control group and the experimental group to gather information related to IEP goal progress, Psychometrically Equivalence Tested Goal Attainment Scaling (PET-GAS), postsecondary goal progress, transition planning quality, parent activation, and parent-teacher alliance. The study aimed to analyze which of these variables lead to goal attainment. The researchers wanted to determine who was ultimately responsible for implementing the work

towards goal achievement. The study also explored how postsecondary goals might change in a student's final year at school (Rubel et al., 2019).

Ruble et al. (2019) used information from 20 teacher/parent/student triads. All students involved in the study had both educational and medical diagnoses of ASD. The students were between the ages of 17 and 20 at the time of the trial. Eleven of the triads were placed in the COMPASS group of the trial. The other nine triads engaged in training for other evidence-based practices. The information gathered from the two groups was combined for the purposes of this secondary analysis.

Ruble et al. (2019) used Friedman's multiple comparison test to see which variables correlated to IEP and postsecondary goal attainment as rated by both parents and teachers. When looking at IEP progress, parents found that parent-teacher alliance, transition planning quality, student IQ, and PET-GAS were the most important factors. They primarily related success to the parent-teacher alliance and PET-GAS. Considering parent ratings for post-secondary goal attainment, researchers found that all variables showed a significant correlation with IEP progress, student IQ, and parent-teacher alliance yielding the highest correlations. Teacher data related to post-secondary goal attainment, parent activation, externalizing behavior, and PET-GAS were the strongest correlates.

The analysis explored how variable correlated to a variety of post-secondary outcomes. Parent activation, transition planning quality, and parent-teacher alliance were significant factors towards student attainment of continuing education or training. Employment goals were most affected by parent activation and externalizing behaviors. Both independent living goals and making financial decisions correlated with transition planning quality and

parent-teacher alliance. Student IQ, parent report of externalizing behaviors, and parent/teacher reports of adaptive skills most impacted budgeting skills. None of the tested variables proved to be correlated to student living situations after graduation. Parent reports of student externalizing behavior was the only significant factor in transportation. The ability to make friends was correlated only to transition planning quality and to IQ (Ruble et al., 2019).

When implementing post-secondary goals, the study found that the focus of the goals mattered. Student participants primarily implemented goals towards employment, transportation, leisure, and making friends. Parent participants implemented goals related to money such as living situation and making financial decisions. Teachers were the least likely identified as implementing transition goals. The researchers also found that the participant goals did not change over time. Instead, adherence to the goals increased in the student's final year in school (Ruble et al., 2019).

Ruble et al. (2019) emphasized that transition planning quality and parent-teacher alliance proved to be strong factors towards student success. While variables in the different areas of post-secondary goals may vary, transition planning quality and parent-teacher alliance may be underlying factors to these domains. Many post-secondary goals rely on parent or student implementation or self-direction, but involvement and alliance are precursors to success.

Reyes et al. (2022) delved further into the transition process of students with higher functional needs. The researchers questioned the role of functional skills and behavioral needs for students with developmental disabilities in the transition planning process. They wanted to know if parents with students who had greater needs for support began the transition planning



process sooner than students who needed less support. The researchers also aimed to describe the goals and worries of parents who had students with developmental disabilities.

Reyes et al. (2022) recruited parent participants with children aged 10-22 who had a developmental disability. Fifty-five percent of the children had ASD. Other developmental disabilities included Attention-Deficit/Hyperactivity Disorder, Down syndrome, and speech or motor problems. Parents completed surveys on paper or online. The survey included 31 questions covering demographics, diagnosis information, functional needs, presence of behavioral issues, initiation of transition planning, future goals for the child, and worries about the child's future.

When examining the timeline for transition planning, Reyes et al. (2022) found that families with students who had fewer functional or behavioral needs began the process sooner than families with students who had greater functional or behavioral needs. Contrary to the hypothesis, the study showed that families with students who needed additional verbal coaching and hands-on support waited longer to begin the transition planning process. Age was a significant factor in transition planning, and families with older students had more likely begun planning for post-secondary life. Gender, insurance status, and current behavioral issues proved to be insignificant correlates of early transition planning (Reyes et al., 2022).

When asked about independent living expectations, families had similar answers whether they began the transition planning process early or at the mandatory age. Most parents of students with higher functional needs or increased behavioral issues expected their child to likely live at home after graduation. Age was a significant correlate in this area as well.

Parents with younger children were more likely to believe that their child would live at home than parents with older children (Reyes et al., 2022).

Most parent participants had similar worries about the future of their young adults. All parents desired that their children achieve independence, happiness, employment, success, and complete of high school or post-secondary education. Worries such as safety, being taken advantage of, lack of independence, behavior management, and lack of employment opportunities were common to both groups. The participants who had not begun transition planning additionally worried about lack of caregiver support. The researchers encouraged increased interventions for aggression and behavioral management for students with behavioral needs (Reyes et al., 2022).

### **Student Planning Participation and College Enrollment**

One marker of post-secondary success for many students is college enrollment. Wei et al. (2016) explored the connections between transition planning and college enrollment rates using NLTS-2 data. The researchers aimed to determine if college enrollment rates were associated with parent participation in transition planning. The study also explored if having college enrollment as a primary transition goal increased college enrollment attainment.

The study separated two groups of data for comparison using Average Treatment Effect on the Treated (ATT). The first set included the participant students with the intervention variables (SATT). The researchers included student participants with an educational diagnosis of ASD in all waves of NLTS-2 data. The number of participants varied by each wave, or data set, used. Wave 1 had 990 eligible participants, and Wave 5 had 660 participants. The demographics for the participating sample was representative of the diagnosed population with ASD. The

second set was representative of the larger population of the NLTS-2 samples (PATT) (Wei et al., 2016).

Intervention and outcome variables were used to answer the focus questions of the study. Intervention variables, derived from Wave 1 data, rated transition planning participation and whether a student had college enrollment as a primary goal. Outcomes were determined in the subsequent waves through dichotomous answers of whether the student enrolled in a two or four-year college program (Wei et al., 2016).

