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E. Anderson
Thomas Jefferson University

L. Hatton
Thomas Jefferson University

K. Schlager
Thomas Jefferson University

A. Shea
Thomas Jefferson University

K. Watlington
Thomas Jefferson University

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Anderson, E., Hatton, L., Kelly, E., Schlager, K., Shea, A., Watlington., K
Ferraro, M., PhD, OTR/L & Potvin, M.-C., PhD, OTR/L

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INTRODUCTION

Autism spectrum disorder (ASD) is a complex neurodevelopmental condition that is characterized by marked and sustained social, behavioral, and communication deficits that affect adaptive functioning as well as participation in everyday activities (Allen, Wallace, & Renes, 2010). Autism spectrum disorder is considered a lifelong disability, and the prevalence of ASD continues to rise (Croen et al., 2015). Individuals with autism spectrum disorder have the desire to work and be productive members of their community through employment opportunities (Hendricks, 2010). However, long-term employment outcomes are poor for individuals with autism spectrum disorder, as data estimates that 50-75% of individuals with ASD are either unemployed or underemployed (Hendricks, 2010). Research suggests that traditional models of work-related training, in addition to a lack of on-the-job support, may exacerbate difficulties experienced by individuals with autism spectrum disorder with obtaining and maintaining employment (English et al.,2017). The poor employment outcomes experienced by individuals with ASD are well-documented throughout literature and have resulted in the need to examine more effective ways of providing support and work-related interventions (English et al., 2017; Hendricks, 2010; Strickland, Coles, & Southern, 2013; Wehman et al., 2017). Although research has investigated the efficacy of work-related training on successful employment outcomes when used with individuals with ASD, a systematic review summarizing this evidence has yet to be published. Therefore, this review examines and interprets current research evidence on the efficacy of work-related training for individuals with autism spectrum disorder.

METHODS

Prior to conducting this systematic review, an *a priori* protocol was developed to identify the research (PICO) question and outline the comprehensive methodology used for searching, appraising, and synthesizing all relevant published studies (Appendix A). The protocol was developed collaboratively by six reviewers and followed closely to increase the validity of this systematic review.

Searching

The systematic search, in accordance with the protocol, was completed during February and March 2020 across four databases: ERIC, PubMed, CINAHL, and PsycInfo. The search was completed by six reviewers who followed a predetermined

list of specific subject headings and keywords, outlined in Table 2, to generate a combination of search terms for each electronic database (Appendix A).
In this systematic review, the results were limited to peer-reviewed and quantitative studies only. Additionally, articles were considered for this review if they met the following **inclusion criteria**: (1) participants were diagnosed with ASD, Aperger's, or Pervasive Developmental Disorder (2) participants were at least 14 years of age (3) participants were receiving any of the following: vocational training, job training, employment training, occupational training, work training, work-related training, vocational rehabilitation. Articles were excluded from this review if they met the following **exclusion criteria:** (1) written in a non-English language (2) considered a single-case design that was not A-B-A design. Table 4 provides the full list of inclusion and exclusion criteria for this systematic review (Appendix A).

Independently, two reviewers searched each assigned database and applied the inclusion and exclusion criteria to the titles and abstracts of each study retrieved, creating a list of applicable/potential articles per database. The inclusion criteria were applied to the full text of the article if relevance was uncertain by examination of the title and abstract only. Once the independent search was complete, both reviewers compared their search results and came to a paired consensus before developing a list of articles that met the inclusion criteria per database. If an agreement could not be met, a third reviewer was consulted to resolve any discrepancies. Following the paired consensus, all included articles were reviewed again through a group consensus in which inclusion and exclusion criteria were applied to the titles and abstracts of each article, or the full text of the article if the relevance of the article was uncertain. A final list of all included articles from each database was created after duplicates were removed and all reviewers came to a consensus. The flowchart, (Figure 1) summarizes the results of the search process and application of the inclusion and exclusion criteria (Appendix A).

