Near-Peer Facilitation of a Soft Skills Program for Young Adults With Autism

Annemarie Connor, Sarah E. Fabrizi, Amy Nasamran, Connie Sung

Importance: Young adults with autism spectrum disorder (ASD) experience poor employment outcomes. Teaching soft skills and using peer-based interventions improve outcomes for people with ASD.

Objective: To evaluate the preliminary efficacy of a soft skills intervention and the feasibility of delivery to a group of young adults with ASD by near-peer occupational therapy master's-level students.

Design: Pretest–posttest single-group design.

Setting: College campus.

Participants: Convenience sample of 14 young adults (M age = 21.57 yr) with ASD.

Intervention: The Assistive Soft Skills and Employment Training (ASSET) program is a 12-session, manualized, soft skills group intervention previously validated with the ASD population. Topics include communication, attitude and enthusiasm, teamwork, networking, professionalism, and stress management.

Outcomes and Measures: Social functioning, self-efficacy, and adaptive behavior were measured preintervention and immediately postintervention using standardized self-report rating scales. Participant satisfaction and experience were assessed using program-specific measures.

Results: Participants made statistically significant improvements, with medium to large effect sizes in social functioning, self-efficacy, and adaptive behavior. They reported high levels of satisfaction and a positive experience with the program content and delivery.

Conclusions and Relevance: This study provides evidence of participant satisfaction and perceived soft skills improvement and confidence, in addition to the preliminary efficacy of master's-level students as near-peer facilitators of the ASSET program with an ASD population.

What This Article Adds: The results suggest that trained and supervised master's-level students can effectively deliver a manualized intervention as near-peer facilitators, elicit positive feedback and high levels of participant satisfaction, and replicate and extend previously reported participant gains.

Obtaining employment is an important milestone and can improve a person's independence level, self-esteem, contribution to society, and overall quality of life. However, people with autism spectrum disorder (ASD) experience considerable challenges in obtaining and maintaining work (Shattuck et al., 2012). Although many people with ASD want to work (Sosnowy et al., 2018), difficulties with job seeking, attainment, and tenure continue to pose barriers, and they highlight the need for more effective supports (Chen et al., 2015). To address the unique transition needs of young adults with ASD, employment-based programming has been

developed specifically for this population (e.g., Gorenstein et al., 2020; Sung et al., 2019). Most interventions focus on technical or specific job skills instruction, with very few targeting *soft skills,* or the social communication skills necessary for interacting with others and succeeding in the workplace (Phillips et al., 2014). Teaching soft skills is crucial to improving work readiness and retention for people with ASD, given their underlying social skills deficits and the value employers place on soft skills (Ju et al., 2012).

Rehabilitation programs have recently begun to focus on soft skills as instrumental to employment

outcomes. For example, the SUCCESS (Supported Employment, Comprehensive Cognitive Enhancement, and Social Skills; Baker-Ericzén et al., 2018), ASSET (Assistive Soft Skills and Employment Training; Connor et al., 2020; Sung et al., 2019), JOBSS (Job-Based Social Skills; Gorenstein et al., 2020), and Community-Works Canada (Nicholas et al., 2019) programs each address soft skills and have been associated with improvements in executive functioning, social communication skills (Baker-Ericzén et al., 2018), self-confidence (Sung et al., 2019), and even mental health (Connor et al., 2020). Although some programs have measured employment gains (Baker-Ericzén et al., 2018; Gorenstein et al., 2020; Nicholas et al., 2019), none of these gains were statistically significant, and all projects had study design limitations, exemplifying how difficult it is to track meaningful change in employment in this population. Specifically, the ASSET program, a manualized, group-delivered soft skills intervention, has demonstrated preliminary efficacy in promoting social skills, self-confidence, and psychological wellness among young adults with ASD (Connor et al., 2020; Sung et al., 2019).

In addition, peer-based instruction and interventions (PBII) are a widely used, empirically based approach to teaching various skills to people with ASD (Chang & Locke, 2016). PBII involves similar-age, often neurotypical peers facilitating social interaction with people with ASD and is thought to be effective because it promotes natural opportunities to model and practice appropriate social behavior and skills (Steinbrenner et al., 2020). In this study, we incorporated PBII by having near-peer master's-level occupational therapy students deliver the ASSET program to young adults with ASD on a college campus. For the purpose of this study, *near-peer* describes the incorporation of occupational therapy students as group facilitators. These facilitators were considered peers because both the students and the participants were in a similar life stage that was focused on transitioning to an early career. Although several soft skills interventions for young adults with ASD are being developed, interventions that use typically developing peers as instructors or facilitators of soft skills training have yet to be examined. The purpose of this study was to examine the preliminary efficacy of the ASSET program using near-peer occupational therapy student facilitators to promote improvements in psychosocial outcomes among young adults with ASD. In this article, we use person-first language to describe our participants; however, we recognize that many in the autism community choose to identify as autistic.