The study found that both parent participation in planning and having college enrollment as a primary post-secondary goal increased the odds of college enrollment for students with ASD. Students whose parents participated in planning were significantly more likely to enroll in post-secondary education. In the SATT group, 40.29% of parents participated in setting transition goals. In the first wave of data, 84% of the SATT sample indicated that they expected to or wanted to attend post-secondary education; however, only 24.2% of the group had college enrollment as a primary goal. Students whose primary goal to enroll in college were more likely to attend. Wei et al. (2016) noted that, while 84% of students indicated a desire to enroll or attend college, only 30% of students enrolled in college after graduation. The researchers asserted that educators should increase student awareness of post-secondary education options during transition planning to remediate this gap (Wei et al., 2016).

### **Evidence-Based and Promising Practices**

Researchers have developed a variety of practices and models to assist transition-age secondary students in achieving their post-secondary goals. This section of the review includes research for evidence-based, promising, and developing practices.

## Family Based Interventions

Student involvement in transition planning and individualized goal development are critical factors affecting the gap in post-secondary success of students with ASD. Active participation in transition planning leads to increased positive outcomes, but students with ASD often face barriers to engagement in the planning process. Hagner et al. (2014) used a mixed-methods to explore the person-centered planning process as a way to develop post-secondary goals for students with ASD. The researchers examined what adaptations and accommodations allowed participants to contribute in planning meetings. The study also questioned the relationship between adaptive behavior needs and the use of accommodations during planning meetings.

Participants at 28 high schools in New Hampshire and Maine engaged in a person-centered planning process led by the research team. A total of 47 students and their families signed up to participate in a total of six meetings. Eligible students were over the age of 16, used special education services, and had a diagnosis of ASD. After completing the Adaptive Behavior Assessment Scale II (ABAS-II), facilitators assisted families in developing planning teams which included at minimum the student, one guardian, and a special education teacher. Additionally, teams could include family members, neighbors, friends, other school transition staff, and rehabilitation counselors (Hagner et al., 2014).

The person-centered planning process followed the McGill Action Planning Sequence with some updates and modifications. Meetings took place in family homes and focused on the individualized needs of the student involved. Six meetings took place in a specific sequence: Introductions and Personal History; Career Profile: Skills, Accomplishments,

and Personal Qualities; Career Profile: Preferences and Adaptations; Vision for the Future, Resources, and Barriers; Transition and Career Goals; and Career Exploration and Work Experience Action Steps (Hagner et al., 2014).

The researchers evaluated the accommodations and adaptations in each meeting and found many students utilized similar supports. Individualized preparation meetings, used by some students, included pre-teaching and rehearsal to help a student understand what would occur in the real meetings. Informal rapport-building preparations allowed teams to meet prior to meetings to get to know each other or engage in warm-up conversations before the start of a meeting. Students also used flexible meeting designs which allowed time for breaks or partial attendance by the student. Students also participated using distance attendance. With distance attendance, students could participate separately from the group in another part of the room, in a different room, or online through Skype. Finally, students used supported participation to engage in conversations. With supported participation, students could use Augmentative and Alternative Communication (AAC) devices, picture symbols, written notes, or communicate with a specific support person (Hagner et al., 2014).

The study investigated the relationship between the accommodations students used and their adaptive behavior levels. The researchers hypothesized that students with lower levels of adaptive behaviors would utilize more supports than students with higher levels of adaptive behaviors. When comparing the student ABAS-II scores to the number of supports used by the students, the hypothesis proved to be true but not statistically significant, showing that students with fewer adaptive needs also utilized supports (Hagner et al., 2014).

Student and parent participation is critical in transition planning. Ruble et al. (2018)

modified an established planning method and modified it to fit the transition setting. The Collaborative Model for Promoting Competence and Success (COMPASS), a planning and assessment model, was originally developed for students in preschool and elementary school (Ruble et al., 2012; Ruble et al. 2018). The COMPASS intervention model relies on teacher-parent involvement and alliance throughout the school year. The study aimed to determine if an adapted version of COMPASS (COMPASS-T) could improve IEP implementation and results for transition-age students. The study also evaluated the fidelity, or adherence to the protocol, that teachers maintained in the COMPASS process and whether the teacher fidelity increased over time. The researchers hypothesized that COMPASS-T would improve student IEP outcomes and predicted that teachers would have high fidelity and improve adherence throughout the experiment.

The study included 20 teachers in two different states. Each teacher selected one student with an educational diagnosis of ASD who also had a parent willing to participate in COMPASS-T. Of the teachers, 11 were placed in the experimental group using COMPASS-T. Researchers provided training using standard evidence-based practices for the other nine teachers. Each participating teacher in the COMPASS-T group followed the COMPASS program, which required a three-hour initial consultation followed by four 1-1.5-hour sessions to practice, reflect, and provide feedback (Ruble et al., 2018).

The trial found COMPASS-T to be an effective process model for planning, implementing, and assessing transition skills that indicate statistically significant success. In the randomized trial, 67% of the students utilizing COMPASS-T achieved or surpassed their IEP goals compared to 18% of the control group. Additionally, students in the COMPASS-T group

were also more likely to exceed their goals. Research observers monitored fidelity throughout the trial to measure adherence to the program. The study found high fidelity in the initial contact (90%) and subsequent meetings (98%), which supported the hypothesis. While fidelity was strong in the teaching methods, the researchers suggested coaching for evidence-based teaching methods in some instances. The researchers emphasized that all parts of the COMPASS-T process were integral to student success, and the process should continue even if the student has achieved their goals (Ruble et al., 2018).

Transitioning Together, another family-based program, involves a multi-family group intervention using psychoeducation. Kuhn et al. (2022) partnered with the Center on Secondary Education for Students with Autism Spectrum Disorder (CSESA) to complete a RCT of Transitioning Together in the high school setting. Transitioning Together had been previously tested in a clinical setting with positive results, but the researchers aimed to measure the intervention in a public-school setting. The also study worked to identify facilitators to the program, barriers to adopting Transitioning Together, and the level of fidelity to the program once adopted.

A total of 17 schools with 181 participants adopted Transitioning Together while 13 schools chose not to participate. The schools involved were geographically diverse and included a variety of socio-demographic settings. Staff members at each school were provided with a coach and training to implement the Transitioning Together program (Kuhn et al., 2022).

Transitioning Together required schools to hold a preliminary “joining” session followed by eight 90-minute sessions. Each session followed a specified routine. Schools were able to include a co-facilitator from the community, such as a non-profit or university, to assist

with the program. The CSESA coach took notes at each meeting about barriers and facilitated the program agenda (Kuhn et al., 2022).