Appraising

Adhering to the protocol, two reviewers independently appraised each article to determine the level and quality of evidence, following a predetermined set of criteria relevant to the study design. Once each independent appraisal was completed, both reviewers compared their appraisals, including the identified level and quality of evidence rating, and came to consensus. A third reviewer was consulted to resolve any discrepancies if an agreement could not be met. The *Quality and Level of Evidence Table,* (Table 5) summarizes the information gathered through the appraisal process in regard to the level and quality of evidence for each included article in this systematic review (Appendix A).

Synthesizing

The objective information from each article was summarized independently by two reviewers to create the *Study Description Table.* Following, the two reviewers compared tables and came to a consensus. A final and comprehensive *Study Description Table* (Table 6) was completed and includes information in regard to the population, intervention, relevant outcomes, results data, as well as statistical and clinical significance for each article included in this systematic review

(Appendix A). If no measure was provided for clinical significance within the article, the reviewers calculated the minimally detectable difference (MDD) when possible. From the available evidence outlined in the *Study Description Table,* practice recommendations were established by using a modified version of the Grading of Recommendations Assessment, Development, and Evaluation System (GRADES) (Guyatt, et al., 2011).

Terminology

Level of Evidence: levels are described for studies of interventions, diagnosis and prognosis, defined according to the strength of the design used (Portney & Watkins, 2015).

Quality of Evidence: the confidence that the reported estimates of effect are adequate to support a specific recommendation. The GRADE system classifies the quality of evidence as high, moderate, low and very low (World Health Organization, 2013).

Effect Size: estimate of the magnitude of difference between groups or the effect of the intervention (Portney & Watkins, 2015).

Minimally detectable differences: the amount of change in a variable that must be achieved to reflect a true difference (Portney & Watkins, 2015).

Minimally clinically important difference: the smallest difference in a measured variable that signifies an important rather than trivial difference in the patient's condition (Portney & Watkins, 2015)

RESULTS

Study Identification

The Study Identification Flowchart (Figure 1) details the process undertaken to identify articles to be included in this systematic review. In our literature search, 730 articles were identified. After applying a paired consensus process and the inclusion and exclusion criteria detailed in the *A Priori Protocol* (Appendix A), twelve studies were appraised. Of these twelve studies, five are level I studies, four are level III studies, and three are level IV studies. The studies range in quality from high to low, with five exhibiting a high quality level, 5 exhibiting a moderate quality level, and three exhibiting a low quality level. This information is further detailed in the *Quality and Level of Evidence Table* (Table 5).

The results of these studies were grouped into three main outcomes: increasing communication skills, acquiring employment, and acquiring selected vocational skills.

Increasing Communication Skills

Nine of the twelve published studies addressed the outcome of increasing communication skills. Five of these studies presented level I evidence, three presented level III evidence, and one presented level IV evidence. The quality of evidence ranges from low to high, with one presenting low quality of evidence, five presented moderate level of evidence, and three presented a high level of evidence. The communication skills that were addressed within these studies includes: success in greeting, serving, and ending communications; asking for a model, apologizing, making a confirming statement, listening, professional speech, networking, and appropriate interaction.

Of these nine studies, three were statistically significant and one was not statistically significant. The statistical significance was not given for five of them due to their small sample size or study design. Of the three statistically significant studies, two were not clinically significant, and one study demonstrated a large effect size.

This article, authored by Smith and colleagues (2014), is a randomized control trial (RCT) study of moderate quality. It evaluated the effect that virtual reality job training had on role-playing job interview success based on role play interview scoring as evaluated by the researchers. This study reported a large clinical significance, indicating that the virtual reality job training had a large effect on the success of the participants on the role play interview scoring.

Acquiring Employment

Three of the twelve published studies addressed the outcome of acquiring employment. All three studies presented level I evidence. The quality of evidence ranges from low to high, with one study exhibiting low quality, one study exhibiting moderate quality, and one study exhibiting high quality. The areas addressed in these three studies are: wages at or above minimum wage and employment status.

Of these three studies, two were statistically significant and one did not report statistical significance on the outcome of acquiring employment. Of the two statistically significant studies, one did not report clinical significance based on the study design and the other reported a large effect.