Method
Design
In this pretest–posttest, single-group study, we examined the effects of the ASSET program, as facilitated by occupational therapy students, on the psychosocial functioning of young adults with ASD immediately after the intervention.

Participants
A convenience sample (Table 1) of 14 (*M* age = 21.57 yr, *SD* = 3.57) was recruited via flyers posted on two college campuses and in the community. The consent process included an explanation of the study's purpose, a description of the program overview, and written consent. Sixteen people applied; 15 were eligible per the criteria (age 17–30 yr, ASD diagnosis, no intellectual disability, identified social problems, fluent verbal communication, ability to read and comprehend questionnaires). One person declined to take part because of a scheduling conflict. The retention rate was 100%; the attendance rate was 94%.

Procedure
Participants independently completed self-report assessments within 3 days before and 3 days after the intervention. The time to complete each survey was <45 min per person.

Intervention
The ASSET intervention is a 12-session, empirically based, manualized, group soft skills program that has been previously validated with the ASD population (see details in Connor et al., 2020; Sung et al., 2019, and Table 2 for information on session topics). Group sessions were held weekly for 2.5 hr in a conference

Table 1. Participant Characteristics

Characteristic	*M* (*SD*)	*n* (%)
Age, yr	21.57 (3.57)[a]	
Gender		
Female		4 (29)
Male		10 (71)
Ethnicity		
Caucasian		11 (79)
Hispanic		3 (21)
Current education level		
High school student		3 (21)
High school graduate		8 (57)
College student		2 (14)
College graduate		1 (7)
Employment status at Time 1		
Full time		0 (0)
Part time, hr/wk	6.07 (12.02)[b]	4 (29)
Unemployed, seeking work		7 (50)
Volunteer		3 (21)

Note. N = 14. Percentages may not total 100 because of rounding.
[a]Range = 17–28. [b]Range = 2–33.

Table 2.   Overview of the ASSET Program

Session	Content
1: Program Overview	• Group norms and expectations • Types of soft skills
2: Communication (Part 1)	• Verbal and nonverbal perceptions • Variations in style by situation and population
3: Communication (Part 2)	• Conveying and receiving information accurately
4: Attitude and Enthusiasm	• Displaying attitude and enthusiasm effectively • Presenting strengths and weaknesses confidently and professionally
5: Teamwork	• Characteristics of effective team leaders and members • Identifying individual strengths and needs
6: Networking and Identity	• Building, expanding, and maintaining personal and professional networks • Managing one's digital identity
7: Critical Thinking and Problem Solving	• Understanding work-related problems • The IDEAL model as a problem-solving method • Effectively answering behavioral questions
8: Professionalism	• Appropriate workplace behaviors • Strategies to bolster professionalism
9: Mental Health	• Understanding mental health vs. illness • Strategies to improve mental health
10: Stress Management and Self-Advocacy	• Reading the social context and the emotions within the context • Work-related stressors and management • Valuing and applying self-advocacy at work
11: Awareness of Self and Others	• Perspective-taking skills • Reading the social context
12: Graduation	• Reflecting on learning and vocational planning • Recognizing individual and group growth

Note. ASSET = Assistive Soft Skills and Employment Training; IDEAL = Identify, Describe, Explore, Anticipate, Look/Learn.

room on the Florida Gulf Coast University campus. Each session followed a didactic discussion–practice sequence with explicit instruction and experiential activities, including a social hour, to promote generalization of skills. Sessions were co-facilitated by two occupational therapy students supervised by the principal investigator (Annemarie Connor). Co-facilitators rotated among a group of four trained occupational therapy students so that one facilitator was consistent between adjacent sessions and had first-hand knowledge of the previous session. Evidence-based instructional strategies were incorporated throughout each session and included social skills training, visual supports, immediate and specific feedback, video modeling, and direct instruction (Steinbrenner et al., 2020).