The researchers looked for correlates among schools that adopted the Transitioning Together program. Adaptive behavior skills were measured through the Vineland II Adaptive Behavior Composite. School Community Socio-economic Status (SES) was derived from the US Census Bureau Neighborhood SES Index. School staff attitudes towards EBP were measured to determine staff acceptance of EBPs through the Evidence Based Practices Attitudes Scale (EBPAS). The researchers measured the quality of transition planning in the school environment and inclusion of families through the Autism Program Environment Rating Scale-Transition Planning and Family Involvement sub-scale (APERS-TF). Schools with higher SES were more likely to trial the program than schools with lower SES. Schools with higher quality programs for students with ASD who scored higher on the APERS-TF assessment were also more likely to trial the program. Vineland II and EBPAS scores were not significant correlates to participation in Transitioning Together (Kuhn, et al., 2022).

Some schools encountered barriers to participation in Transitioning Together. Common barriers that led to opting out of the program included difficulty finding a program facilitator, low levels of interest by families of students, and budgeting. Budgeting concerns derived from school contracts that prevented staff from obtaining over-time pay for evening hours (Kuhn et al., 2022).

Participating schools had over 90% fidelity when implementing the Transitioning Together program. Fidelity implementation was measured through the percentage that each school followed the required steps of the process. Common diversions from the process



included not following lesson structure, failing to collect required feedback, and inconsistently executing the problem-solving sessions. Two schools did not meet for the full 90 minutes. One school invited ineligible student families to join the program, and one school failed to invite guest speakers (Kuhn et al., 2022).

At the end of the trial, parent feedback was collected through a 10-question survey. Parents rated satisfaction positively. Parents agreed or strongly agreed about the ease of the program. They also *agreed* or *strongly agreed* that the process was acceptable and useful (Kuhn et al., 2022).

When exploring family-led planning, Taylor et al. (2017) acknowledged the role of parents as the central figure in the life of a young adult with ASD. The researchers aimed to judge the feasibility, acceptability, and treatment fidelity of a 12-week parent focused program relating to transition topics. Volunteer Advocacy Program – Transition (VAP-T) involves a series of workshops related to navigating adult disability services for parents of young adults with ASD. The researchers hypothesized that the VAP-T program would increase parent knowledge and comfort in transition topics leading to a higher level of empowerment for the whole family.

The researchers performed a RCT to test the efficacy of the VAP-T program. Parents of transition age youth were eligible to apply for the trial. Eligibility requirements included a medical or educational diagnosis of ASD, residency in the state and metro area of the test sites, and availability to attend 12 weekly sessions. In total, 41 parents participated in the trial. Twenty families took part in the treatment group while 21 families were placed in the waitlist control group. Participating parents from both groups completed a series of assessments including a demographic survey, the SRS-2, the Rochester Health Interview (to measure co-

occurring diagnoses), the Vineland-II, the Stanford-Binet-5 Scales of Intelligence, and the Family Empowerment Scale (FES) (Taylor et al., 2017).

The VAP-T program included 30 hours of advocacy training led by a licensed social worker with specialized training in person centered planning. Each weekly session included one to three topics including person centered planning, secondary education, post-secondary education, financial support, employment, Medicaid, planning, medical services, and advocacy. Each session incorporated instruction, activities, case studies, and group discussions. Parents were given binders with information to use in the future. Sessions took place at three in-person sites. The main location had live speakers while the two secondary locations webcast the main site in a group setting. Parents also had availability to watch session in real-time or watch recorded versions. Fidelity for each session was recorded by multiple observers. Observers rated whether the sessions met the learning targets completely, partially, or not at all. Learning targets were fully met at eight of the sessions. The remaining four sessions had at least one partially met learning target (Taylor et al., 2017).

The researchers rated attendance and acceptability through exit surveys at each session. Most parents had full participation (75%). Although some parents missed sessions, all but one participant accessed missed information either through home webcast or recorded videos. Parents rated the sessions positively. Two-thirds of the parents indicated that they were *highly satisfied* or *satisfied* with all sessions. For nine of the sessions, 80% of parents indicated high satisfaction (Taylor et al., 2017).

At the end of the program, Taylor et al. (2017) reported that the treatment participants were more knowledgeable, had greater skills comfort, and felt more empowered

than the control group. The treatment group showed a large effect size when calculating for knowledge and skills comfort gain. The study noted a significant but reduced empowerment increases with an effect size *approaching large*. While this study focused on parents as stakeholders, the instruction provided to parents emphasized youth determination and youth centered planning. The researchers believed that increased parent advocacy would further increase student advocacy.

The transition to adulthood can be more difficult in rural communities where there are limited resources available to students with ASD. Eastman et al. (2021) described a program intervention in a small town in the Midwest for students with all special education disabilities, including ASD. The study evaluated the success of the program changes in the rural community.

Special education teachers redesigned the transition program of the small town emphasizing the five quality indicators for transitional programming suggested in a prior study (Eastman et al., 2021; Morningstar et al., 2010). In a prior study, Morningstar et al. (2010) evaluated self-determination use in components of high school programs. Eastman et al. (2021) used the elements to successful transition programming as described by Morningstar et al. (2010): interagency collaboration, student-centered programming, curriculum and instruction based on post-school outcomes, family involvement, and student self-determination.

The rural school program emphasized self-determination in the transition process. IEP teams encouraged self-advocacy. When working with families, special education teachers relied on family intergenerational relationships and the communities which are positive components of the rural environment. Teachers trained families and outside agents to accept student self-advocacy in planning (Eastman et al., 2021).

Eastman et al. (2021) also emphasized inclusion, co-teaching support, VRS collaboration, daily instruction on transition and work skills, and electronic student portfolios in their redesigned program. Students attended general education classes for the majority of their day. Daily life skills or transition classes were exceptions to inclusion. In life skills classes, students learned about the transition process, engaged in a range of transition topics, were introduced to VRS, completed transition assessments, and worked towards post-secondary goals. Agency support was emphasized throughout the high school experience. Students learned about employment opportunities through VR counselors and a local workforce coordinator. Students kept all key work and assessments in electronic student portfolios to use like a resume or documented support throughout their transition to adulthood.

When learning vocational skills and practice, the rural school faced barriers. The school did not have a Work-Based Learning Coordinator and had to rely on the special education teachers to assist students. The school was also located one mile outside of the small downtown area of the community which limited volunteer work opportunities for the students. To face this obstacle, the special education teachers applied for funding to create and manage a coffee kiosk for the students to run within the high school. The kiosk could allow for students to gain work skills in realistic scenarios (Eastman et al., 2021).