In the clinically significant study, an RCT of moderate quality, Wehman and colleagues (2017) utilized a modified version of Project SEARCH with ASD specific supports to address the outcome of gaining employment in young adults with ASD. Using generalized estimating equations to analyze the outcome data (unemployed vs. employed), a large effect size was calculated indicating that Project SEARCH with ASD related supports had a large effect on young adults with autism gaining employment.

Acquiring Selected Vocational Skills

Six of the twelve published studies addressed the outcome of acquiring selected vocational skills. Five of the studies presented level III evidence, and one of the studies presented level IV evidence. The quality of evidence ranged from low quality to high quality, with one study exhibiting low quality of evidence, two studies exhibiting moderate quality of evidence, and three studies exhibiting a high quality of evidence. The vocational skills that were examined within this outcome include: clocking in and out, professional dress, requesting time off, and professionalism.

Of these six studies, one was determined to be not statistically significant nor clinically significant. The other five studies did not provide statistical significance calculations due to extremely small sample sizes.

PRACTICE RECOMMENDATIONS

Increasing Communication Skills

Nine of the twelve published studies that met the systematic review's inclusion criteria addressed increasing communication skills. Of these, there was a preponderance of level I studies. Using a modified GRADES classification system, this outcome demonstrated moderate quality. While the quality of evidence was mainly moderate to high, there was a limited amount of data reported on clinical and statistical significance. If further research was conducted, the researcher's estimate is very likely going to change. With limited data to support this outcome, it is suggested that further studies with larger sample sizes are conducted.

Acquiring Employment

Three of the twelve published studies that met the systematic review's inclusion criteria addressed acquiring employment, all of which were level I studies. The outcome acquiring employment received a low-quality score based on the same GRADES criteria. The evidence was positive but was not clinically significant or statistically significant. Further research is very likely to have an impact on the estimation of the effect and validity of the results, making alternative treatment options with this outcome as a goal potentially more effective.

Acquiring Selected Vocational Skills

Six of the twelve published studies that met the systematic review's inclusion criteria addressed acquiring selected vocational skills. Of these, there was a preponderance of level III and level IV studies. Similarly to acquiring employment, acquiring selected vocational skills also received a low-quality score with the majority of the results being neither clinically or statistically significant. As before, it is still recommended that further studies be performed to determine the efficacy of work-related training with individuals who have autism and to generalize the results.

CLINICAL IMPLICATIONS

The twelve studies in this systematic review evaluated the efficacy of work related training with individuals who have autism. All three of the outcomes were classified as low-quality using the modified GRADES system: increasing communication skills, acquiring employment and acquiring vocational skills. Further research is warranted as the results for these three outcomes varied due to the numerous interventions being utilized for each study as well as a lack of statistical and clinical significance. However, the benefits of the recommended course of action outweigh the burdens on an individual and his or her family (e.g. transportation, time) for the three identified outcomes. While study limitations exist, work-related training is an option that can be explored by practitioners to support individuals with ASD who are seeking employment. Individuals with autism, and their families, who are interested in acquiring employment may explore alternative interventions depending on their individual needs.

CLINICAL TIPS

There is evidence to support that individuals with autism can benefit from work-related training, but these studies are highly individualized. The individualization of the included studies makes it difficult to suggest a specific intervention that would be effective for this population. Individuals with autism would likely benefit from additional support being in place when participating in a work-related training program. Work-related training relies heavily on client-centered goals and care, meaning that the therapist must utilize the individual's strengths and interests when developing and implementing a work-related program.

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APPENDIX A

Table 1. PICO Question

PICO question			
P - Individuals with autism	**I -** Vocational training	**C -** None	**O –** Workplace success

Table 2. Search Strategy

Databases and Search Terms					
	Construct 1		Construct 2		Limits (if any)
Database	**Subject Headings**	**Keywords**	**Subject Headings**	**Keywords**	
PubMed	Child Development Disorders, Pervasive	autis*, Asperger*	Vocational Education, Vocational Rehabilitation, supported employment	"Work related training", "work training", "vocational training', "job training", "vocational education", "vocational skills", "job skills", "vocational rehabilitation", "supported employment", Pre-vocational, Prevocational	Limited to peer reviews

