Evidence on the Effectiveness of Programs, Models, and Strategies to Support Employment Outcomes of Young Adults on the Autism Spectrum

A Review of the Literature

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Contents

Acronyms

ABA	applied behavior analysis
ASD	autism spectrum disorder
ASSET	Assistive Soft Skills and Employment Training
BOOST-A	Better Outcomes & Successful Transitions for Autism
CLEAR	Clearinghouse for Labor Evaluation and Research
DOI	digital object identifier
DOL	U.S. Department of Labor
E-IDEAS	Empowerment of youth with Intellectual Disabilities through Education and training for Acquiring Employment Skills
ITS	interrupted time series
MAPSS	Maximizing Adolescent Post-Secondary Success
ODEP	Office of Disability Employment Policy
PS-ASD	Project SEARCH plus ASD Supports
QED	quasi-experimental design
RCT	randomized controlled trial
SCD	single case design
SSI	Supplemental Security Income
TEAM	Teens making Environment and Activity Modifications
VIT-TAY	Virtual Interview Training for Transition Age Youth
VR	Vocational Rehabilitation
VR-JIT	Virtual Reality Job Interview Training
VR-SCT	Virtual Reality Social Cognition Training

A. Introduction

The U.S. Department of Labor's (DOL), Office of Disability Employment Policy (ODEP) contracted with Mathematica to understand better the educational and employment challenges and opportunities faced by the growing number of young adults on the autism spectrum. In particular, ODEP seeks to identify effective programs and strategies to promote employment among young autistic adults.

In a recent literature review, we summarized programs, models, and strategies that support the transition to competitive integrated employment for young adults with developmental disabilities, including autism (Wissel et al. 2022). In this report, we build on that review to summarize the evidence on the effectiveness of those approaches. We also assess whether that evidence is growing, lacking, consistent, or divergent. Together, the two reviews will help DOL identify promising research opportunities it can pursue through the Research Support Services for Employment of Young Adults on the Autism Spectrum (REYAAS) project to improve employment outcomes for young adults on the autism spectrum.

The review and assessment we summarize in this report sought to answer five research questions:

1. Which approaches (programs, models, and strategies) improve employment outcomes for young adults with developmental disabilities, on what outcomes, and by how much?

2. What are the characteristics of those programs, models, and strategies, and the young adults and communities they serve?

3. How consistent is the evidence for similar approaches?

4. Which subset of approaches improve employment outcomes for young adults on the autism spectrum, what are the features of those approaches, and how consistent is the evidence for similar approaches?

5. Which subset of programs improve employment outcomes for young adults with developmental disabilities, and particularly those on the autism spectrum, in historically underserved communities, what are the characteristics of those programs, and how consistent is the evidence?

In the remainder of the report, we first describe the methods we used to select relevant evaluations. We then summarize the findings of the publications that met our search criteria. We conclude by highlighting themes and gaps from the findings. Appendix A lists the publications that met the inclusion criteria and we summarized in this report.

B. Inclusion criteria and search strategy

We conducted a literature search to support two literature reviews. For the first review, we identified 140 publications that described current and recent programs, models, and strategies that support employment outcomes for young adults with development disabilities (Wissel et al. 2022). We searched for literature meeting the following criteria:

- Written in English

- Published since 2011

- Describe employment programs, models, or strategies

- Serve a relevant population

- Implemented in the United States, Canada, the United Kingdom, New Zealand, or Australia

Of the 140 publications we reviewed in the first report, our team flagged 62 publications as potentially relevant for the current report because they reported impacts. For the current report, we reviewed each of the 62 publications against the following criteria:

- Rigorous impact evaluation design
- Relevant study sample
- Relevant outcomes

Of the 62 effectiveness studies, 48 used a rigorous impact evaluation design that could credibly estimate causal impacts. Our working definition of "rigorous" included quasi-experimental designs (QEDs), such as matched comparison group designs and other regression methods; randomized controlled trials (RCTs); interrupted time series analyses (ITS); and single-case design (SCDs).[1]

All the studies in Wissel et al. (2022) had a relevant study sample. That is, those publications studied programs that serve or target services to people ages 16 to 24 who have developmental disabilities. We included programs that serve broader populations if we could reasonably assume that most of the recipients are ages 16 to 24 and have developmental disabilities (for example, a program for people ages 18 to 28 with developmental disabilities).

Six of the 48 effectiveness studies using a rigorous impact evaluation design reported impacts on employment or a closely related outcome (job attainment, job retention, job duration, full or part-time status or hours worked, earnings, and credential attainment). In addition, 11 publications without a rigorous impact evaluation design reported impacts on employment, for a total of 17 studies with impacts on employment or related outcomes.

Figure 1 outlines the number of studies we categorized into each of the following groups: rigorous impact evaluation design with employment outcomes, rigorous impact evaluation design with non-employment outcomes, non-rigorous impact evaluation design with employment outcomes, and non-rigorous impact evaluation design with non-employment outcomes. We focus on the first group in this report but also describe high-level findings from the other groups.

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[1] DOL's Clearinghouse for Labor Evaluation and Research (CLEAR) publishes guidelines for rating the quality of evidence for RCTs, ITS analyses, comparison group designs, and other nonexperimental causal designs (CLEAR 2015). We have included SCDs because they are a common research design for programs that tailor to individuals' needs or where comparison groups are difficult to study. The U.S. Department of Education's What Works Clearinghouse (WWC 2020) counts SCDs as rigorous designs, and we followed their rating guidelines. We did not conduct a thorough review of each of the study designs against the CLEAR or WWC guidelines. Instead, we noted any features of the design that might indicate major flaws warranting the lowest ratings according to those guidelines. We did not consider correlational or descriptive studies, such as record reviews or implementation studies to be rigorous impact evaluations based on the CLEAR guidelines.

Figure 1. Count of studies that did and did not meet inclusion criteria
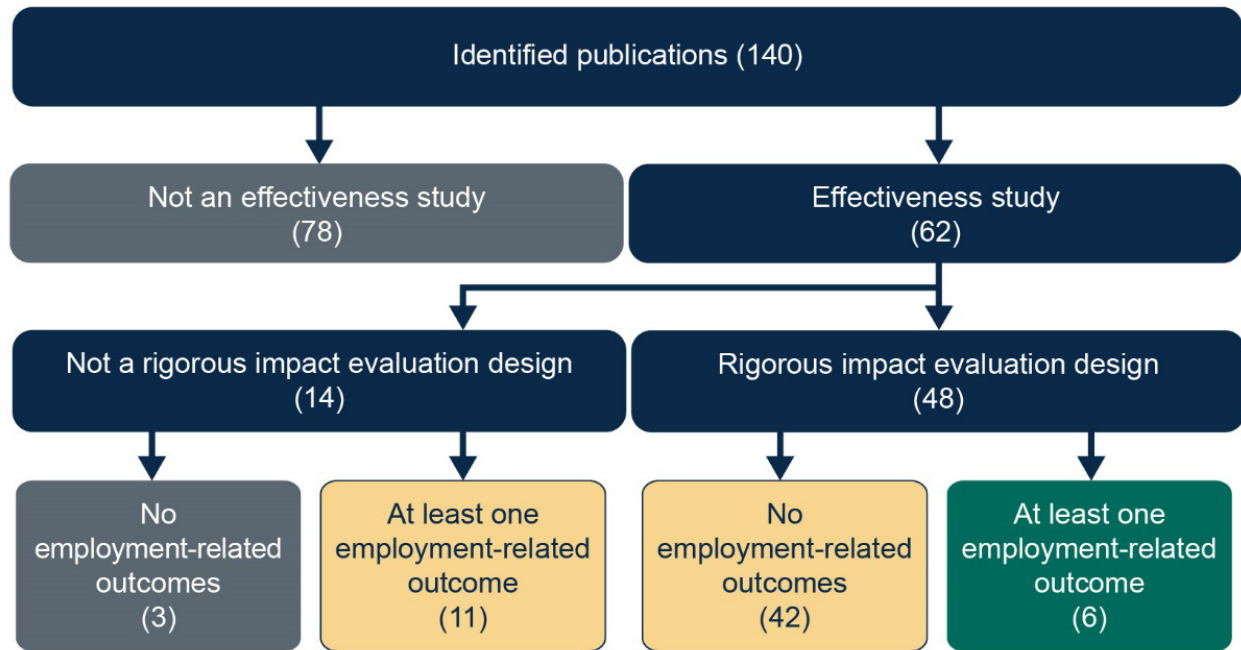
C. Findings

