

Employability Social Skills Interventions in Transition-Age Youth with Intellectual Disabilities: A Literature Review

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Abstract: Employability skills are necessary for youth with Intellectual Disabilities (IDs) to successfully navigate their transition from educational settings to autonomous adult life. Most importantly, research evidence has shown that individuals with IDs appear to perform adequately on job tasks, yet they frequently face inadequacies in the social aspects of work life. Although much of the existing employability research has focused on social skills training related to employability for individuals with other disabilities, people with IDs are underrepresented in the literature. Thus, this review aimed to provide insight into the existing social skills interventions that promote employability in transition-age youth with IDs. Results indicated that although there is a limited number of studies regarding intervention programs on improving social skills related to employment for individuals with IDs, the majority of them positively impacted target behaviors, thus highlighting the need for further empirical research.

Keywords: Intellectual disabilities, transition-age youth, employability, social skills, interventions.

INTRODUCTION

Employability is defined as the capacity to gain and maintain formal employment [1, 2], with social skills being one of its key determinants [3]. Social skills related to employment were found to be essential for all entry-level employees, regardless of whether an employee has a disability or not [4].

Previous studies regarding the social skills related to employment in special populations have used a variety of terms such as social skills in employment settings [5], work-related social skills [6], social skills in job-related [7], occupational social skills [8], employment-related social behaviors [9] and labor market related social competencies [10]. There seems to be an agreement among authors regarding the setting that those need to be exhibited, namely the workplace. Nonetheless, as a concept, employability precedes actual employment; thus, we use the term Employability Social Skills (ESS) to refer to social skills related to employment and taught to transition-age youth with ID in secondary education or transition centres.

ESS include social skills that contribute to an individual's vocational skills and can be used in different employment settings. Salzberg, Agran, and Lignugaris /Kraft [11] proposed that a distinction should be made between task-related social skills and personal / non-task-related social skills for

employment. Task-related social skills refer to the ones that are directly linked to productivity and performance during job tasks (e.g., following directions), whereas personal / non-task-related social skills are not necessarily directly related to carrying out job tasks (e.g., listening without interrupting).

Admittedly, a significant defining attribute of individuals with IDs, apart from cognitive impairment, is a deficiency in social and adaptive behavior that hampers their functioning and overall quality of life [12]. With regard to their work life, although individuals with IDs appear to perform adequately on job tasks [13], employers are concerned about the deficits as mentioned above in social skills, in addition to the intellectual impairment, eventually leading to the exclusion of individuals with IDs from the open job market [14, 15]. Indeed, Kocman, Fischer, and Weber [16] found that employers perceive more barriers in hiring people with IDs compared to other types of disabilities.

In their study, Scheef, Walker, and Barrio [17] interviewed 12 job developers in order to identify and explore desirable employability skills for workplace success that individuals with IDs should possess. The skills described by job developers, related to attitude, dependability, stamina, communication, flexibility, and technical skills, with the most common being attitude and dependability. Based on the categorization provided by Salzberg, Agran, and Lignugaris /Kraft [11], findings revealed that job developers value task-related social skills more than personal social skills with relation to workplace success.

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Moreover, Agran *et al.* [18] examined the perceived importance of social skills in employment settings in a sample of 651 teachers and other professionals involved in the transition education process of students with disabilities in the USA. The results showed that task-related social skills were mostly considered important in the workplace, such as seeking clarification for unclear instructions, carrying out tasks immediately, notifying the supervisor when needed, and arriving at work on time. Conversely, it was also found that teachers usually teach personal, non-task-related social skills.

Research evidence has shown that ESS tend to predict employment among individuals with IDs and have been evaluated to be among the most important factors for promoting employment [13, 19]. Additionally, individuals with IDs that exhibit higher social skills tend to receive higher supervisor ratings, produce a better quality of work, and are able to maintain their job for longer periods [20].

Consequently, transition-age students with IDs need to be equipped with those employability skills necessary for them to move through secondary education settings to adult life [21-23]. Thus, intervention programs focusing on ESS, with the aim to prepare transition-age youth with IDs for employment, will provide them with an obvious advantage in the competitive labor market [24, 25].

ESS training has been studied so far in the broader area of employment skills. Gilson, Carter, and Biggs [26] reviewed the instructional methods applied in teaching employment skills to secondary students with IDD. Almost half of the studies reviewed included a social component as a dependent variable, and although social skills were among the most commonly targeted vocational categories, their instruction was implicit. Furthermore, in their meta-analysis, Park, Kim, and Kim [27] examined the effect size of job-related social skills training for secondary students with disabilities (including individuals with IDs). It was found that interventions on interpersonal behaviors, social problem solving, and self-related behaviors had a moderately positive effect on the targeted job-related social skills for the overall population as well as for students with IDs. More importantly, it was found that the school setting was a better place to meet students' needs, compared to other facilities or work-sites for job-related social skills training.