Eastman et al. (2021) emphasized the success of the program changes in the rural school. Prior to the changes, 67% of graduates had employment or enrollment in a post-secondary institution, and no students were applying for VRS. After the program changes, 100% of students graduated with either employment or enrollment in a post-secondary institution,

and 30% of the graduates had VR services. The researchers suggested increased collaboration with families, and further research related to rural transition programming.

### **Self-Determination**

Self-determination involves an individual setting and pursuing their own goals. Dean et al. (2021) trialed a program that combined self-determination with career design. The Self-Determined Career Design Model (SDCDM) is a specific method of instruction for individuals to develop and work towards goals in the area of vocational skills or employment and is considered a promising practice. The researchers aimed to test the feasibility of SDCCDM with young adults who have ASD. The study also explored the impact of occupational performance, goal attainment, self-determination, and employment when engaging in SDCCDM.

Participants were recruited through the Autism Society of the Heartland in Kansas. Twenty-two participants aged 14-23 with ASD signed up for and completed the trial. Most of the participants were male (68%) and white (72%). Almost half of the participants had co-occurring diagnoses (44%) which included ADHD, anxiety, and depression. None of the participants had an Intellectual Disability (Dean et al., 2021).

Participants met with facilitators in their homes or in the community to complete the SDCCDM. In the first meeting, the facilitator described the process, gained consent for the additional sessions, and used the Canadian Occupational Performance Measure (COPM) assessment to list needed functional activities. Participants chose one of five listed activities to accomplish. The Goal Attainment Scale (GAS) was used to measure goal attainment. Participants listed a wide range of outcomes that would demonstrate personal goal attainment.

The Arc's Self-Determination Scale (SDS) was used to measure self-determination in the process (Dean et al., 2021).

Facilitators and participants met for four to 14 sessions to complete the model. During the subsequent sessions, facilitators worked through 12 Person Questions in a 2.5-month time span. Three phases of the model occurred cyclically: Person Questions, Facilitator Objectives, and Employment Supports. Each phase relied on young adult input for completion. The problem-solving sequence required the young adults to identify a problem, list possible solutions to the problem, identify barriers, and acknowledge consequences to each solution (Dean et al., 2021).

Dean et al. (2021) determined that SDCDM was feasible and appropriate for young adults with ASD. Although the number of sessions varied per individual, all participants completed the 12 Person Questions during their sessions. The researchers used satisfaction reports to evaluate self-reported approval of the model. Participants listed SDCDM as useful and stated that they gained skills during the process. The COPM showed gains in occupational levels. According to the GAS, 95% of the young adults met or exceeded their listed goals in the study. Most young adults aimed to explore career choices or work towards employment. Other goals included increasing self-management skills, enhancing learning, and increasing self-advocacy skills. No significant changes were found in self-determination levels or employment. The researchers noted that self-determination skills and obtaining employment were hard to measure in the short time-frame of the study and would typically take a year to develop.

### **Independent Living Interventions**

Aljehany and Bennett (2019) completed a meta-analysis of established research involving Video Prompting (VP) for instruction of daily living skills to evaluate the effectiveness for students with ASD. Video-Based Instruction is an established EBP for students with ASD. The researchers defined VP as video displayed instruction with voice over narrative. VP with additional prompting or error correction was also included in the definition. The study aimed to validate the use of VP in functional settings such as independent living or vocational activities (Aljehany & Bennett, 2019).

Aljehany and Bennett (2019) limited their study to include peer reviewed articles from 1991-2017 using VP, including at least one student with ASD, with daily living skills included. Each article reviewed also used Single Case Research Design (SCRD) and met the standards of Institute of Education Services and What Works Clearinghouse (WWC) standards with SCRD standards with or without reservations. Literature reviews and qualitative research were excluded. The study reviewed 955 articles from four databases: Education Resources Information Center (ERIC), EBSCOhost, PsycINFO, and PsychARTICLES. A total of 32 articles met the inclusion criteria and included 54 participants. The researchers compared the articles to WWC SCRD standards using Interobserver Agreement (IOA) to calculate the percentage of agreements and disagreements. Seventeen articles were kept for further analysis with an IOA of 98.7% (Aljehany & Bennett, 2019).

The researchers quantified the Effect Size (ES) of VP when teaching daily living skills to students with ASD. Qualitative analysis was completed. Qualitative independent variables included participant demographics, the study location, VP intervention details, targeted daily living skills, the form of SCRD used, and the statistical data analysis (Aljehany & Bennett, 2019).

When exploring qualitative independent variables, the researchers found that participant age, VP intervention details, and participant disability were significant. Participants were separated by age into early childhood, elementary, secondary, and adult groups. The early childhood and secondary groups showed moderate ES results while the elementary and adult groups showed large ES. After incorporating the confidence interval, all groups showed a high-moderate ES; however, the results remained significant because they were stronger than previous studies. Most VP interventions in the article (70.6%) included VP without additional prompting or error correction. When separating for disability, VP used with student with ASD fell into the large ES range. Use of VP for students with both ASD and ID fell into the moderate range. VP with prompting or error correction showed a higher ES only when used with participants diagnosed with both ASD and ID (Aljehany & Bennett, 2019).

The results of this study showed that VP had an ES that was in the moderate upper-range. The results were similar to previous meta-analyses and illustrated that VP continued to be an effective strategy for students with ASD when targeting daily living skills. The study emphasized that educators and stakeholders should use VP with transition-age students. The researchers suggested that VP with error correction should be used for students with both ASD and ID but cautioned practitioners to follow procedures and incorporate fading supports (Aljehany & Bennett, 2019).

While VP provides a visual and audio form of prompting, work systems provide a set of visual information that can assist in engagement in an activity for an individual. Sreckovic et al. (2020) sought to determine if independent work systems implemented through parent guidance would increase daily living skills task initiation and task completion. Work systems



provide visual information with detailed instructions delineating specific steps for a task and have been an EBP for working with individuals with ASD since the 1970s. Parent implementation, which is also an EBP, was chosen for the trial structure to allow the participants to apply work systems in their homes.