1. Overview of studies that met search criteria

Of the six publications that met the search criteria, five used RCT designs and one used a QED. All six publications examined the effects of employment programs for autistic young adults, representing several different programs. Three of the publications examined a version of Project SEARCH, a popular transition-based employment model adapted to serve youth on the autism spectrum.[2] Of the three remaining publications, one focused on Vocational Rehabilitation (VR) services and two focused on a virtual interview training program. In each publication, researchers measured whether participants either secured or retained employment (see Table 1). One study also reported hours worked per week and hourly wages among employed participants but did not estimate the impact of the program on these outcomes (Wehman et al., 2020). None of the other studies measured other employment-related outcomes such as earnings or credential attainment. The three Project SEARCH plus ASD Supports (PS-ASD) studies were all conducted by a single research group. The two virtual interview studies were both conducted by another single research group. In this section, we describe the methods and findings of each of these studies.

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[2] See Appendix B for key differences between the original Project SEARCH model and the modified model focused on youth on the autism spectrum

Table 1. Studies eligible under search criteria

Program	Authors / year	Title	Research design and sample description	Results[a]
Project Search plus ASD Supports (PS-ASD)	Wehman et al., 2014b	Competitive Employment for Youth with Autism Spectrum Disorders: Early Results from a Randomized Clinical Trial	RCT with individual random assignment; sample of young adults on the autism spectrum between the ages of 18 and 21	**Competitive integrated employment at 12 months after graduation:** Treatment group (n= 24): 88% Control group (n=16): 6%
PS-ASD	Wehman et al., 2017	Effects of an Employer-Based Intervention on Employment Outcomes for Youth with Significant Support Needs Due to Autism	RCT; sample of young adults on the autism spectrum between the ages of 18 and 21	**Competitive integrated employment at 3 months after graduation:** Treatment group (n=31): 90% Control group (n=18): 6% **Competitive integrated employment at 12 months after graduation:** Treatment group (n=31): 87% Control group (n=14): 12%
PS-ASD	Wehman et al., 2020	Competitive Employment for Transition-Aged Youth with Significant Impact from Autism: A Multi-Site Randomized Clinical Trial	RCT with block randomization in four sites; sample of young adults on the autism spectrum between the ages of 18 and 21	**Competitive integrated employment at graduation:** Treatment group (n=79): 32% Control group (n=48): 5% **Competitive integrated employment at 12 months after graduation:** Treatment group (n=79): 73% Control group (n=25): 17%
Virtual Reality Job Interview Training (VR-JIT)	Smith et al., 2015	Brief Report: Vocational Outcomes for Young Adults with Autism Spectrum Disorders at Six Months After Virtual Reality Job Interview Training	RCT; sample of young adults on the autism spectrum between the ages of 18 and 31	**Accepted a competitive job or volunteer position at 6-month follow-up:** Treatment group (n=15): 53% Control group (n=8): 25%[b]
Virtual Interview Training for Transition Age Youth (VIT-TAY)	Smith et al., 2021	Virtual Interview Training for Autistic Transition Age Youth: A Randomized Controlled Feasibility and Effectiveness Trial	RCT with block randomization; sample of young adults on the autism spectrum between the ages of 16 and 26	**Competitive integrated employment at 6-month follow-up:** Treatment group (n=48): 25% Control group (n=23): 0%[c]
Vocational Rehabilitation	Wehman et al., 2014a	Effect of Supported Employment on Vocational Rehabilitation Outcomes of Transition-Age Youth with Intellectual and Developmental Disabilities: A Case Control Study	QED using propensity score matching: sample of youth with intellectual or developmental disabilities between the ages of 16 and 25	**Competitive integrated employment:** *With a high school diploma:* Intervention group (n=954): 63% Comparison group (n=806): 43% *Different education level:* Intervention group (n=1,281): 54% Comparison group (n=2,146): 37%

[a] All differences are significant at the 5 percent level unless otherwise noted.

[b] Statistically significant at the 10 percent level.

[c] Statistically significant at the 1 percent level.

a. Project SEARCH plus ASD Supports

Project SEARCH is a transition-based employment model that places high school students in internships during their senior year of high school. Three studies of an autism-specific version of Project SEARCH provide evidence of effectiveness in promoting positive employment outcomes for young adults on the autism spectrum. Virginia Commonwealth University's Autism Center for Excellence conducted three studies and was responsible for both evaluation and implementation of the model. To better meet the needs of autistic young adults, researchers modified the Project SEARCH model to incorporate applied behavior analysis (ABA) and customized employment supports.[3] While ABA is reflected in a wide range of clinical techniques, some of the ABA techniques incorporated into the modified Project SEARCH model include behavioral rehearsals, behavioral definitions of workplace phrases (such as "act professional"), self-monitoring, visual cues, and positive behavior reinforcement. Customized employment supports include adapting ABA supports to meet ongoing placement needs, and matching participants to job tasks that best fit their strengths. According to the Virginia Commonwealth University team, the modified PS-ASD model provided a more robust structure and series of learning experiences than its source model. See Appendix B for key differences between the original Project SEARCH model and the modified PS-ASD model.

In addition to their internship placements with local businesses, students receive additional supports and vocational training. Three effectiveness studies of PS-ASD implemented at hospitals in Virginia used RCTs to examine employment outcomes for young adults ages 18 to 22 on the autism spectrum. In each study, researchers randomly assigned participants to either receive the intervention or to continue to receive only existing services through their school district. The intervention consisted of a series of internships at a hospital in the final year of high school over a nine-month period, as well as systematic instruction, on-site support, and staff training specific to serving students on the autism spectrum. The first RCT examined the effects of PS-ASD on a sample of 40 participants ages 18 to 22 (Wehman et al. 2014b). Researchers randomly assigned 24 participants to the treatment group, who then participated in internships at two hospitals. The treatment group recorded significantly higher rates of employment attainment following the intervention: 88 percent of treatment group participants were employed 12 months after the intervention compared to 6 percent of the control group.

Two related publications expanded this research. The research team conducted the first of these additional studies at a single hospital (Wehman et al. 2017). Researchers randomly assigned 49 participants ages 18 to 21 to either receive the PS-ASD intervention or to continue to receive only existing services through their school district. Ninety percent of participants in PS-ASD attained employment three months after their high school graduation, and 87 percent retained or attained employment at the 12-month follow-up (compared to 6 percent and 12 percent of the control group, respectively). An additional publication reported findings from an RCT that expanded the PS-ASD model to 156 participants who researchers randomly assigned to either receive the intervention at one of four hospitals or to receive existing services (Wehman et al. 2020). In this RCT, the treatment group received 35 hours per week of community-based employment training with a local business over a nine-month intervention period. Thirty-two percent of treatment group participants attained competitive integrated employment at the time of their high school graduation, and 73 percent attained competitive integrated employment at the 12-month follow-up (compared to 5 and 17 percent of the control group, respectively).