Notably, there seems to be a dearth in the literature regarding interventions on ESS for transition-age

students with IDs. Thus, the purpose of this review was to explore empirical evidence regarding such interventions and answer the research question: What is known from the existing literature about the social skills training of transition-age youth with IDs related to employability?

METHOD

ESS is a complex area that has been differently conceptualized and studied by researchers from diverse disciplines [28]. As such, the present review was based on a semi-systematic approach [29] to overview the topic of ESS and synthesize findings based on a categorization of non-task-related and task-related social skills [11]. In addition, documented improvement, maintenance, and generalization were recorded.

Search Procedures and Screening

We electronically searched Scopus, ERIC, J STOR, PsychINFO, PubMed, and Mendeley to locate articles, published in the English language from January 2000 to January 2021. We used full and truncated versions and combinations of 8 search terms and 13 limiting terms. The precise Boolean phrase is included in Table 1.

Table 1: Boolean Search Terms

Search terms
"Mental retardation" OR "intellectual disability*" OR "developmental disability*" OR "mental handicap*" OR "severe disability*" OR "learning disability*" OR "cognitive impairment*"
OR "cognitive deficit"
AND
"Social skills in employment settings" OR "work-related social skills" OR "social skills in job-related settings" OR "job-related social skill" OR "occupational social skills" OR "employment- related social behaviors" OR "soft skills" OR "social skills training" OR "social skills intervention" OR "employment skills" OR "work behavior" OR "vocational skills" OR "employability skills".

*used in Boolean searches as a wildcard character that allows alternative forms of words to be captured.

Inclusion and Exclusion Criteria

The titles and abstracts were organized via the Mendeley reference management system [30] and screened to establish suitability for further review. We used a two-phase process to determine the inclusion or exclusion of studies. Phase 1 included a review of titles and abstracts and coding according to inclusion /exclusion criteria. Phase 2 included a full-text review and subsequently selected feature coding.