Three young adults and their mothers consented to the study. Eligible participants had an ASD diagnosis, were age 10-19 years, lived with a caregiver, could identify a household task to target, and consented to the study. Two participants were male. All participants were white and had average intelligence. Each participant specified a different independent living task to accomplish at home (Sreckovic et al., 2020).

The intervention was completed in three parts. After daily living tasks were identified for each participant, the research team developed individual work systems. Next, parents were trained for 45-minutes on how to implement the work system and were instructed to give verbal or gestural prompts to assist when needed. Finally, the work system was introduced to the participants. Participants learned about the task and became familiar with all required tools before determining baseline performance levels. One researcher was present during all phases to video record and observe the tasks. After the baseline phase, the work system was introduced to the young adults. Each task involved individualized instructions with step-by-step descriptions on how to complete the activity. Each work system met the sequencing and visual needs of the participant. Individual work systems included a number of steps including if/then language that did not require completion each time. One follow-up visit was completed a month after the intervention phase to evaluate skill retention (Sreckovic et al., 2020).

Two variables were separated in this study: task initiation and task completion.

First, the researchers examined task initiation. Observers gave positive marks for tasks initiated by the young adults using the work system without a prompt. Task completion was tracked separately and earned a mark when the young adults completed the task without prompts or assistance (Sreckovic et al., 2020).

Sreckovic et al. (2020) also measured the social validity of this process. Caregivers were given surveys at the beginning and the end of the trials. Both surveys used a five-point Likert scale. The first survey included questions about the importance of daily living tasks and the skill levels of the young adults. The second survey included eight questions reflecting on the perceived success of the work system trial.

The results of this study showed that work systems effectively increased task initiation and task completion for the young adult participants with ASD. All participants had immediate increases in both variables when using the work systems. Task initiation proved to have a functional relationship with the work systems used. Task completion increased but did not have a functional relationship to work system utilization. While completion rates rose to similar levels of task initiation, task completion data for one student remained variable and prevented a functional relationship (Sreckovic et al., 2020).

Sreckovic et al. (2020) emphasized that work systems are a vital intervention for young adults with ASD. The researchers asserted the importance of functional and adaptive skills for developing independence. Social validity results showed that caregivers indicated the importance of daily living skills as well. Caregivers also agreed to the usefulness of the trial in

their final survey. The researchers noted that the study was completed with low tech equipment but could also be used with high tech equipment such as iPads.

### **Vocational Interventions**

Peer Mediated Interventions (PMI) are an established EBP when working with students with ASD. Athamanah and Cushing (2019) tested the use of PMI in a high school Work Based Learning (WBL) setting. The study aimed to evaluate the impact of both independent vocational skill improvement and social skills through PMI implemented during vocational activities. The researchers believed that students with ASD would improve in both areas when working with peers.

Three student pairs were selected from two high schools in a midwestern metropolitan school district for this trial. Students eligible to receive the intervention were between the ages of 14-18, had an educational diagnosis of ASD, and participated in state alternative testing. All students with ASD performed the vocational jobs for four months but still needed assistance to perform the tasks. Peers were selected on a volunteer basis. Peers were required to be between the ages of 14-18, not have an IEP, and register for the PMI program. The dyads were paired together based on age, interests, personality, and schedule (Athamanah & Cushing, 2019).

The students chosen for the trial intervention were significantly impacted by ASD. All three students were male and learned in self-contained special education classrooms. The three students had communication needs. One student used an iPad for communication. All three students with ASD struggled in interactions with peers. Two of the three typically did not respond to peer-initiated interactions. The third student enjoyed peer interactions but needed

help initiating interactions. The students were placed into jobs that met their skill levels. One student performed a school mail delivery job sorting mail into baskets and using a cart to deliver mail to staff members. The other two students worked coffee cart jobs requiring many steps including taking orders with a visual menu, making the requested coffee orders, delivering orders using a cart, and cleaning up materials. All students required prompts to complete the tasks. Only one of the three peers had experience with PMI and students with ASD (Athamanah & Cushing, 2019).

The researchers explored three dependent variables in the study: independent engagement, social interactions, and quality of social interactions. Independent engagement measured tasks initiated by the student without prompts. Social interactions included verbal or nonverbal interactions with the peer. Quality of Social Interactions were measured separately on a five-point Likert scale. Each working pair completed a baseline phase before beginning the PMI. During the baseline phase, the students were trained for the activity, but the peers were given no instructions in interventions. When pairs had a stable set of data, the peers were trained in the interventions. Peers were taught modeling, prompting, scaffolding, and individualized strategies for the students. Following the training, a researcher worked with the peer until the peer demonstrated 100% fidelity. The 16-week intervention phase followed. Peers were expected to follow the PMI strategies (Athamanah & Cushing, 2019).

During this trial, each working pair progressed with independent engagement and social interactions. Fidelity for all three pairs was over 92%. One student had variable data but showed progress, especially in task initiation where he increased from 7.5% to 56.8%. The two students working coffee cart jobs showed progress as well. The social interactions of one

student with the coffee cart job improved from 21.6% to 54%. While all three pairs increased performance, the quality of social interactions only slightly increased during the 16 weeks.

Athamanah and Cushing (2019) asserted that peers could effectively implement interventions and believed that this PMI could improve the post-school employment success of the students with ASD.

Social skills curricula and job training programs are common elements in transition-age programming; however, there is a gap in curriculum that combines the topics. Gorenstein et al. (2020) tested a developing program that incorporates social skills into vocational training. Job Based Social Skills (JOBSS) borrows elements from two existing programs: Interview Skills Curriculum and JobTIPS with the goal to deliver social skills instruction within the workplace for students with ASD. The researchers believed that the JOBSS program would improve social skills and post-treatment rates of employment for participants.

The researchers recruited participants between the ages 18-45 through local community centers in 2015 and 2016. To be eligible for the trial, individuals had a medical ASD diagnosis and a verbal IQ above 70. Twenty-two participants applied for the trial. All applicants completed a cognitive assessment (WAIS-IV) and an adaptive functioning assessment (Vineland-II). The researchers sorted applicants into treatment and control groups. While the groups were randomized, assessment scores were used to ensure balance in the groups. The treatment group and their caregivers completed additional assessments: SRS-2 and Reading the Mind in the Eyes Test (RMET) before proceeding to the trial. The control group remained on a waitlist for an expanded version of the study (Gorenstein et al., 2020).