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[3] Applied behavior analysis refers to a broad approach to behavior modification, characterized by an emphasis on positive reinforcements and an understanding of the causes and consequences of behaviors to effect behavior change (Kazdin, 2002).

Although the studies used randomization methods, the highest standard of determining causal relationships, all three publications examining PS-ASD had significant differences in attrition rates between the treatment and comparison groups. In each study, the outcome measures included a lower percentage of participants in the control group at follow-up compared to the treatment group. In two studies, about 20 percent of the control group withdrew prior to the first follow-up measure and none of the treatment group members withdrew, leading to nine percent overall attrition and 20 percent differential attrition (Wehman et. al 2014, 2017).[4] In the third study, out of 75 students assigned to the control group, only 25 provided data 12 months after graduation because they withdrew before, during, or after the study (Wehman et al., 2020). Only two members of the treatment group withdrew, leading to 33 percent overall attrition and 64 percent differential attrition.[5] The study authors note that the outcome measures for the control group may not represent actual outcomes due to the high attrition. Thus, even if the groups were similar at the time of randomization, the study authors were unable to tell if effects on employment were due to the interventions or due to differences between the group members who remained in the study.

b.   Virtual interview training

Researchers conducted two related RCTs to examine virtual interview training and its effects on employment for young adults on the autism spectrum. In the initial efficacy study, researchers randomly assigned 26 autistic young adults ages 18 to 31 to Virtual Reality Job Interview Training or treatment as usual. The intervention used software developed by SIMmersion, LLC (n.d.) to simulate virtual job interviews with department store representatives. The training focused on developing 10 job interviewing skills by allowing participants to practice interviews, apply for jobs, and engage with interviewers at a fictional company. Job interview skills included confidence, professionalism, ability to work well with others, and sharing strengths and weaknesses. Participants progressed through three levels of training, mastering different skills at each level, with the goal of modeling behaviors in a controlled environment before putting those behaviors to use in a real-world setting. Twenty-three of the 26 participants completed a survey six months after the study (Smith et al. 2015). [6] Although attainment of a competitive job or volunteer position did not differ significantly between the treatment and control groups, participating in the training was a significant predictor of attaining a competitive position in a regression that controlled for self-confidence ratings and prior paid employment.

The researchers then adapted the program to specifically meet the needs of transition-age youth on the autism spectrum and developed Virtual Interview Training for Transition Age Youth (VIT-TAY) (Smith et al. 2021). In the evaluation of VIT-TAY, researchers randomly assigned 71 participants ages 16 to 26 to either receive 15 sessions of virtual interview training in addition to regularly scheduled employment training, or to only receive employment training through their high school. At a six-month follow-up after completing the intervention, 25 percent of the treatment group attained competitive integrated employment compared to zero percent of the control group, a statistically significant difference at the one

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[4] According to CLEAR guidelines, studies with overall attrition of nine percent can only have up to 6.3 percent differential attrition to meet the highest causal evidence rating.

[5] According to CLEAR guidelines, studies with overall attrition of 33 percent can only have up to 3.6 percent differential attrition to meet the highest causal evidence rating.

[6] The authors declared potential conflicts of interest with respect to this study. The University of Michigan will receive royalties from SIMmersion LLC on the sales of the virtual interview training tool that was the focus of this RCT, and three authors were paid employees of SIMmersion and owned stock in the company. The University of Michigan Conflict of Interest Committee reviewed and approved a Conflict Management Plan to address potential concerns.

percent level. The study also found that 42 percent of the treatment group had secured employment of any kind following the intervention, compared to 30 percent of the control group; however, this difference was not statistically significant at the 10 percent level. The study did not have any major methodological issues and demonstrated internal validity.

c.   Vocational Rehabilitation

One study examined the effectiveness of supported employment services through the VR program (Wehman et al. 2014b).[7] This study examined the employment outcomes of 23,298 youth aged 16 to 25 with developmental disabilities who received supported employment services. It used propensity score matching to identify a comparison group of VR recipients who did not receive supported employment services but were similar to those who did receive supported employment services in terms of gender, race and ethnicity, education level, type of disability, and receipt of Social Security benefits. Using the classification and regression tree method, the study identified six separate groups, including two groups of youth with intellectual disabilities or on the autism spectrum who received Social Security benefits and either had a high school diploma or had some other level of education. The study found an association between receipt of supported employment with competitive integrated employment for young adults in each of the six groups. This study used a case control design that the study authors did not consider experimental. The study authors were not able to assess causality because the study did not demonstrate equivalence of the treatment and comparison groups and did not control for prior employment status.

2.   Other promising evidence

Because so few studies used rigorous impact evaluations to examine employment outcomes, we also examined the 53 studies that met one but not the other criterion and the three studies that met neither criterion to supplement our findings. We briefly summarize findings from these other studies in this section.

a.   Rigorous evaluations of impacts on job-related skills and behaviors

Forty-two studies examined the effectiveness of various training programs that targeted and measured various intermediate outcomes that may be steppingstones to employment such as task performance or social functioning. Of these 42 studies, 10 used RCTs or QEDs, 24 used SCDs, and eight used ITS designs.

RCTs and QEDs. Seven studies using RCTs or QEDs examined the effectiveness of soft skills training on the development of soft skills and social functioning in different settings. Additional studies explored outcomes related to independence, based on one of the RCTs of PS-ASD (Schall et al. 2020); job skills gained from a computer game (Kwon and Lee, 2016); and knowledge and self-efficacy gained through a mentoring program (Sowers et al., 2016).

Studies on group and family-centered soft skills training found increases in measures of future expectations, career decision making, and self-determination. One study (Hagner et al. 2012) used an RCT with delayed exposure design to examine the effect of a family-centered intervention on young adults' self-determination, career decision-making ability, and their (and their parents) expectations for

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[7] Supported employment is an umbrella term that covers a variety of practices that are typically unique to each recipient. It can include practices such as onsite job coaching, strategies designed to teach or reinforce appropriate behaviors, skill training beyond what employers offer, and more. State VR agencies provided these various supports, either singly or in a bundled approach.

adult life. In this study, researchers randomly assigned participants, who were autistic young adults, to receive the treatment in either Year 1 or Year 2. This ensured that all participants would receive treatment, but that the Year 2 group could act as a control during the Year 1 group treatment. The participants and their parents received a series of group training sessions, where facilitators administered a training on person-centered planning, along with follow-up assistance for career exploration activities. A second study (Shogren et al. 2018) examined the effects of the Self-Determined Learning Model of Instruction (SDLMI) paired with a self-determination curriculum called *Whose Future Is It?* through a cluster randomized trial. In this design, 17 school districts were randomly assigned to either condition, resulting in 167 students in the treatment group and 173 students in the control group. Participants in the treatment group received both interventions, while those in the control group only received the SDLMI intervention. Analysis of measures of self-determination found that the control group showed greater growth in self-determination measures over time than the treatment group. Finally, one study used an RCT to examine the feasibility and efficacy of VR-JIT and found higher interview scores and confidence among participants compared to people who received treatment as usual (Smith et al., 2014).

A pair of studies on Internet-based transition and skills training programs (BOOST-A and JobTIPS) found that these interventions were associated with increased career exploration and more effective verbal content skills. The study of BOOST-A—a proprietary online program that supports transition age autistic youth—used a QED to examine the effectiveness of the intervention on measures of self-determination (Hatfield et al. 2017). In this design, participants were assigned to treatment and comparison groups, but assignment was not truly random. The analysis found no significant differences in self-determination between groups, but the treatment groups had significantly higher measures of opportunities for self-determination at home, career exploration, and transition-specific self-determination at the one percent level when compared to the comparison group. The evaluation of JobTIPS (Strickland et al. 2013) — another proprietary web-based program supporting the development of interviewing skills—used an RCT design to test whether the treatment group demonstrated higher measures of interview skills than the control group. Using an interview skills rating instrument, the authors found that those who received the JobTIPS treatment scored higher in measures of effective verbal content skills.