PsycInfo	Autism Spectrum Disorder	Autis* Asperger*	Personnel Training Supported Employment	"Work related training", "work training", "vocational training', "job training", "vocational education", "vocational skills", "job skills", "vocational rehabilitation", "supported employment", Pre-vocational, Prevocational	Limit to peer-reviewed articles
ERIC (use OVID)	Pervasive developmental disorders	Autis* Asperger*	Vocational education Job training	"Work related training", "work training", "vocational training', "job training", "vocational education", "vocational skills", "job skills", "vocational rehabilitation", "supported employment", Pre-vocational, Prevocational	Limited to peer reviews

CINAHL	-Autistic disorder -Asperger syndrome	-Autis* -Asperger*	Vocational education	-Job -Vocational -Prevocational -Employment (AND) -Training -intervention	Limited to peer reviewed articles

Table 3. Boolean Sentence

Database Name	Boolean Sentence
PubMed	("**Child Development Disorders, Pervasive**" or autis* or Asperger*) AND **("vocational rehabilitation"** OR **"supported employment" or "vocational education**" OR "work related training" OR "work training" OR "vocational training" OR "job training" OR "vocational skills" OR "job skills" OR "vocational rehabilitation" OR "supportive employment" OR prevocational OR pre-vocational
PsycInfo	(**Autism Spectrum Disorder** OR Autis* OR Asperger*) AND (**Personnel Training** OR "work related training" OR "work training" OR "vocational training" OR "job training" OR "vocational skills" OR "vocational rehabilitation" OR "job skills" OR "supportive employment" OR prevocational OR pre-vocational)
ERIC (use EBSCO)	**Pervasive developmental disorders** OR Autis* OR Asperger* AND **vocational education** OR **job training** OR "work related training" OR "work training" OR "vocational training" OR "job training" OR "vocational skills" OR "vocational rehabilitation" OR "job skills" OR "supportive employment" OR prevocational OR pre-vocational
CINAHL	(Autis* OR Asperger* OR **Autistic Disorder OR Asperger syndrome**) AND (**Vocational Education** OR job OR Vocational OR prevocational OR Employment) AND (training or intervention)

Table 4. Article Inclusion and Exclusion Criteria

Inclusion Criteria			
Population	**Intervention and Comparison**	**Outcome**	**Other**
Autism or Asperger's syndrome or Pervasive developmental disorders	Receiving any of the following: vocational training, job training, employment training, occupational training, work training, work-related training, vocational rehabilitation	Obtaining a job, maintaining a job, effective job performance, job retention, continued employment, getting hired, gaining work related skills, building skills for future employment	Peer-reviewed scholarly articles
All IQ levels	Examples of work training: video modeling, TEACCH	Full time or part time	Quantitative studies
Male and female			
Individuals ages 14+ as this is the age that individuals with IEPs begin transitioning. This age captures the scope of who is engaging in work related training.		Supported employment	

Any race or ethnicity to be inclusive of the entire population		Paid employment	
Any socioeconomic status to be inclusive of the entire population		Gaining work-related skills	
Exclusion Criteria			
Population	**Intervention and Comparison**	**Outcome**	**Other**
Adults with Rett's syndrome		Sheltered workshops	Studies in non-English language
Comorbidities like; CP, Deafness, Down's syndrome			Systematic reviews
			SCDs that are not ABA style