The treatment participants engaged in a 15-week group-delivered instruction of JOBSS. All lessons used session-by-session scripts with worksheets and visual aids. Lessons were developed with a cognitive behavioral therapy approach and followed a strict agenda. Topics covered in the sessions included emotional regulation, problem-solving, conversation skills, interview skills, and hidden social rules. While the curriculum was developed for general use, a clinical psychologist executed the trial to ensure program fidelity (Gorenstein et al., 2020).

The study showed improvement in social cognition and a reduction of ASD symptoms. The researchers used the initial participant assessments for baseline data. At the end of the 15 weeks, participants and caregivers repeated the SRS-2 and RMET. The SRS-2 measured symptoms and severity of autism. Participants received lower scores at the program conclusion showing less noticeable ASD symptoms. Improved scores included areas such as understanding jokes and interpreting language of others. The RMET assesses Theory of Mind or the capacity to understand the meanings of others. In the RMET, participants viewed at a set of 36 pictures of eyes to determine the intent and meaning of the person in the picture. Participant scores on RMET did not increase with significance (Gorenstein et al., 2020).

Participants and caregivers received follow-up surveys six months after completion of the program. In the surveys, five out of 11 participants indicated gains in employment and were either hired or received an increase in working hours. Three out of the 11 participants decided not to pursue employment after engaging in the curriculum. Participants and caregivers rated the program favorably and remained satisfied with the material and knowledge gained (Gorenstein et al., 2020).

The study showed favorable results and indicated that a larger trial of the program should proceed. Gorenstein et al. (2020) noted that some participants did not self-report a noticeable gain in social skills; however, caregivers of the participants indicated significant increases in social skills through the program experience. The researchers suggested that participants may have had a limited perception of their own social skills and planned to adjust post-treatment surveys in the future.

Smith et al. (2021) also worked to improve interview skills of transition-age students with ASD. Smith et al. recognized that interview skills were a barrier to employment for students with ASD. The research team tested the use of Virtual Interview Training for Transition Age Youth (VIT-TAY). The study aimed to test VIT-TAY for feasibility, effectiveness, and employment outcomes for students with ASD in the high school setting. The researchers hypothesized that the program would increase skills in students and reduce anxiety related to interviews.

The Randomized Control Trial included five school partners teaching high school pre-employment skills to transition age youth. The schools were diverse in demographics and setting. Eligible participants were diagnosed with ASD, scored 60T or higher on the SRS-2, and read at a 3<sup>rd</sup> grade level. Prior to engaging in the trial, teachers and caregivers completed the SRS-2 and a behavioral assessment. Participants in both groups took a knowledge pre-test. A total of 71 students were sorted into two groups. The treatment group had 48 students and engaged in both pre-employment services and VIT-TAY. The 23 control group participants engaged in only pre-employment services (Smith et al., 2021).

After admittance into the treatment group, students engaged in a 15-week interview skills course. The VIT-TAY allowed students to repeatedly practice applying and interviewing at a fictional business, “Wondersmart.” Each 45-minute session included self-guided materials and virtual interview sessions. Virtual interview sessions were scaffolded based on difficulty level. Easy interviews incorporated four skills: confidence, positivity, professionalism, and job interest. After success in easy interviews, participants began medium interview skills. Medium interviews added three new skills: honesty, dependability, and the ability to work well with others. Hard interviews were completed last and included three additional skills: sharing strengths and skills, sharing past experiences, and sharing limitations. Feedback was provided by an on-screen coach, color-coded transcripts, algorithm scores in each skill, and a performance video containing a qualitative review (Smith et al., 2021).

Smith et al. (2021) explored treatment acceptability using the Treatment Acceptability Rating Form. VIT-TAY was found to be highly acceptable. All students made progress during the treatment course. Students spent an average of 211.3 minutes in interviews during the program. More than half (60.8%) progressed to complete hard interviews during the 15-week course with some students completing multiple hard interviews.

Effectiveness of VIT-TAY was measured through increased scores of the pre-test/post-test results and completion of mock interviews with researchers. Student scores in the treatment group improved more than the control group for both the likeliness of being hired and the job interview skills total score. Students also completed the Personal Report of Public Speaking Apprehension assessment to determine anxiety levels during mock interviews. Students who completed the VIT-TAY program had reduced anxiety compared to students in



the control group. The researchers emphasized the significant improvements for the VIT-TAY group in interview abilities, confidence, and reduced anxiety (Smith et al., 2021).

Smith et al., (2021) compared employment outcomes for both groups in a six-month follow-up. Students who completed VIT-TAY were more likely to have gained competitive integrated employment. The treatment group also spent more time looking for employment than the control group, although both groups engaged in roughly the same number of interviews.

### **Employment-Based Programs**

With a goal to enhance employment attainment upon graduation, Wehman et al. (2019) worked to integrate internship experiences into the transition setting with a supported employment program. Supported employment is an evidence-based employment strategy. In supported employment, individuals with disabilities are guided through the job seeking process by facilitators who create individual profiles, develop job skills, perform on-the-job training, and provide long-term support, if needed. Project SEARCH is an established international transition-to-work internship program using the supported employment approach.

The researchers completed a RCT using a modified version of the Project SEARCH program for students with ASD. Project SEARCH + ASD (PS-ASD) was an enhanced modification of the program supports with additional supports for students with ASD. Additional supports included social communication practice, additional visual cues, behavior support, and instruction of social regulation strategies. The study followed the second RCT performed on the PS-ASD program. The goal of the trial was to determine the level of improvement to

competitive integrated employment (CIE) outcomes for transition-age students with ASD who engaged in the PS-ASD program (Wehman et al., 2019).

Participants were recruited from four public schools in Virginia. Participants needed a diagnosis of ASD; attend public school and remain eligible throughout the program; show functional independence, maintain eligibility for Vocational Rehabilitation (VR) funding, and consent to the program. A total of 156 students participated in the project. Eighty-one students engaged in the PS-ASD trial, while 75 students were selected for the control group. The control group participated in traditional transition-based programming with an average of 8.9 hours of employment training a week. PS-ASD students experienced a combination of classes and internships for a period of nine months. During this time, PS-ASD participants rotated through three different internship positions at four area hospitals to gain work experience and hone their skills. PS-ASD participants engaged in 35 hours per week of community-based employment training (Wehman et al., 2019).