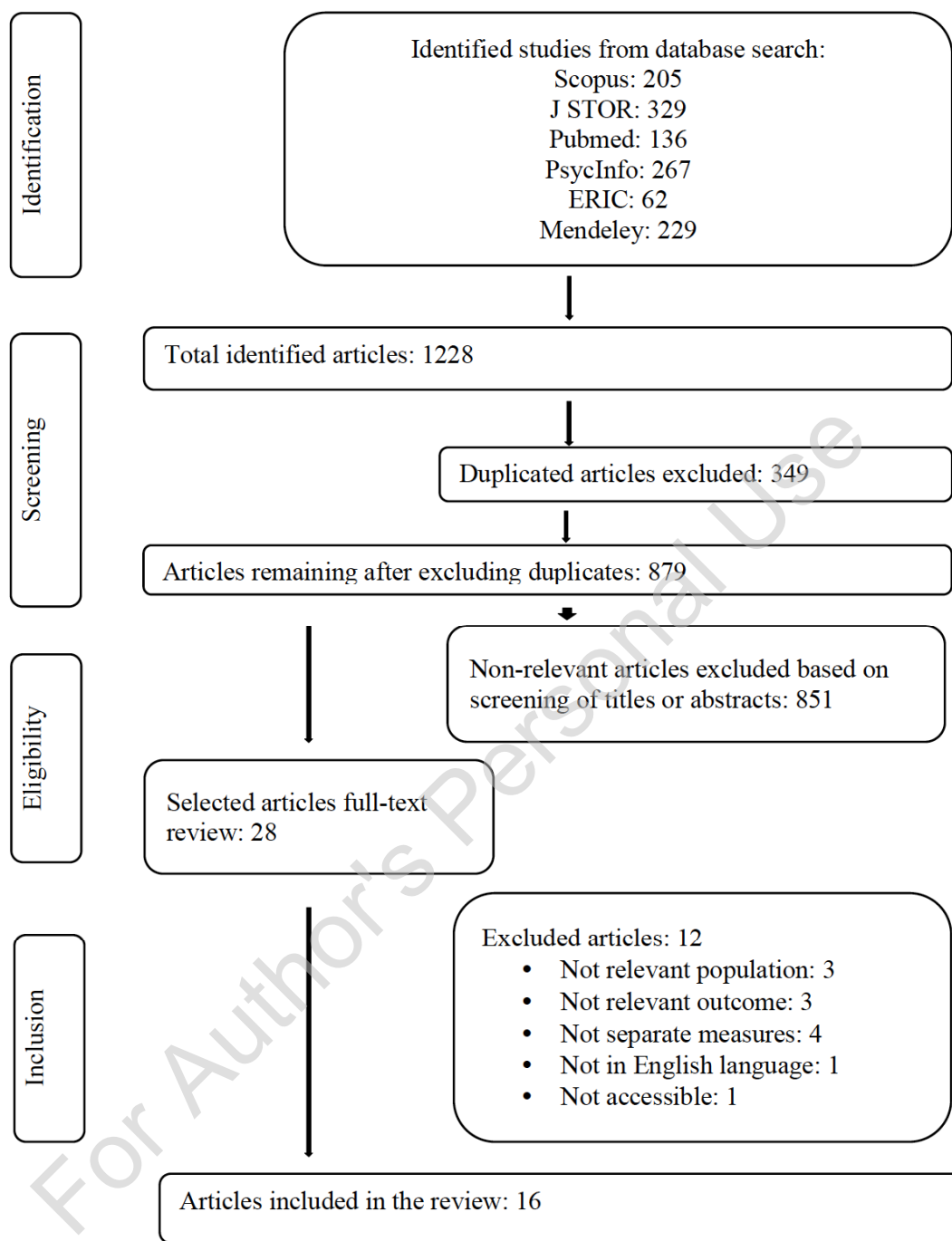


Figure 1: Flow diagram of search procedure and screening process of eligible studies.

Phase 1: Title and Abstract Review

Inclusion criteria were:

- studies included at least one participant with a diagnosis of ID.
- The age range of the participants with ID should be between 14 and 26 years old. Although transition-age youth is between late adolescence and early adulthood (15-16 years to 24-26 years)

[31], due to the fact that several transition programs start as early as 14 years of age [32], the above age range was included in the review.

- Studies included a single or multiple social skill intervention related to employability
- studies targeting individuals with various disabilities, but performed separate analyses for participants with IDs, were also included

- no limitations were set on the types of interventions, methods of instruction or design.

Exclusion Criteria

- We excluded studies involving individuals with IDs combined with any other comorbidity. With regard to Autism Spectrum Disorder (ASD), although deficits in social skills exist in both individuals with IDs and individuals with ID and ASD, the latter exhibit different patterns of social impairments from individuals with IDs only. These deficits are most evident in the area of positive social skills, both verbal and nonverbal, and the presence of negative nonverbal social behaviors (e.g., isolates self) [33]. Additionally, individuals with ID and ASD display higher rates of challenging behaviors [34] than individuals with ID alone.

The initial search of key terms through the electronic search of databases yielded 879 studies after checking for duplicates. Two researchers reviewed each title and abstract to determine if each article met the initial inclusion criteria. If there was disagreement among the two researchers on whether or not a study should be included, they met to discuss the title and abstract and came to a consensus on whether the article met the initial inclusion criteria. If the inclusion/exclusion criteria were not clear from the title or abstract, the study was moved into Phase 2. After titles and abstracts were scanned, 28 articles met the initial inclusion criteria for full-text review.

Phase 2: Full-Text Review

Of the 28 studies identified for full-text review, 12 were excluded with reasons: 3 studies did not include participants with IDs, 3 studies were not related to interventions on social skills training, 4 studies did not provide separate measures for individuals with IDs, 1 study was not in the English language, and 1 could not be accessed. This resulted in a total of 16 studies to be coded for selected features in the current review. The search procedure and screening process of eligible studies is depicted in Figure 1.

Coding of Studies

Coding procedures included coding for the following:

- sample characteristics, including sample size, gender, age, and the level of intellectual impairment (e.g., mild, moderate),
- methodological design,
- intervention characteristics, including targeted skills, approach to enhancing the employability social skill(s), and settings. Skills being targeted were coded based on Salzberg, Agran, and Lignugaris /Kraft [11], categorization of personal/non-task-related and task-related social behaviors.
- findings including improvement documented, maintenance, and generalization.

RESULTS

Participant Characteristics

All studies together included a total number of 84 participants, out of which 45 were males, and 39 were females. The youngest participant was 14 years old, and the oldest was 26 years. All studies included participants with a diagnosis of ID, with the level of intellectual impairment ranging from mild to severe in the participants of thirteen studies, while it was not specified in three studies [36-38]. Apart from having a diagnosis of ID, all 84 participants were also selected based on the following criteria: (a) ability to discuss and/or demonstrate the targeted behavior, (b) ability to pay attention to stimuli and imitate target behavior, and (c) being engaged to transition planning or having a community-based job placement.