Figure 1. Flow Chart

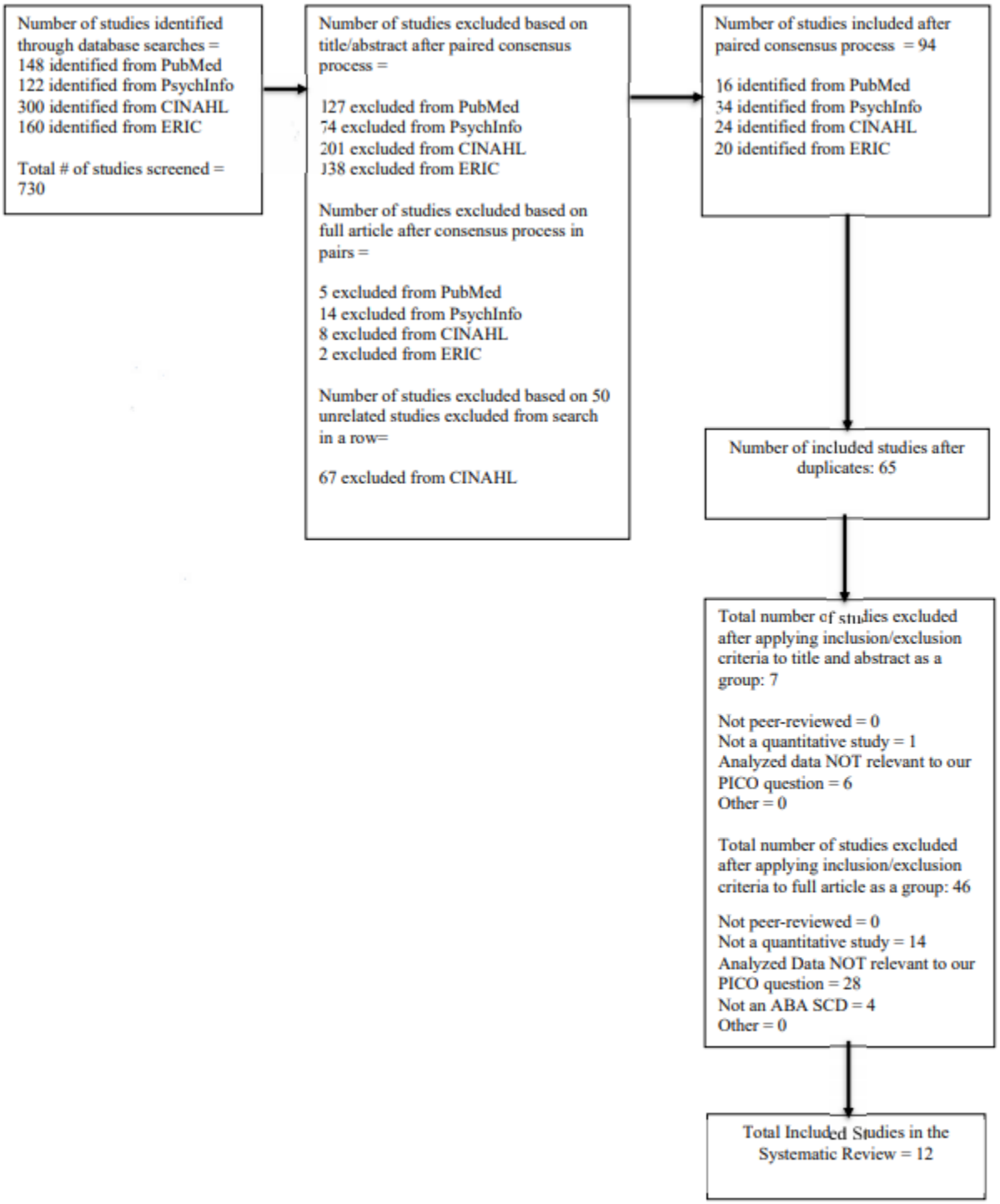

Table 5. Quality and Level of Evidence Table

		Quality Criteria											
Citation	Type of design	1	2	3	4	5	6	7	8	9	10	Quality Level	Evidence Level
Allen et al., 2010	7	1	1	1	1	0	1	0	1	X	X	High	Level III
Baker et. al., 2018	6	0	1	0	0	1	1	0	0	X	X	Low	Level III
Bross et al, 2019	7	1	1	1	1	1	1	0	1	X	X	High	Level IV
English et al., 2017	7	1	1	1	1	0	1	0	1	X	X	High	Level III
Grob et. al., 2019	7	1	1	1	1	0	0	0	1	X	X	Moderate	Level IV
Rausa et al, 2016	7	1	1	1	1	0	1	0	1	X	X	High	Level IV
Smith et al., 2014	3	0	0	1	1	1	0	0	0	0	1	Moderate	Level I
Strickland et al., 2013	3	1	1	1	1	1	1	0	X	0	0	Moderate	Level I
Sung et. al., 2019	6	0	1	0	0	1	1	1	0	X	X	Moderate	Level III
Wehman, et. al, 2014	3	1	1	1	1	0	1	0	0	1	1	High	Level I
Wehman et al., 2017	3	1	1	1	1	0	1	0	0	0	1	Moderate	Level I
Whittenberg, et al., 2020	3	0	0	1	1	0	0	X	0	0	0	Low	Level I