Team collaboration was emphasized in the PS-ASD program. Teams, including families, teachers, VR counselors, and job coaches met monthly to discuss training and goals. At the end of the program, graduates presented their experiences to the team highlighting their strengths, future goals, and areas of continuing need. Each graduate left the program with the goal of attaining a job. VR counselors and community-based job coaches led the team that assisted the graduates in finding a job to fit their skills (Wehman et al., 2019).

The results showed a significant impact in competitive integrated employment outcomes for the students who engaged in PS-ASD. Students in the trial were 5.84 times more likely to obtain a job at graduation than students in the control group. Of the students who

gained employment after PS-ASD, 32% had significant support needs. Students who were hired after PS-ASD worked for an average of 19.36 hours per week and were paid an average of \$9.61 per hour. Many participants dropped out of the control group, but the four who remained worked fewer hours (either 2.25 or 21.5 hours per week), were paid less than \$9.00 per hour, and took twice as long to get hired. Most jobs obtained by the PS-ASD participants were part-time or entry level. Although the students interned in area hospitals only 32% remained in hospital settings after graduation (Wehman et al., 2019).

Wehman et al. (2019) emphasized the success of the PS-ASD participants. The study found that transition-to-work programs were impactful in increasing competitive employability for students with ASD. The researchers noted the instruction, personalized training, and seamless transition into adult services. Students were able to graduate with work experience, resumes, and an ability to focus on meeting the needs in an employment setting.

Employment experiences build student resumes and increase post-graduation outcomes. McConnell et al. (2018) explored a summer program provided through the Department of Rehabilitation Services (DRS) for high school students with disabilities. The researchers used previously collected survey data from students, parents, and partnering business from DRS to complete a descriptive study about the program experiences. The researchers aimed to determine the level of preparation received by the students and if student fears of future employment were alleviated through the program. The study also examined business partner responses to the program.

Innovation Jobs, or iJobs, was a transition-based service for high school students in the months of June and July. The program incorporated eight evidence-based practices: job-

related social skills training, banking skills, job specific employment skills, job application completion, employment skills using community-based instruction, life skills, cooking skills, and teaching families about transition. Students were eligible to participate in the program if they had a disability, were a client of DRS, were aged 16 or older, and intended to return to high school the following year. Students needed to apply and interview to participate in the program. Over the course of five years, 124 students from 29 different high schools participated in the program at five locations. Thirty-three percent of participants had ASD (McConnell et al., 2018).

While at iJobs students attended classes and participated in community-based work experiences. Program classes included a variety of transition topics including financial literacy, soft skills, cooking, and work skills. Students in the program also completed resumes, practiced interview skills, and learned how to look for a job. Students were matched with paid jobs in the community based on strengths, preferences, and ability. (McConnell et al., 2018).

The researchers analyzed pre- and post- surveys completed by students and parents. When asked about preparedness for employment in the community in the pre-survey, 53% of students felt prepared. Only 26% of parents felt that the students were prepared, but 58% stated that their child was partially prepared for community-based employment. After completion of the program, 99% of students and 97.9% of parents stated that the participant was prepared for employment. Students were not specifically asked about confidence when working in the community. However, 94% of students marked that they were very satisfied in the program. When directly asked about the alleviation of reservations, 87% of parents stated that they were more confident than prior to the program. While the surveys indicated positive

responses to employment participation, variable answers were noted for classroom-based topics. The surveys indicated positive results in the areas of banking, applying for jobs, and interviewing for jobs; however, students and parents did not indicate increases in navigating public transportation and cooking (McConnell et al., 2018).

Post-survey results from participating businesses showed positive perceptions of value. When asked if students began to demonstrate qualities of a model employee, 75% of businesses agreed. A total of 90% of businesses stated that the participating student performed their job well. Half of the businesses would consider hiring the student, while 10% noted that they would definitely not hire the student. Most businesses indicated that they would be willing to participate in the program in the future (McConnell et al., 2018).

The study illustrated the perceived value of summer employment programs for students with disabilities. McConnell et al. (2018) noted the high satisfaction rates from both students and families. The researchers felt more research should be completed regarding summer programming and emphasized that work experiences before graduation increased post-school employment outcomes for students with disabilities.

## Chapter III: Discussion & Conclusion

### Summary of Literature

Since 2004, the Individuals with Disabilities Education Act (IDEA) has required public schools to include transition services as part of the Individualized Education Program (IEP) for students who receive special education services (Individuals with Disabilities Education Act, 2004). Transition services begin by the time a student turns 16 and are mandated to assist students with obtaining individualized postsecondary outcomes including post-secondary education, employment, and independent living. Students who are unable to graduate high school based on credits can attend transition programming until the June after their 21st birthday (Individuals with Disabilities Education Act, 2004). Established research has proved that students with autism historically have lower postsecondary success rates than other students with disabilities (Bouck & Park, 2018; Kraemer et al., 2019).

While public school settings have been found to meet the minimum standards for students with ASD (Kraemer et al., 2019), demographic variables are a significant factor towards post-school outcomes. Due to the diagnosed population, females were not featured in many studies. However, Holmes et al. (2018) showed that parents held lower future expectations for female compared to male students and prioritized caretaking or home skills over employment skills. When looking at race, parents attended more IEP meetings and held greater future expectations for Caucasian students (Griffin et al., 2014; Holmes et al., 2018). African American students were least likely to attend IEP meetings, participate in IEP meetings, or discuss post-school outcomes at home (Griffin et al., 2014). African American students were less likely to attain employment or obtain job search services through VR services (Roux et al.,

2020; Roux et al., 2021). Parents also had lower expectations of students with lower adaptability and functional skills and began planning for the future at a later age (Griffin et al. 2014; Reyes et al., 2022). Studies also showed that students may face barriers or reduced services outside of metropolitan areas (Eastman et al., 2021; Kraemer et al., 2019). Student planning levels, expectations, and outcomes increased each year by age in multiple studies (Bouck & Park, 2018; Reyes et al., 2022; Wong et al., 2020).

Planning and goal alignment are also important factors to student success. Students should have IEP and transition goals that help forge the path to post-school outcomes. Multiple studies showed that most students wanted to attain traditional goals such as post-secondary education, employment, and living autonomously (Anderson et al., 2016; Sosnowy et al., 2018). Hume et al. (2017) illustrated that parents, teachers, and students tended to prioritize similar items. However, goals listed as important to stakeholders were not necessarily common IEP goals for students (Hume et al., 2017). When properly aligned, students are more likely to attain their goals. For example, one study found that students with a primary post-secondary education goal were the most likely to attend two-year and four-year colleges (Wei et al., 2016). Student perspective and self-determination are important when determining individualized goals and help increase intrinsic motivation students (Dean et al. 2021; Eastman et al., 2021).