SCDs. Twenty-four publications used SCDs to examine interventions that delivered job coaching, job training, or social skills training. These studies ranged in size from one to six participants, and often either recruited high school students or young adults shortly after graduation. Most studies (16) only included participants on the autism spectrum, and the remaining eight included participants with intellectual or developmental disabilities in addition to autistic participants. Some studies took place in work settings and measured job-related behaviors such as percentage of tasks completed correctly, task completion time, or on-task behavior. For example, some studies evaluated video modeling interventions to increase work performance and verbalization among young adults on the autism spectrum who were already competitively employed (Bross et al. 2019, 2020; Kellems and Morningstar 2012). Several SCD interventions took place in work or internship settings to demonstrate the effectiveness of job training among people who were often in transition programs and not competitively employed and used techniques such as audio cuing (Allen et al. 2012; Bennett 2013; Bennett et al. 2013b; Gilson and Carter 2016), video prompting (Burke et al. 2013; Cullen et al. 2017; Yakubova et al. 2017), video modeling (English et al. 2017), or job coaching (Hayes et al. 2015; Mackey and Nelson 2015; Mazzotti et al. 2020). Other interventions took place in simulated job settings (Palmen and Didden 2012; Walker et al. 2016), at school (Athamanah and Cushing 2019; Babb et al. 2019; Bennett et al. 2013a; Clavenna-Deane et al. 2020; Devine 2018; Honsberger et al. 2019; Lee et al. 2012), or at home (Sreckovic et al. 2020). Ten of the SCD studies appeared to meet WWC SCD standards without reservations. Seven studies appeared to

meet their specific design's standard with reservations, and seven studies did not appear to meet the standards. For example, these studies had fewer data points than required, did not organize data to allow a vertical comparison, or did not assess interobserver agreement. Among those that met the standards, three examined off-task behavior (Lee et al. 2012; Mazzotti et al. 2020; Palmen and Didden 2012), three examined steps completed correctly (Bennett et al. 2013a, 2013b; Sreckovic et al. 2020), two examined rates of initiating conversation or using a customer service phrase (Bross et al. 2019; Yakubova et al. 2017), and one examined interview rubric scores (Walker et al. 2016). One of the studies assessed a check-in/check-out intervention, a behavioral intervention that provides accountability to students and mentors at the beginning and end of each task. The study focused on supervisors and examined the effectiveness of the intervention on the rate of performance feedback statements given to interns with intellectual disabilities during vocational training (Robinson 2019).

ITS. Eight studies used pre-post ITS designs to examine small training programs with about five to 25 participants, including three studies of Assistive Soft Skills and Employment Training (ASSET), a work-related social skills program (Connor et al. 2017, 2020; Dean 2018; Kandalaft et al. 2013; Kirby et al. 2021; Myers and Cox 2020; Sung et al. 2019; Traina et al. 2021). Three of these programs enrolled young adults on the autism spectrum (ASSET, Portland Prep, and Virtual Reality Social Cognition Training), two enrolled young adults with intellectual disabilities (E-IDEAS and summer work experience program), and one enrolled caregivers of youth on the autism spectrum (Maximizing Adolescent Post-Secondary Success). The studies examined outcomes such as social functioning, emotion recognition, self-efficacy, and employment skills. For example, the three studies of ASSET found that autistic young adults demonstrated improved social functioning and work-related social skills after participating in soft skills training (Connor et al. 2017, 2020; Sung et al. 2019). These studies used a repeated time series design where participants received weekly interventions over the course of eight weeks, followed by a post-intervention assessment. The intervention was a group-administered curriculum where facilitators assisted participants in the practice of six social skills: communication, attitude and enthusiasm, teamwork, networking, problem solving and critical thinking, and professionalism. None of these studies met CLEAR ITS standards because they only included one point in time before and one or two points in time after the intervention.

b. Descriptive studies

Fourteen effectiveness studies used descriptive methods. Of those studies, three examined different versions of Project SEARCH, six examined VR services, two examined Project TEAM (Teens making Environment and Activity Modifications), and two examined supported employment models, and one examined the Bridges Transition Program.

Project SEARCH. Three descriptive studies examined Project SEARCH and Project SEARCH adaptions and showed positive employment outcomes. In a longitudinal study of participant outcomes across three Project SEARCH programs, 84 percent of participants over a four-year period secured employment after completing their Project SEARCH program (Christensen et al. 2015). Another study used retrospective observational records to examine participants on the autism spectrum who received the PS-ASD intervention in addition to supported employment services (Schall et al. 2015). Participants who had previously participated in PS-ASD were able to find employment at higher rates after six months (96 percent compared to 75 percent), retain employment after 12 and 18 months (84 percent compared to 55 percent at both 12- and 18-month follow-up), had higher hourly wages ($9.89 compared to $8.82), and required fewer hours of intervention than participants who only received supported employment services. Finally, a survey of 114 employers across four Project SEARCH sites documented the total number of

interns and hires as well as qualitative data such as reasons employers participated, initial concerns, and the most helpful supports employers received (Müller et al. 2018). However, only 39 percent of the employers surveyed responded to the survey, which could bias the results.

Vocational Rehabilitation services. Six studies used Rehabilitation Services Administration (RSA)-911 data to examine employment outcomes for recipients of VR services. Four of these studies documented rates of competitive integrated employment among youth on the autism spectrum whose VR cases closed, with employment rates ranging from about 36 percent to 55 percent (Burgess and Cimera 2014; Kaya et al. 2016, 2018; Sung et al. 2015). The remaining two studies examined weekly hours, wages, service receipt, and employment (Migliore et al. 2012; Roux et al. 2021). The evidence on outcomes by sex and race was mixed. One study found that African American, Hispanic or Latino, Asian or Pacific Islander, and American Indian or Alaska Native autistic young adults ages 16 to 25 had lower employment rates than White young adults but showed no differences between men's and women's outcomes (Kaya et al. 2016). In two studies, young men on the autism spectrum had higher odds of achieving competitive employment than women, but there were no statistically significant differences in employment achievement by race or ethnicity (Migliore et al. 2012; Roux et al. 2021). None of the six studies claimed causality or used comparison groups, but they used regression analysis to control for known variables. Because the RSA-911 dataset only includes people who exited VR services, it necessarily excludes people who continued to receive services and may have had higher support needs.

Project TEAM. The two descriptive studies that examined Project TEAM did not examine employment outcomes but conducted a participatory evaluation of the intervention and measured fidelity to the Project TEAM objectives (Kramer et al. 2018a, 2018b). The evaluation collected feedback through surveys and focus groups with participants who were youths with development disabilities as well as parents. Most participants thought the intervention's purpose was relevant to their lived experiences and the procedures were acceptable, but some reported challenges with the approach.

Supported employment. Two studies examined case management records of state VR referrals to evaluate supported employment models. In a study of supported employment programs for young adults on the autism spectrum, 27 of 33 participants secured competitive employment after working with employment specialists in a supported employment model (Wehman et al. 2012). In a separate study that reviewed six years of case management records of young adults on the autism spectrum, 98.4 percent of participants found competitive integrated employment after receiving supportive employment services through a VR program (Wehman et al. 2016).