Instruments

All instruments aligned with the study's constructs of interest (social functioning, self-efficacy, adaptive behavior), demonstrated good internal consistency reliability with previous ASSET cohorts (Connor et al., 2020; Sung et al., 2019), and had strong diagnostic validity (Constantino & Gruber, 2012; Harrison & Oakland, 2015) and construct validity (Schwarzer & Jerusalem, 1995).

Social Functioning

The Social Responsiveness Scale (2nd ed.; SRS–2; Constantino & Gruber, 2012) is a 65-item self-report questionnaire that provides both subscale and composite scores describing social functioning. Responses on the Likert-type scale can range from 1 (*not true*) to 4 (*almost always true*). Raw scores were converted to T scores. T scores ≥60 indicate clinically significant social deficiencies that may interfere with everyday social interaction. Cronbach's α in our sample was .86.

Self-Efficacy

The General Self-Efficacy Scale (Schwarzer & Jerusalem 1995) is a 10-item self-report inventory used to measure perceived ability to cope with challenges and ability to set goals, invest effort, persist when facing barriers, and recover from setbacks. Responses on the Likert-type scale can range from 1 (*not true at all*) to 4 (*exactly true*). Mean scores were computed, with higher scores indicating stronger self-efficacy. Cronbach's α in our sample was .84.

Adaptive Behavior

The Informal Adaptive Behavior Questionnaire (IABQ) was adapted from the Adaptive Behavior Assessment System (3rd ed.; Harrison & Oakland,

2015) to measure overall adaptive behavior as a combined score of items related to social, communication, self-direction, and work functioning. The Likert-type questions are rated on a scale ranging from 1 (*never*) to 3 (*always*). A total score was calculated, with higher scores indicating higher adaptive behavior. Cronbach's α in our sample was .88.

Participant Experience

Participant satisfaction was measured using the ASSET User Rating Profile (URP; Sung et al., 2019), which consists of 17 Likert-type questions that are rated on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Soft skills improvement was assessed with the Perceived Improvement Questionnaire (PIQ), which consists of seven Likert-type questions that are rated on a scale ranging from 1 (*not improved at all*) to 4 (*largely improved*); soft skills confidence was assessed with the Perceived Confidence Questionnaire (PCQ), which consists of six Likert-type questions that are rated on a scale ranging from 1 (*much less confident*) to 5 (*much more confident*). Mean scores were computed for the URP, PIQ, and PCQ, with higher scores indicating more positive perceptions. Cronbach's α scores in our sample were .90, .89, and .90, respectively.

Data Analysis

We used descriptive statistics to report participant experience ratings at posttest (Time 2). Paired *t* tests were used to compare pre–post mean scores for repeated measures; the α level was set at .05 given the pilot nature of the study (Feise, 2002). We used Cohen's *d* to assess effect sizes.

Results

The URP, which measured participant satisfaction and experience, indicated high positivity ($M = 4.47$, $SD = 0.38$, range $= 3.76–5.00$) with the near-peer intervention. The PIQ results indicated large perceived improvements in soft skills ($M = 3.41$, $SD = 0.55$,

range $= 2.00–4.00$), and the PCQ results indicated strong perceived soft skills confidence ($M = 4.18$, $SD = 0.67$, range $= 3.00–5.00$) after the intervention. In regard to preliminary efficacy, on average, participants made statistically significant ($p \leq .03$) and medium to large improvements across social functioning ($d = 0.55$), self-efficacy ($d = 0.79$), and adaptive behavior ($d = 0.54$). Efficacy details are presented in Table 3.

Discussion

The results of this PBII, near-peer intervention not only support the feasibility of having occupational therapy students facilitate the intervention but also describe preliminary efficacy in improving self-perceived social functioning, self-efficacy, adaptive behavior, soft skills performance, and confidence. Psychosocial gains documented in the current study have been associated with enhanced employment outcomes in similar programs, such as SUCCESS (Baker-Ericzén et al., 2018), JOBSS (Gorenstein et al., 2020), and Job-TIPS (Strickland et al., 2013). Moreover, on average, social functioning scores in our sample fell below the SRS–2 clinical cutoff score ($T = 60$) after the intervention, indicating clinically meaningful improvements in social functioning. Gains may be attributable not only to the 12-session soft skills curriculum but also to the organization of the social environment, incorporation of ASD evidence-based strategies (Steinbrenner et al., 2020), gradual unpacking of topics related to workplace success, near-peer influence, formal and informal opportunities to practice soft skills in sessions and during the built-in social hour, and high satisfaction with program content and near-peer delivery.