Parent participation in the transition planning process is a critical factor for student success and proper goal alignment. Griffin et al. (2014) showed that parent involvement in meetings and transition plan discussions at home were critical elements to student success. Ruble et al. (2019) demonstrated the importance of the teacher-parent alliance when planning

and attaining goals. Ruble et al. (2019) also showed that transition goals such as competitive employment or future living plans often depended on parent or student implementation rather than educators due to the intrinsic, budgetary, or community-based features of many transition goals.

Transition research-related evidence-based practices and programming is in a promising but emerging state. Some researchers have implemented previously used evidence-based practices in independent or vocational settings such as Video Prompting (Aljehany & Bennett, 2019) and work systems (Sreckovic et al., 2020). Planning practices and strategies feature student self-determination (Eastman et al., 2021; Dean et al., 2021) and family involvement (Eastman et al., 2021; Hagner et al., 2014; Kuhn et al., 2022; Ruble et al., 2018). Person-Centered Planning is the most established family planning process and involves individualized discussion of goal plans, barriers, and progress (Hagner et al., 2014). The COMPASS-T program is an example of a parent-teacher partnership to develop goals and practice generalization (Ruble et al., 2018). Both programs include increased parental involvement as a key feature, a proven factor to increase goal attainment (Ruble et al., 2019; Wei et al., 2016; Wong et al., 2020).

Researchers have also developed practices and programming to increase post-school employment outcomes. Social and interviewing skills are critical barriers for many students with ASD due to the high communication demands. Smith et al. (2021) trialed a social skills program, JOBSS, which featured communication and social skills used in the workplace. Peer Mediated Interventions in Work Based Learning settings increased communication over time via participating in realistic scenarios to practice skills (Athamanah & Cushing, 2019). Project



SEARCH is a larger internship-based program for transition-age students which has shown to increase participant employment outcomes (Wehman et al., 2019).

### **Professional Applications**

When considering transition program planning, administrators and educators should focus on awareness of options, self-determination, goal alignment and real experiences. Each of these focal points should feature both students and parents as key stakeholders. Educators will assist students in building a future path using these four research-based topics as cornerstones of the transition plans.

Educators should emphasize transition planning as soon as possible. Early stages of transition planning should focus on awareness of options, supports, and services. Educators should emphasize the importance the exploratory nature of early transition planning and expose both students and parents to all options available. Parents should be encouraged to discuss both high and low expectations for students. Students should be shown how small steps of skill building can lead to bigger goals of employment or post-secondary education.

Awareness needs do not dissipate as students age. Adult services are difficult to navigate and involve a shift in focus in the later academic transition years. Administrators should consider providing localized transition information about adult services including post-secondary education options, employment services, group home information, supported living apartments, and opportunities to participate in the community.

Self-determination is a skill that needs to be built over time. Educators need to encourage opportunities to practice self-determination at the start of secondary education. Educators can take advantage of the academic school environment to include choice, advocacy,

and problem solving. Early self-determination practices could include a menu of choices such as a choice board or encouraging self-advocacy with visuals such as a break card. As students build skills, educators should create authentic tasks that involve choice and problem-solving. When teaching transition skills such as cooking tasks, educators should fade assistance and allow students to safely fail when the opportunity arises. Examples of failure could include mistakes such as adding salt instead of sugar to a recipe, but these opportunities should always be followed by time and feedback allowing a student to problem solve or correct an action with the least amount of assistance as possible.

Student transition goals should lead towards or match the priorities of the student. IEP teams should be trained to listen and allow student choice. Students should be provided with adaptations and accommodations as needed. Student IEP goals should also focus on student needs in consideration of post-secondary choices. It is critical to individualize IEP goals and objectives with the purpose of scaffolding towards the larger transition goals.

Finally, students should engage in realistic experiences as much as possible. Life skills or transition classes are important features of transition programming and should include community-based experiences as much as possible. Parents should be encouraged to generalize and practice transition skills at home. Educators should communicate simple methods for practice by sharing classroom visuals and supports.

All students should practice employment skills while in school. Administrators should consider including both school-based vocational practice and community-based volunteer work during school hours. School-based practice could include a coffee cart or a school store. Community-based volunteer work could occur at a thrift store or a food bank. VR counselors

should be encouraged and introduced to students each year with a description of the benefits of services. Before a student graduates, students and families should be aware of Customized Employment and Supported Employment options.

### **Limitations of Research**

Most research available on students with autism used male and Caucasian participants. While these demographics match a bulk of the diagnosed population, studies without minority or female representation possibly exclude additional factors or responses to interventions. Many researchers noted the demographic discrepancies, but only one study extended extra effort to increase female representation (Holmes et al., 2018).

Many of the practices and programs discussed in the review are in the initial stages of development (Dean et al., 2021; Gorenstein et al., 2020; Kuhn et al., 2022; Ruble et al., 2018; Smith et al., 2021; Taylor et al., 2017) and will need to undergo future trials before becoming available for use. Kuhn et al. (2022) specifically noted that Transitioning Together may not be economically feasible in the public-school setting without further modifications. Manualized programs and technology-based programs will present a cost to schools possibly creating a barrier in implementation.

### **Implications for Further Research**

As previously mentioned, a vast majority of research used Caucasian and male participants although demographics showed that race and gender were correlated to post-school outcomes (Griffin et al., 2021; Holmes et al., 2018; Roux et al., 2020; Roux et al., 2021). Researchers should consider focusing on race or gender as dependent variables when considering post-school outcomes.

Future research should continue to trial and develop the emerging transition practices discussed in the review. Researchers should consider the limited budget of most transition programs. Programs such as Transitioning Together may be impractical with the use of co-facilitators and evening meetings (Kuhn et al., 2022).

### **Conclusion**

Supporting secondary students with ASD in the transition to adulthood involves a long-term, family-centered process. Educators should provide environments to allow student choice and self-determination while ensuring awareness of options. Students should be provided with practice and permission to fail. When available, students should engage in employment or vocational skills before graduation. With purposeful planning, strong relationships, and new emerging research, administrators and educators can work to narrow the gap in post-school outcomes.

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