Bridges Transition Program. One descriptive study matched Bridges Transition's program data to administrative data to examine earnings and public benefit receipt over several years after program enrollment (Hemmeter et al., 2015). The evaluation examined about 11,000 youth with disabilities who enrolled between 1991 and 2010. More than 82 percent of participants had any earnings at age 20, with mean annual earnings of more than $6,000. By age 30, 73 percent had any earnings, and their mean annual earnings were $15,000. These earnings measures were higher than a comparison group of people who resided in the same counties and had received Supplemental Security Income (SSI) at age 17. However, not all participants received SSI and most participants did not have data available at age 30.

D. Conclusions

In the past two decades, only a few studies have rigorously examined the effect that programs for young adults with developmental disabilities have had on improving employment outcomes. Of the 62

effectiveness studies that we found, six used a rigorous evaluation design to examine relevant employment outcomes and another 11 examined relevant employment outcomes but did not use a rigorous evaluation design. We summarize the key findings on employment outcomes below:

- The three randomized studies of **PS-ASD,** a transition-based employment model for high school students on the autism spectrum, showed promising results when implemented in hospitals in Virginia and demonstrated successful job attainment and retention among participants. However, significant attrition limits the certainty of these findings. Two descriptive studies of Project SEARCH implemented in other settings also showed positive employment outcomes for participants but did not determine causality.

- **Virtual interview training** programs for transition-age autistic young adults also demonstrated positive effects on employment, with two randomized studies showing that participants secured competitive integrated employment at higher rates than non-participants. More evidence could help determine whether the results are externally valid and replicable in other settings.

- Several studies examined **VR services** descriptively. Six studies found positive employment outcomes for transition-age VR clients on the autism spectrum, and a QED study found an association between receiving supported employment services and attaining competitive integrated employment for young adults with intellectual or developmental disabilities including those on the autism spectrum.

Additionally, 42 rigorous studies examined programs' impacts on the development of job-related behaviors and work performance; for example, many programs offered social skills training and examined impacts on soft skills and social functioning among transition-age participants. Although these studies did not examine employment outcomes, they detailed interventions that improve a range of behaviors that could lead to future employment.

Although we found only a handful of rigorous effectiveness studies on employment interventions for young adults with developmental disabilities, the 140 studies identified in our first literature review suggest a great deal of innovative effort is expended in community settings to deliver employment-related services to this growing population. Thus, there is a significant gap between the quantity of employment approaches used to help young adults with development disabilities and the efforts to build evidence on their effectiveness. This suggests not only a need for future research but also a need for building research capacity and infrastructure in the realm of employment services and supports for young adults with developmental disabilities. Two complementary lines of effort can help address these needs:

- **First, we need more evidence on the effectiveness of programs that show promise for improving employment-related outcomes in community settings for youth with developmental disabilities.** For selected programs, a progression of steps through a sound evidence-building process, conducted in partnership with the community, could be helpful. For example, such a progression could move through the following steps: (1) clarifying the program logic model and theory of change, (2) assessing stakeholder perceptions of effectiveness and implementation factors, (3) conducting an evaluability assessment, (4) developing a measurement framework, (5) drafting an evaluation design, and, finally (6) conducting a comprehensive evaluation that includes not only an estimation of impacts but also an estimation of benefits and costs and a study of implementation factors that influence impacts and scaling potential. Voices of people on the autism spectrum and insights of frontline program staff and other stakeholders can confirm the validity of findings and inform plans for future replication and scaling.

- **Second, efforts to build research capacity and infrastructure could look for ways to incentivize researcher-community partnerships.** Professional researchers conducted most of the rigorous evaluation studies, but many innovative programs originate in community-based settings. Research funders including the federal government, state governments, and philanthropic foundations might consider ways to encourage and support partnerships between program evaluators and community organizations that implement innovative program models

Finally, we found a dearth of evidence on employment approaches that can specifically help young adults with developmental disabilities in historically underserved communities. None of the rigorous effectiveness studies examined programs that focused on serving such communities, and none showed that any programs specifically improved employment outcomes for young adults in these communities. This finding suggests a need for more programs and evaluations that focus on improving outcomes for those in historically underserved communities.

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Appendix A: Publications Included in Report

Table A.1 lists the 62 publications that met the inclusion criteria and we summarized in the report.

Table A.1. Publications meeting inclusion criteria, programs described, and research designs used

Citation	Program described	Research design
Allen, K. D., R. V. Burke, M. R. Howard, D. P. Wallace, and S. L. Bowen. "Use of Audio Cuing to Expand Employment Opportunities for Adolescents with Autism Spectrum Disorders and Intellectual Disabilities." *Journal of Autism and Developmental Disorders*, vol. 42, no. 11, 2012, pp. 2410–2419. doi:10.1007/s10803-012-1519-7.	Audio cuing intervention	Single-case design (SCD)
Athamanah, L. S., and L. S. Cushing. "Implementing a Peer-Mediated Intervention in a Work-Based Learning Setting for Students with Autism Spectrum Disorders." *Education and Training in Autism and Developmental Disabilities*, vol. 54, no. 2, 2019, pp. 196–210. https://eric.ed.gov/?id=EJ1217381.	Peer-mediation intervention	SCD
Babb, S., J. Gormley, D. McNaughton, and J. Light. "Enhancing Independent Participation Within Vocational Activities for an Adolescent with ASD Using AAC Video Visual Scene Displays." *Journal of Special Education Technology*, vol. 34, no. 2, 2019, pp. 120–132. doi:10.1177/0162643418795842.	Augmentative and alternative communication video visual scene display intervention	SCD
Bennett, K. D. "Improving Vocational Skills of Students with Disabilities: Applications of Covert Audio Coaching." Teaching Exceptional Children, vol. 46, 2013, pp. 60–67. doi:10.1177/004005991304600207.	Covert audio coaching	SCD
Bennett, K. D., R. Ramasamy, and T. Honsberger. "The Effects of Covert Audio Coaching on Teaching Clerical Skills to Adolescents with Autism Spectrum Disorder." *Journal of Autism and Developmental Disorders*, vol. 43, no. 3, 2013a, pp. 585–593. doi:10.1007/s10803-012-1597-6.	Covert audio coaching	SCD
Bennett, K. D., R. Ramasamy, and T. Honsberger. "Further Examination of Covert Audio Coaching on Improving Employment Skills Among Secondary Students with Autism." Journal of Behavioral Education, vol. 22, 2013b, pp. 103–119. doi:10.1007/s10864-013-9168-2.	Covert audio coaching	SCD
Bross, L. A., J. C. Travers, V. D. Munandar, and M. Morningstar. "A Packaged Intervention to Improve Job Performance of a Competitively Employed Young Adult with Autism Spectrum Disorder." *Journal of Vocational Rehabilitation*, vol. 53, no. 2, 2020, pp. 227–239. doi:10.3233/JVR-201099.	Evidence-based practices package intervention	SCD
Bross, L. A., J. C. Travers, V. D. Munandar, and M. Morningstar. "Video Modeling to Improve Customer Service Skills of an Employed Young Adult with Autism." *Focus on Autism and Other Developmental Disabilities*, vol. 34, no. 4, 2019, pp. 226–235. doi:10.1177/1088357618805990.	Video modeling intervention	SCD
Burgess, S., and R. E. Cimera. "Employment Outcomes of Transition-Aged Adults with Autism Spectrum Disorders: A State of the States Report." *American Journal on Intellectual & Developmental Disabilities*, vol. 119, no. 1, 2014, pp. 64–83. doi:10.1352/1944-7558-119.1.64.	Vocational Rehabilitation (VR) services; evidence-based practices package intervention	Descriptive
Burke, R. V., K. D. Allen, M. R. Howard, D. Downey, M. G. Matz, and S. L. Bowen. "Tablet-Based Video Modeling and Prompting in the Workplace for Individuals with Autism." *Journal of Vocational Rehabilitation*, vol. 38, no. 1, 2013, pp. 1–14. doi:10.3233/JVR-120616.	VideoTote (video modeling)	SCD