Table 6. Study Description Table

Study	Design Type	Number of Criteria met and Quality Level	Population (including age)	Intervention(s), Comparison (s), and n in each group	Outcome (s)	Measurement (include units)	Results, means (SD)	Statistical significance	Clinical significance
Allen et al., 2010	SCD Level III	6/8= 75% High	4 males dx: autism; ages 17-25	Video modeling for acquisition of vocational skills Comparison N/A n=4	Acquiring selected vocational skills Tolerating the costume and willingness to perform a job while wearing a costume	Minute-by-minute analysis of target behaviors (high-five/ hand shaking, wagging tail, wagging ears, wagging tongue, waving) 8-item social validity measure that had a 6 point Likert scale	Baseline: Under 30% for all participants During intervention: varies; all went over 30% at some point (Figure 1) Targeted behaviors: -Waving: M = 73% of scored intervals) -Hand shaking or high-fives (M = 47%) -Wiggling ears (M = 40%) -Wagging the tongue (M = 25%) -Wagging the tail (m = 12%) Figure 1 can be used to look at each data point Not applicable at baseline After intervention was provided, scores ranged from 4.8 to 5.9	N/A N/A	n.g

					(social validity)				
Baker et. al., 2018	Quasi - experimental (6)	3/8 = 37.5% Low	N=8 Dx= ASD, Age: 18-29	SEARCH intervention Comparison N/A n=8 4 in each group with the same intervention provided	follows workplace dress expectations clocks in and out requests time off Inhibit, Shift, Emotional Control, Initiate, Working Memory, Plan/Organize, Organization of Materials, Monitor	Functional Daily Living Questionnaire 14 items, Likert scale 1-5 Functional Daily Living Questionnaire 14 items, Likert scale 1-5 Functional Daily Living Questionnaire 14 items, Likert scale 1-5 BRIEF-A 86 item measure Overall score=global executive composite Higher score=more dysfunction	Baseline M: 4.50 (0.54) Post-intervention M:4.63 (0.52) Baseline M: 4.13 (1.36) Post-intervention M: 4.13 (1.25) Baseline M: 3.00 (1.41) Post-intervention M: 3.75 (1.39) Baseline M: 61.38 (16.71) Post-intervention M:57.50 (15.40)	p= 0.73 p=1.00 p=0.29 P=0.018 (BRIEF-A) p=0 .02 (global executive)	MDD= 0.27 MDD= 0.68 MDD=0.705 MDD= 8.355

Bross et al, 2019	SCD Level III	7/8 = 87.5% High	18 white male; dx: ASD. Currently holds a job in integrated employment and fluent verbal language skills	Video-modeling Comparison: baseline n=1	Success in: 1. greeting 2. serving 3. ending	% success (# correct/# opportunities): 1. greeting 2. serving 3. ending	1. Baseline avg.= 6% Tx avg.= 94% 2. Baseline avg.= 16.5% Tx avg.= 95% 3.Baseline avg.= 15% Tx avg.= 85%	n.g	n.g
English et al., 2017	SCD Level III	6/8= 75% High	3 males dx: autism; ages 18-23	Using video modeling (VM) with video feedback (VF) to teach vocational gardening skills Comparison N/A n=3	Acquiring selected vocational gardening skills Social validity was measured based on three dimensions: significance of goals, appropriateness of the procedure, and importan	Percentage of steps completed correctly across baseline, intervention, fading, and maintenance 5-point Likert scale form for parent, co-worker, participant. (1-disagree, 5-agree)	All participants increased in scoring; all scores are provided on Figures 2-5 Total PND score across all skill sets= 100% Not applicable at baseline After intervention was provided, scores were ranged from 4-5 in all	N/A N/A	n.g