Limitations

Given the pilot status of this study and the small sample size, *p* values were not adjusted to correct for potential Type I error (Feise, 2002); also, the use of self-report measures may have introduced bias. Moreover, three measures (URP, PIQ, PCQ) were program

Table 3. Participant Changes From Baseline to Postintervention

Measure	M (SD)		T2–T1, ΔM	SE	t	df	p	d
	T1	T2						
Primary: Social functioning								
SRS–2	62.62 (8.45)	57.54 (10.14)	−5.17	1.76	−2.94	11	.010*	0.55
Secondary: Self-efficacy								
GSE—General	2.87 (0.47)	3.39 (0.39)	0.52	0.14	3.80	13	.002**	0.79
Secondary: Adaptive behavior								
IABQ—Adaptive	2.59 (0.26)	2.74 (0.27)	0.15	0.06	2.51	13	.030*	0.54

Note. $0.20 < d > 0.50$ = small effect size; $0.50 < d > 0.80$ = medium effect size; $d > 0.80$ = large effect size; decreased SRS–2 scores and increased GSE and IABQ scores indicate improvement. GSE = General Self-Efficacy Scale; IABQ = Informal Adaptive Behavior Questionnaire; SRS–2 = Social Responsiveness Scale (2nd ed.); T1 = Time 1; T2 = Time 2.
*$p < .05$. **$p < .01$.

specific. Although each demonstrated good internal consistency reliability (α > .80) in our sample, further validation is warranted. Because of the recruitment challenges with this population and the need to limit group sizes, larger samples may be achieved by pooling data from future cohorts. Finally, although this and previous studies (Baker-Ericzén et al., 2018; Connor et al., 2020; Gorenstein et al., 2020; Nicholas et al., 2019) have tracked psychosocial outcomes such as self-efficacy and executive functioning as prerequisites to employment, employment outcomes could not be fairly assessed in the current study secondary to job-seeking disruptions related to the coronavirus disease 2019 pandemic. Moreover, employment was not an immediate goal of more than one-third of our sample, who were full-time students.

Implications for Occupational Therapy Practice and Education

This study has the following implications for occupational therapy practice and education:

- The ASSET program was associated with clinically meaningful improvements in social functioning, self-efficacy, and adaptive behavior, which are essential skills that are often lacking among young adults with ASD.
- The key intervention components of the ASSET program are all current evidence-based practices in the management of ASD (Steinbrenner et al., 2020).
- Trained and supervised occupational therapy students can effectively deliver the manualized intervention as near-peer facilitators, elicit positive feedback and high levels of participant satisfaction, and replicate and extend previously reported participant gains.

Conclusion

Our results provide Level 3 evidence (Lieberman & Scheer, 2002) in support of the preliminary efficacy of occupational therapy students as near-peer facilitators of the ASSET program. We observed measurable gains in participants' social skills, confidence, and adaptive functioning, in conjunction with high levels of satisfaction, and noted that the use of occupational therapy students as near-peer group facilitators shows a potential to elicit positive changes in young adults with ASD. Replication of this study on other college campuses is warranted for generalizability purposes. **AJOT**

Acknowledgments

References

Baker-Ericzén, M. J., Fitch, M. A., Kinnear, M., Jenkins, M. M., Twamley, E. W., Smith, L., . . . Leon, J. (2018). Development of the Supported Employment, Comprehensive Cognitive Enhancement, and Social Skills program for adults on the autism spectrum: Results of initial study. *Autism, 22,* 6–19. https://doi.org/10.1177/1362361317724294

Chang, Y. C., & Locke, J. (2016). A systematic review of peer-mediated interventions for children with autism spectrum disorder. *Research in Autism Spectrum Disorders, 27,* 1–10. https://doi.org/10.1016/j.rasd.2016.03.010

Chen, J. L., Leader, G., Sung, C., & Leahy, M. (2015). Trends in employment for individuals with autism spectrum disorder: A review of the research literature. *Review Journal of Autism and Developmental Disorders, 2,* 115–127. https://doi.org/10.1007/s40489-014-0041-6

Connor, A., Sung, C., Strain, A., Zeng, S., & Fabrizi, S. (2020). Building skills, confidence, and wellness: Psychosocial effects of soft skills training for young adults with autism. *Journal of Autism and Developmental Disorders, 50,* 2064–2076. https://doi.org/10.1007/s10803-019-03962-w

Constantino, J. N., & Gruber, C. P. (2012). *Social Responsiveness Scale* (2nd ed.). Western Psychological Services.