Citation	Program described	Research design
Christensen, J., S. Hetherington, M. Daston, and E. Riehle. "Longitudinal Outcomes of Project SEARCH in Upstate New York." *Journal of Vocational Rehabilitation*, vol. 42, no. 3, 2015, pp. 247–255. doi:10.3233/JVR-150746.	Project SEARCH	Descriptive
Clavenna-Deane, B., M. Pearson, and B. Hansen. "The Impact of Social Communication on Employment Success for Adolescents with Autism Spectrum Disorders." *Journal of the American Academy of Special Education Professionals*, winter 2020, pp. 68–85. https://eric.ed.gov/?id=EJ1254209.	Social Thinking curriculum	SCD
Connor, A., C. Sung, A. Strain, S. Zeng, and S. Fabrizi. "Building Skills, Confidence, and Wellness: Psychosocial Effects of Soft Skills Training for Young Adults with Autism." *Journal of Autism and Developmental Disorders*, vol. 50, no. 6, June 2020, pp. 2064–2076. doi: 10.1007/s10803-019-03962-w.	Assistive Social Skills and Employment Training (ASSET) program	Interrupted time series (ITS)
Connor, A. "Beyond Skills to Pay the Bills: Effects of a Vocational Social Skills Intervention on Psychosocial Functioning Among Young Adults with Autism." Doctoral dissertation. East Lansing, MI: Michigan State University, 2017. Available at https://d.lib.msu.edu/etd/4667/datastream/OBJ/view.	ASSET program	ITS
Cullen, J. M., S. R. Alber-Morgan, E. A. Simmons-Reed, and M. V. Izzo. "Effects of Self-Directed Video Prompting Using iPads on the Vocational Task Completion of Young Adults with Intellectual and Developmental Disabilities." *Journal of Vocational Rehabilitation*, vol. 46, no. 3, 2017, pp. 361–375. doi:10.3233/JVR-170873.	Self-directed video prompting intervention	SCD
Dean, C. "Psychosocial Impacts of Technology Training in Transitional-Aged Youth with Autism." Doctoral dissertation. Newberg, OR: George Fox University, 2018. Available at https://digitalcommons.georgefox.edu/cgi/viewcontent.cgi?article=1244&context=psyd.	Portland Prep program	ITS
Devine, S. M. "Effects of a Multimedia Shared Story on Comprehension of an Employee Handbook." Doctoral dissertation. University of Nevada, Las Vegas, 2018. doi:10.34917/13568442.	Multimedia shared story intervention	SCD
English, D. L., S. Gounden, R. E. Dagher, S. F. Chan, B. E. Furlonger, A. Anderson, and D. W. Moore. "Effects of Video Modeling with Video Feedback on Vocational Skills of Adults with Autism Spectrum Disorder." *Developmental Neurorehabilitation*, vol. 20, no. 8, 2017, pp. 511–524. doi:10.1080/17518423.2017.1282051.	Video modeling with video feedback intervention	SCD
Gilson, C. B., and E. W. Carter. "Promoting Social Interactions and Job Independence for College Students with Autism or Intellectual Disability: A Pilot Study." *Journal of Autism and Developmental Disorders*, vol. 46, no. 11, 2016, pp. 3583–3596. doi:10.1007/s10803-016-2894-2.	Job coaching intervention with audio cuing, social-focused coaching, and reduced proximity of job coach	SCD
Hagner, D., A. Kurtz, H. Cloutier, C. Arakelian, D. Brucker, and J. May. "Outcomes of a Family-Centered Transition Process for Students with Autism Spectrum Disorders." *Focus on Autism and Other Developmental Disabilities*, vol. 27, 2012, pp. 42–50. doi:10.1177/1088357611430841.	Family-centered transition planning intervention	Randomized controlled trial (RCT)
Hatfield, M., M. Falkmer, T. Falkmer, and M. Ciccarelli. "Effectiveness of the BOOST-A™ Online Transition Planning Program for Adolescents on the Autism Spectrum: A Quasi-Randomized Controlled Trial." *Child and Adolescent Psychiatry and Mental Health*, vol. 11, 2017, p. 54. doi:10.1186/s13034-017-0191-2.	Better Outcomes & Successful Transitions for Autism (BOOST-A) program	Quasi-experimental design (QED)

Citation	Program described	Research design
Hayes, G. R., V. E. Custodio, O. L. Haimson, K. Nguyen, K. E. Ringland, R. Ulgado, R. A. Waterhouse, and R. Weiner. "Mobile Video Modeling for Employment Interviews for Individuals with Autism." *Journal of Vocational Rehabilitation*, vol. 43, no. 3, 2015, pp. 275–287. doi:10.3233/JVR-150775.	VidCoach video modeling intervention	RCT
Hemmeter, J., M. Donovan, J. Cobb, and T. Asbury. "Long Term Earnings and Disability Program Participation Outcomes of the Bridges Transition Program." Journal of Vocational Rehabilitation, vol. 42, 2015, pp. 1–15. doi:10.3233/JVR-140719.	Bridges Transition Program	Descriptive
Honsberger, T. J., M. P. Brady, C. F. Honsberger, and K. B. Kearney. "Peer-Mediated Literacy-Based Behavioral Interventions: A Job Coaching Strategy for Secondary Students With ASD." *Career Development and Transition for Exceptional Individuals*, vol. 42, no. 2, 2019, pp. 99–110. doi:10.1177/2165143418808508.	Peer-mediated literacy-based behavioral intervention	SCD
Kandalaft, M., N. Didehbani, D. Krawczyk, T. Allen, and S. Chapman. "Virtual Reality Social Cognition Training for Young Adults with High-Functioning Autism." *Journal of Autism & Developmental Disorders*, vol. 43, no. 1, 2013, pp. 34–44. doi:10.1007/s10803-012-1544-6.	Virtual Reality Social Cognition Training (VR-SCT) intervention	ITS
Kaya, C., F. Chan, P. Rumrill, E. Hartman, P. Wehman, K. Iwanaga, C. -H. Pai, and L. Avellone. "Vocational Rehabilitation Services and Competitive Employment for Transition-Age Youth with Autism Spectrum Disorders." *Journal of Vocational Rehabilitation*, vol. 45, no. 1, 2016, pp. 73–83. doi:10.3233/JVR-160812.	VR services	Descriptive
Kaya, C., C. Hanley-Maxwell, F. Chan, and T. Tansey. "Differential Vocational Rehabilitation Service Patterns and Outcomes for Transition-Age Youth with Autism." *Journal of Applied Research in Intellectual Disabilities*, vol. 31, no. 5, 2018, pp. 862–872. doi:10.1111/jar.12443.	VR services	Descriptive
Kellems, R. O., and M. E. Morningstar. "Using Video Modeling Delivered Through iPods to Teach Vocational Tasks to Young Adults with Autism Spectrum Disorders." *Career Development and Transition for Exceptional Individuals*, vol. 35, no. 3, 2012, pp. 155–167. doi:10.1177/0885728812443082.	Video modeling intervention	SCD
Kirby, A. V., K. J. C. Feldman, M. B. Himle, M. L. Diener, C. A. Wright, and J. M. Hoffman. "Pilot Test of the Maximizing Adolescent Post-Secondary Success (MAPSS) Intervention: Supporting Parents of Autistic Youth." *The American Journal of Occupational Therapy*, vol. 75, no. 3, 2021, article no. 7503180070. doi:10.5014/ajot.2021.045815.	Maximizing Adolescent Post-Secondary Success (MAPSS)	ITS
Kramer, J. M., I. -T. Hwang, C. A. Helfrich, P. S. Samuel, and A. Carrellas. "Evaluating the Social Validity of Project TEAM: A Problem-Solving Intervention to Teach Transition Age Youth with Developmental Disabilities to Resolve Environmental Barriers." *International Journal of Disability, Development & Education*, vol. 65, no. 1, 2018a, pp. 57–75. doi:10.1080/1034912X.2017.1346237.	Project TEAM (Teens making Environment and Activity Modifications)	Descriptive
Kramer, J. M., C. T. Ryan, R. Moore, and A. Schwartz. "Feasibility of Electronic Peer Mentoring for Transition-Age Youth and Young Adults with Intellectual and Developmental Disabilities: Project Teens Making Environment and Activity Modifications." *Journal of Applied Research in Intellectual Disabilities*, vol. 31, no. 1, 2018b, pp. e118–e129. doi:10.1111/jar.12346.	Project TEAM	Descriptive