					ce of the effects		categories on all forms		
Grob et. al., 2019	SCD (7)	5/8 = 62.5% Moderate	**N=3** **Arthur:** 19 y.o. male Dx: PDD-NOS **Jerry:** 27 y.o. male, Dx: PDD-NOS and dyslexia **Vanessa:** 19 y.o female, Dx: ASD, ADHD and borderline intellectual functioning	Behavioral skills training (BST) plus stimulus prompts Comparison: None *Baseline and post-intervention: no stimulus prompts SCD with 3 people, each individual was measured independently	1. Making a confirming statement 2. asking for a task model 3. apologizing 4. asking for clear task feedback 5. asking for help with materials 1-3 are for each participant 4 &5 are just for Arthur	Observation and data collection on a specially designed data sheet to record the occurrence or nonoccurrence of the dependent variable, as well as opportunity for the participants to exhibit them	The number of components scored as correct was divided by the total number of components for each session and multiplied by 100 to get a percentage of correct implementation	n.g	n.g
Rausa et al, 2016	SCD	6/8 = 75% High	23 year old male, dx: ASD. Advanced diploma in Computer Systems Engineering. Skill deficits –	Video Modeling Comparison: baseline n=1	Success in: 1. listening 2.action-complaints 3. action-orders 4.profession speech	% success (# correctly/# responses): 1. listening 2.action-complaints 3. action-orders 4.profession speech	1. Baseline avg.= 59% Tx avg.= 90% Follow-up avg. = 100% 2. Baseline avg.= 13% Tx avg.= 80% Follow-up avg. = 100% 3. Baseline avg.= 63% Tx avg.= 90%	n.g	n.g

			working memory, conversation, socialization skills				Follow-up avg. = 86% 4. Baseline avg.= 53% Tx avg.= 79% Follow-up avg. = 75%		
Smith et al., 2014	RCT	4/10 = 40% Moderate	18-31 dx: autism or a score of 60+ on SRS-2 no comorbidities, 6th grade reading level, no substance abuse, underemployed, looking for employment	Virtual Reality Job Interview Training Comparison: Control Group (treatment as usual) Tx: n=16 Control: n=10	2 primary outcomes 1 .Role-play job interview success 2. Interview self-confidence	1 .Role Play Interview Scoring 2. 7-point Likert scale survey	Mean (SD) 1. Control Baseline:28.2(5),Control Follow-up: 28.5(6.1),Intervention Baseline: 29.5(5.7),Intervention Follow-up: 32.7(5.7) 2. Control Baseline:41.0(9.6) ,Control Follow-up: 43.8(9.1), Intervention Baseline: 41.4(10.6),Intervention Follow-up: 50.6(8.4)	p=.046 p=.06	Cohen D = .83 Cohen D =1.15
Strickland et al., 2013	RCT	6/9= 66.7% Moderate	22 males dx autism; ages 16-19 years	Effectiveness of an internet accessed training program (JobTIPS) that included Theory of Mind-based guidance, video models, visual supports, and	Content of the participants' response to questions Behaviors related to greetings	Interview Skills Rating Instrument - Response Content subscale	Positive change between first and second interview	Treatment: M = .448 SD = .341 Control: M = -.034 SD = .17 F(1,20) = 17.46 p<.000 Treatment:	Eta-squared = 0.47 Eta-squared =0.16

				virtual reality practice sessions in teaching appropriate job interview skills to individuals with high functioning Autism Spectrum Disorders. Comparison: N/A n=22 n=11 (treatment) n=11 (control)	and farewells as well as non-verbal behaviors that accompany verbal responses Severity of social impairment	Interviews Skills Rating Instrument - Response Delivery subscale Social Responsiveness Scale	Positive change between first and second interview T-scores are all given in Table 2	M = .334 (SD = .229) Control: M = .0252 (SD = .463); F(1,20) = 3.93 p = .062 Not statistically significant	
Sung. et al., 2019	6-Quasi-experimental	4/8 = 50% Moderate	17 individuals Dx: HF ASD ages 18-25 years	ASSET-Assistive Soft Skills and Employment Training Comparison: N/A 17 total n=4-5 per group	Communicating with others Positive attitude and enthusiasm	Study-specific perceived improvement scale (4 point Likert scale) Study-specific perceived improvement scale (4 point Likert scale) Study-specific perceived	3.07 (1.00) 3.14 (0.86)	n.g	MDD= 0.50 MDD=0.43