Feise, R. J. (2002). Do multiple outcome measures require *p*-value adjustment? *BMC Medical Research Methodology, 2,* 8. https://doi.org/10.1186/1471-2288-2-8

Gorenstein, M., Giserman-Kiss, I., Feldman, E., Isenstein, E. L., Donnelly, L., Wang, A. T., & Foss-Feig, J. H. (2020). A Job-Based Social Skills program (JOBSS) for adults with autism spectrum disorder: A pilot randomized controlled trial. *Journal of Autism and Developmental Disorders, 50,* 4527–4534. https://doi.org/10.1007/s10803-020-04482-8

Harrison, P. L., & Oakland, T. (2015). *Adaptive Behavior Assessment System™, Third Edition (ABAS-3): Manual.* Western Psychological Services.

Ju, S., Zhang, D., & Pacha, J. (2012). Employability skills valued by employers as important for entry-level employees with and without disabilities. *Career Development and Transition for Exceptional Individuals, 35,* 29–38. https://doi.org/10.1177/0885728811419167

Lieberman, D., & Scheer, J. (2002). AOTA's Evidence-Based Literature Review Project: An overview. *American Journal of Occupational Therapy, 56,* 344–349. https://doi.org/10.5014/ajot.56.3.344

Nicholas, D. B., Mitchell, W., Zulla, R., Solomatin, E., & Qi, S. (2019). A review of CommunityWorks Canada®: Toward employability among high school-age youth with autism spectrum disorder. *Global Pediatric Health, 6,* 2333794X19885542. https://doi.org/10.1177/2333794X19885542

Phillips, B. N., Kaseroff, A. A., Fleming, A. R., & Huck, G. E. (2014). Work-related social skills: Definitions and interventions in public vocational rehabilitation. *Rehabilitation Psychology, 59,* 386–398. https://doi.org/10.1037/rep0000011

Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy Scale. In J. Weinman, S. Wright, & M. Johnston (Eds.), *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35–37). NFER-Nelson.

Shattuck, P. T., Narendorf, S. C., Cooper, B., Sterzing, P. R., Wagner, M., & Taylor, J. L. (2012). Postsecondary education and employment among youth with an autism spectrum disorder. *Pediatrics, 129,* 1042–1049. https://doi.org/10.1542/peds.2011-2864

Sosnowy, C., Silverman, C., & Shattuck, P. (2018). Parents' and young adults' perspectives on transition outcomes for young adults with autism. *Autism, 22,* 29–39. https://doi.org/10.1177/1362361317699585

Steinbrenner, J. R., Hume, K., Odom, S. L., Morin, K. L., Nowell, S. W., Tomaszewski, B., . . . Savage, M. N. (2020). *Evidence-based practices for children, youth, and young adults with autism.* University of North

Carolina at Chapel Hill, Frank Porter Graham Child Development Institute, National Clearinghouse on Autism Evidence and Practice Review Team. https://fpg.unc.edu/publications/evidence-based-practices-children-youth-and-young-adults-autism-spectrum-disorder-1

Strickland, D. C., Coles, C. D., & Southern, L. B. (2013). JobTIPS: A transition to employment program for individuals with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 43,* 2472–2483. https://doi.org/10.1007/s10803-013-1800-4

Sung, C., Connor, A., Chen, J., Lin, C. C., Kuo, H. J., & Chun, J. (2019). Development, feasibility, and preliminary efficacy of an employment-related social skills intervention for young adults with high-functioning autism. *Autism, 23,* 1542–1553. https://doi.org/10.1177/1362361318801345

Annemarie Connor, PhD, OTR/L, is Associate Professor and Director of the Community Autism Network, Department of Rehabilitation Sciences, Florida Gulf Coast University, Fort Myers; aconnor@fgcu.edu

Sarah E. Fabrizi, PhD, OTR/L, is Associate Professor and Interim Program Director, Department of Rehabilitation Sciences, Florida Gulf Coast University, Fort Myers.

Amy Nasamran, PhD, is Fellow, Center for Research in Autism, Intellectual, and other Neurodevelopmental Disabilities, Michigan State University, East Lansing.

Connie Sung, PhD, CRC, LPC, is Associate Professor, Department of Counseling, Educational Psychology & Special Education, Michigan State University, East Lansing.