Citation	Program described	Research design
Kurtz, A. "A Mixed Methods Study of the Effects of Family-Centered Transition Planning on the Quality of Transition Individualized Education Plans of Youth with Autism Spectrum Disorders." Doctoral dissertation. Durham, NH: University of New Hampshire, 2016. Available at https://scholars.unh.edu/dissertation/2243/.	Family-centered transition planning intervention	RCT
Kwon, J., and Y. Lee. "Serious Games for the Job Training of Persons with Developmental Disabilities." Computers & Education, vol. 95, 2016, pp. 328–339. doi:10.1016/j.compedu.2016.02.001.	Serious Games	RCT
Lee, G. T., and J. Singer-Dudek. "Effects of Fluency Versus Accuracy Training on Endurance and Retention of Assembly Tasks by Four Adolescents with Developmental Disabilities." Journal of Behavioral Education, vol. 21, no. 1, 2012, pp. 1–17. doi:10.1007/s10864-011-9142-9.	Task fluency training intervention	SCD
Mackey, M., and G. Nelson. "Twins with Autism: Utilising Video Feedback to Improve Job-Related Behaviours." British Journal of Special Education, vol. 42, no. 4, 2015, pp. 390–410. doi:10.1111/1467-8578.12107.	Video feedback intervention	SCD
Mazzotti, V. L., A. Kittelman, K. W. Bromley, and K. A. Hirano. "Experimental Analysis of Multi-Component Intervention to Support Youth in Integrated Work Settings." Journal of Vocational Rehabilitation, vol. 53, no. 2, 2020, pp. 145–158. doi:10.3233/JVR-201092.	Function-based, self-determined multi-component intervention	SCD
Migliore, A., J. Timmons, J. Butterworth, and J. Lugas. "Predictors of Employment and Postsecondary Education of Youth with Autism." Rehabilitation Counseling Bulletin, vol. 55, no. 3, 2012, pp. 176–184. doi:10.1177/0034355212438943.	VR services	Descriptive
Müller, E., R. VanGilder, and D. Kiasi. "Employer Satisfaction with Project SEARCH Interns, Hires, and Support Received from Project SEARCH Teams." Journal of Vocational Rehabilitation, vol. 49, no. 3, 2018, pp. 339–350. doi:10.3233/JVR-180978.	Project SEARCH	Descriptive
Myers, C., and C. Cox. "Work Motivation Perceptions of Students with Intellectual Disabilities Before and After Participation in a Short-Term Vocational Rehabilitation Summer Programme: An Exploratory Study." Journal of Applied Research in Intellectual Disabilities, vol. 33, no. 5, 2020, pp. 898–904. doi:10.1111/jar.12711.	Summer work experience program	ITS
Palmen, A., and R. Didden. "Task Engagement in Young Adults with High-Functioning Autism Spectrum Disorders: Generalization Effects of Behavioral Skills Training." Research in Autism Spectrum Disorders, vol. 6, no. 4, 2012, pp. 1377–1388. doi:10.1016/j.rasd.2012.05.010.	Behavioral skills training	SCD
Robinson, O. P. "Check-In/Check-Out: Facilitating Performance Feedback During Vocational Training for Youth with Intellectual Disabilities." Doctoral dissertation. Tuscaloosa, AL: The University of Alabama, 2019.	CrossingPoints Transition Program	SCD
Roux, A. M., J. E. Rast, K. A. Anderson, T. Garfield, and P. T. Shattuck. "Vocational Rehabilitation Service Utilization and Employment Outcomes Among Secondary Students on the Autism Spectrum." Journal of Autism and Developmental Disorders, vol. 51, no. 1, 2021, pp. 212–226. doi:10.1007/s10803-020-04533-0.	VR services	Descriptive
Schall, C. M., P. Wehman, V. Brooke, C. Graham, J. McDonough, A. Brooke, W. Ham, R. Rounds, S. Lau, and J. Allen. "Employment Interventions for Individuals with ASD: The Relative Efficacy of Supported Employment with or Without Prior Project SEARCH Training." Journal of Autism and Developmental Disorders, vol. 45, no. 12, 2015, pp. 3990–4001. doi:10.1007/s10803-015-2426-5.	Project SEARCH plus ASD Supports (PS-ASD)	Descriptive

Citation	Program described	Research design
Schall, C., A. P. Sima, L. Avellone, P. Wehman, J. McDonough, and A. Brown. "The Effect of Business Internships Model and Employment on Enhancing the Independence of Young Adults with Significant Impact from Autism." *Intellectual and Developmental Disabilities*, vol. 58, no. 4, 2020, pp. 301–313. doi:10.1352/1934-9556-58.4.301.	PS-ASD	RCT
Shogren, K. A., K. M. Burke, M. H. Anderson, A. A. Antosh, M. L. Wehmeyer, T. LaPlante, and L. A. Shaw. "Evaluating the Differential Impact of Interventions to Promote Self-Determination and Goal Attainment for Transition-Age Youth with Intellectual Disability." *Research & Practice for Persons with Severe Disabilities*, vol. 43, no. 3, 2018, pp. 165–180. doi:10.1177/1540796918779775.	Self-Determined Learning Model of Instruction and *Whose Future Is It?* curriculum	RCT
Smith, M. J., E. J. Ginger, K. Wright, M. A. Wright, J. L. Taylor, L. B. Humm, et al. "Virtual Reality Job Interview Training in Adults with Autism Spectrum Disorder." Journal of Autism and Developmental Disorders, vol. 44, 2014, pp. 2450–2463. doi:10.1007/s10803-014-2113-y.	Virtual reality job interview training (VR-JIT) intervention	RCT
Smith, M. J., K. Sherwood, B. Ross, J. D. Smith, L. DaWalt, L. Bishop, L. Humm, J. Elkins, and C. Steacy. "Virtual Interview Training for Autistic Transition Age Youth: A Randomized Controlled Feasibility and Effectiveness Trial." *Autism: The International Journal of Research and Practice*, vol. 25, no. 6, 2021, pp. 1536–1552. doi:10.1177/1362361321989928.	Virtual interview training intervention for transition-age youth	RCT
Smith, M., M. Fleming, M. Wright, M. Losh, L. Humm, D. Olsen, and M. Bell. "Brief Report: Vocational Outcomes for Young Adults with Autism Spectrum Disorders at Six Months After Virtual Reality Job Interview Training." *Journal of Autism & Developmental Disorders*, vol. 45, no. 10, 2015, pp. 3364–3369. doi:10.1007/s10803-015-2470-1.	VR-JIT intervention	RCT
Sowers, J. A., L. Powers, J. Schmidt, T. E. Keller, A. Turner, A. Salazar, and P. R. Swank. "A Randomized Trial of a Science, Technology, Engineering, and Mathematics Mentoring Program." Career Development and Transition for Exceptional Individuals, vol. 40, 2017, pp. 196–204. doi:10.1177/2165143416633426.	STEM mentoring	RCT
Sreckovic, M. A., K. A. Hume, and T. E. Regan. "Use of Work Systems to Increase the Independence of Adolescents with Autism Spectrum Disorder." *Career Development and Transition for Exceptional Individuals*, vol. 43, no. 4, 2020, pp. 240–256. doi:10.1177/2165143420948766.	Work Systems intervention	SCD
Strickland, D., C., Coles, and L. Southern. "JobTIPS: A Transition to Employment Program for Individuals with Autism Spectrum Disorders." *Journal of Autism & Developmental Disorders*, vol. 43, no. 10, 2013, pp. 2472–2483. doi:10.1007/s10803-013-1800-4.	JobTIPS program	RCT
Sung, C., A. Connor, J. Chen, C. -C. Lin, H. -J. Kuo, and J. Chun. "Development, Feasibility, and Preliminary Efficacy of an Employment-Related Social Skills Intervention for Young Adults with High-Functioning Autism." *Autism*, vol. 23, no. 6, 2019, pp. 1542–1553. doi:10.1177/1362361318801345.	ASSET program	ITS
Sung, C., J. Sánchez, H. -J. Kuo, C. -C. Wang, and M. J. Leahy. "Gender Differences in Vocational Rehabilitation Service Predictors of Successful Competitive Employment for Transition-Aged Individuals with Autism." *Journal of Autism and Developmental Disorders*, vol. 45, no. 10, 2015, pp. 3204–3218. doi:10.1007/s10803-015-2480-z.	VR services	Descriptive