					Working in a team Networking Critical thinking Problem-solving Professionalism	improvement scale (4 point Likert scale) Study-specific perceived improvement scale (4 point Likert scale) Study-specific perceived improvement scale (4 point Likert scale) Study-specific perceived improvement scale (4 point Likert scale) Study-specific perceived improvement scale (4 point Likert scale)	3.29 (0.73) 3.14 (1.10) 3.29 (0.83) 3.07 (0.73) 3.21 (0.89)		MDD=0.365 MDD=0.55 MDD=0.415 MDD=0.365 MDD=0.445
Wehman et. al., 2014	RCT	7/10 = 70% High	dx: ASD, Asperger's or PDD-NOS	Project SEARCH and ASD Supports	Amount of support needed	Supports Intensity Scale (SIS)	Intensity of Support (SIS)	p=0.000	MDD: 2.84

			ages 18 -21 in high school	Comparison: Control group receiving only IEP educational support Intervention group n= 24 Control group n= 16	during training Employment	-Limited support (SNI 1-60) - Intermittent support (SNI 61-84) -Extensive supports (SNI 86-116) - Pervasive support (SNI 117+) Interview - employment status -wage earned - hours worked - employer paid benefits	Control M=80.87 SD=5.68 Treatment M=82.00 SD=7.93 n.g	n.g	
Wehman et al., 2017	RCT	6/10= 60% Moderate	dx: autism ages 18-21 years old Caucasian and African American	PS-ASD: Modified a Project SEARCH and used applied behavior analysis to develop Project SEARCH plus Autism Spectru	Home living, community living, lifelong living, employment, health and safety, and social	Interview to assess needs with 4 ordinal category classifications of need (SNI)	SNI Tx group mean= 81.87 (6.51) SNI Control group mean= 80.47 (5.6) Both are classified as Intermittent Support	t=5.23 SE= 0.3512 p<0.001	MDD= 3.255

				m Disorder Supports No comparison n=49/54 Control group: n=18/23 Treatment group: n=31	The intensity of needed employment supports Employment status	The Employment Activities Subscale of the SIS (scores range from 1-20) GEE model of employment status	Baseline: Treatment= 8.75 Control= 8.25 12-month follow up: Treatment= 7 Control= 8.75 Baseline: 0% for treatment and control groups 12 month follow up: 87% for treatment group and 12% for control group	The model was significant (x2=32.73, p<0.0001) and main effects of group (F(1, 48)=7.56, p=0.0084) and time(F(3,137)=7.55, p<0.0001) interaction effects of group×time (F(3,137)=12.08, p<0.0001) were significant. 12 month follow up: SD=0.34 p<0.0001 (treatment) SD=0.33 (control)	n.g d=2.17
Whittenberg et al, 2020	Pilot study	2/9 = 22.2% Low	Military-dependent or -connected,dx: ASD,Ages 18-21	Project SEARCH with ASD specific supports Comparison: Services as typically received 14 total:	Wages at or above minimum wage Wages scaled to the same wage as a nondisabled person performing the same job	CIE	Treatment group: 83.3% Control group: 0%(one employed in sheltered workshop)	n.g	n.g

				6=intervention 8=control	Employee with ASD interact appropriately with other co-workers and if necessary, customers				

Key
ASD: Autism Spectrum Disorder
ADHD: Attention deficit hyperactivity disorder
ASSET: Assistive Soft Skills and Employment Training
BRIEF-A: Behavior Rating Inventory of Executive Function
Dx: diagnosis
M: Mean
N/a: not applicable
N.g.: not given
PDD-NOS: Pervasive developmental disorder; not otherwise specified
PND: percentage of non-overlapping data
RCT: randomized control trial
SIS: Supports Intensity Scale
SCD: Single case design
SEARCH: Support, Education, Advocacy, Resources, Community and Hope
SD: standard deviation
Tx: treatment
VM: Video modeling
VF: Video feedback