Citation	Program described	Research design
Traina, I., A. Mannion, and G. Leader. "Transition Program from School to Employment in Youths with Intellectual Disability: Evaluation of the Irish Pilot Study E-IDEAS." *Developmental Neurorehabilitation*, June 2021, pp. 1–14. doi:10.1080/17518423.2021.1941373.	E-IDEAS (Empowerment of youth with Intellectual Disabilities through Education and training for Acquiring Employment Skills) employment transition program	ITS
Walker, Z., E. Vasquez, and W. Wienke. "The Impact of Simulated Interviews for Individuals with Intellectual Disability." *Journal of Educational Technology & Society*, vol. 19, no. 1, 2016, pp. 76–88. https://eric.ed.gov/?id=EJ1087133.	Simulated interviews	SCD
Wehman, P., V. Brooke, A. M. Brooke, W. Ham, C. Schall, J. McDonough, S. Lau, et al. "Employment for Adults with Autism Spectrum Disorders: A Retrospective Review of a Customized Employment Approach." *Research in Developmental Disabilities*, vol. 53–54, 2016, pp. 61–72. doi:10.1016/j.ridd.2016.01.015.	Customized employment	Descriptive
Wehman, P., F. Chan, N. Ditchman, and H. -J. Kang. "Effect of Supported Employment on Vocational Rehabilitation Outcomes of Transition-Age Youth with Intellectual and Developmental Disabilities: A Case Control Study." *Intellectual and Developmental Disabilities*, vol. 52, no. 4, 2014a, pp. 296–310. doi:10.1352/1934-9556-52.4.296.	VR services	QED
Wehman, P., S. Lau, A. Molinelli, V. Brooke, K. Thompson, C. Moore, and M. West. "Supported Employment for Young Adults with Autism Spectrum Disorder: Preliminary Data." *Research and Practice for Persons with Severe Disabilities*, vol. 37, no. 3, 2012, pp. 160–169. doi:10.2511/027494812804153606.	Supported employment services	Descriptive
Wehman, P., C. M. Schall, J. McDonough, C. Graham, V. Brooke, J. E. Riehle, A. Brooke, et al. "Effects of an Employer-Based Intervention on Employment Outcomes for Youth with Significant Support Needs Due to Autism." *Autism: The International Journal of Research and Practice*, vol. 21, no. 3, 2017, pp. 276–290. doi:10.1177/1362361316635826.	PS-ASD	RCT
Wehman, P. H., C. M. Schall, J. McDonough, J. Kregel, V. Brooke, A. Molinelli, W. Ham, et al. "Competitive Employment for Youth with Autism Spectrum Disorders: Early Results from a Randomized Clinical Trial." *Journal of Autism and Developmental Disorders*, vol. 44, no. 3, 2014b, pp. 487–500. doi:10.1007/s10803-013-1892-x.	PS-ASD	RCT
Wehman, P., C. Schall, J. McDonough, A. Sima, A. Brooke, W. Ham, H. Whittenburg, et al. "Competitive Employment for Transition-Aged Youth with Significant Impact from Autism: A Multi-Site Randomized Clinical Trial." *Journal of Autism and Developmental Disorders*, vol. 50, no. 6, 2020, pp. 1882–1897. doi:10.1007/s10803-019-03940-2.	PS-ASD	RCT
Yakubova, G., A. Zehner, and M. Aladsani. "The Effects of a Self-Determined Career Development Model with an iPad-Based Instruction on Progress Towards Job-Related Goals of a Young Adult with Autism Spectrum Disorder." *Journal of the International Association of Special Education*, vol. 17, no. 1, 2017, pp. 27–39. https://eric.ed.gov/?id=EJ1192003.	The Self-Determined Career Development Model (SDCDM) using iPad-based instruction intervention	SCD

Appendix B: Distinguishing Project SEARCH and PS-ASD

In 1996, Erin Riehle and Susie Rutkowski developed Project SEARCH to hire more people with developmental disabilities at the Cincinnati Children's Hospital (Project SEARCH 2018b). Project SEARCH started as a small intervention to help train people with developmental disabilities for entry-level placements and has since turned into a proprietary intervention used nationwide. Organizations can pay a licensing fee to receive startup training and ongoing technical assistance during the first year of implementation.

Project SEARCH

Project SEARCH recruits youth entering their final year of special education and is widely used for transition-age youth with intellectual or developmental disabilities. If selected for the model, participants complete three 10-week long internships during their last year of school, with the internships typically occurring at one location such as a large hospital. Project SEARCH emphasizes both a participant-level theory of change and systems-level theory of change. In particular, Project SEARCH requires interagency collaboration, and supports the creation of additional collaborations that further employment opportunities for participants and non-participants. The Project SEARCH model includes six core elements: (1) the outcome of the program is competitive, integrated employment; (2) the focus of the program is on serving young adults with intellectual and developmental disabilities who can benefit from personalized support in an intensive year of career development and internship experience; (3) the program is a collaborative partnership using support and resources from education, Vocational Rehabilitation, community rehabilitation providers, an intellectual and developmental disability services agency, family engagement advisor, and workforce investment board (where available); (4) the program is business focused; (5) the program leads to acquisition of competitive skills; and (6) the program is committed to continuous improvement (Project SEARCH 2018b).

PS-ASD

Despite the successes of Project SEARCH, researchers noted that young adults on the autism spectrum had worse transition outcomes after their exit from high school than peers with similar disabilities, and that no transition model had yet addressed autism-specific needs (Shattuck et al. 2012). Compared to their peers, autistic young adults often struggle with social skills and communication, traits that pose unique challenges to securing and retaining employment (Wehman et al. 2013). This realization led to the development of a modified version of the model: Project SEARCH with ASD supports, or PS-ASD. To better meet the needs of young adults on the autism spectrum, researchers modified the model to incorporate applied behavior analysis (ABA) and customized employment supports. These supports can include visual cues like picture schedules or graphic organizers, training in anxiety management and social skills training, and ABA supports such as task preference analysis.

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