Study Design and Intervention Characteristics

Thirteen out of the sixteen studies employed a single-subject design, with the participants serving as their own control. Different types of single-subject designs were used by the researchers: (a) multiple baselines, (b) multiple probes, and (c) alternating treatments design. Two of the studies employed a quasi-experimental design with pre and posted testing of experimental and control groups [38, 39], and one was a case study [35].

In terms of targeted social skills for intervention, different and diverse social verbal and non-verbal skills were taught to individuals with IDs. The researchers targeted one or more social skills that combined personal /non-task-related and task-related social behaviors. Six studies targeted personal /non-task-related social skills [37, 38, 40-43], while seven targeted task-related ones [35, 44-49]. The rest three targeted both task and non-task-related [36, 39, 50].

A diversity of intervention approaches was applied to improve social skills or behaviours related to employability, such as self-management [40, 44, 46], coaching [36, 42], video-based [48, 50], behavioural or direct instruction [37, 39, 41, 43, 45, 47], problem-solving approach [38] and simulation instruction [35, 49].

Concerning self-management, basic conversational skills and the skill of following directions were taught with the assistance of a self-monitoring checklist to secondary students [40, 44]. Moreover, Clark, Konrad, and Test [46] applied the treatment package "UPGRADE your performance" [51], focusing on the employment soft skills of secondary students with disabilities in an effort to improve maintenance and generalization outcomes. The researchers also used a handheld prompting device in order to keep participants engaged in their tasks. A goal-setting learning model of instruction was provided, in which the students chose their soft skill area, as selected by the Job Performance Rubric [51]. Thus, the targeted skills were defined, explained and videos were introduced in order to describe a self-evaluation strategy using the rubric. The participants chose a soft skill and were trained in an in-school job site. They were required to clean tables, seats, collect trash, and wipe down any other surfaces. Quality of work, teamwork, and reliability were the targeted social skills of the students with IDs.

Gilson and Carter [36] evaluated the efficacy of audio-coaching in an effort to minimize the proximity of coaches and increase the social interactions as well as the independence of college students with IDs. Coaches provided prompts for social interactions discretely through bug-in-ear devices that could either be social-related (i.e., discussions, exchanging opinions) or task-related (i.e., asking or receiving information about a given task). In the same line, Souza and Kennedy [42] facilitated the social interactions of a transition age student, with a teacher as a coach, being present during the first interactions with a person without disabilities, but gradually faded her presence over the course of the intervention.

Furthermore, video-based instruction was used in different forms, models, and across various social skills related to employment. Park, Bouck, and Duenas [48] used video modeling instruction and a system of least prompts, in which video clips presented the models demonstrating the appropriate response to each situation. Participants were trained to offer assistance,

respond appropriately to feedback and ask for clarification for unclear instructions. In addition, Gilson and Carter [50] provided video-based instruction on an iPad via a mobile app called ONEder [50]. Each student watched 4 personalized videos, which combined elements of video modelling and video prompting to promote a self-regulated and individualized intervention.

Similarly, O'Handley *et al.* [41] combined behavioral skills training and video modeling in the context of the "Superheroes Social Skills Program" [53]. Target skills of the program included expressing wants and needs, conversation, and turn-taking. After the target social behaviors for each student had been identified, individualized video clips were created demonstrating the desired target behaviour.

Additionally, Soresi and Nota [39] evaluated the efficacy of the program: "Staying with others: No problems". The participants were trained in personal /non-task-related social skills, like saying "hello" to teachers and peers, and task-related social skills, like paying attention and remaining engaged in a situation. Instructional techniques included the use of modeling, role-play, feedback, reinforcement, and repetition.

Crites and Dunn [38] taught participants to solve problems by using a five-step procedure. The curriculum included a work problem, a money problem, and a people problem. Alternate solutions were tested with behavior rehearsal and role-play situations, which allowed participants to practice the problem-solving steps and appropriate interaction skills. Similarly, Gear *et al.* [47] applied two training protocols, including role-playing combined with focused instructions and involving written scripts in which the participant and the trainer would change roles. The instructional focus of the first protocol was on establishing and maintaining conversational eye contact, while the focus of the second protocol was waiting to respond and provide appropriate verbal responses to directions, feedback or criticism, in order to enhance the work performance of an employee.

Bucholz *et al.* [45] utilized literacy-based behavioral instruction, through social stories, in the form of photographs and narrative, as a behavior management technique, for the development of ESS and particularly the expression of needs appropriately. Data related to peer interactions and work engagement were also collected. Moreover, Tekinarslan and Sucuoglu [43] tested the efficacy of the Social Skills Training Program, a cognitive process approach to social skills

training. Apologizing, coping with teasing, and avoiding inappropriate touching were taught through a four-step procedure, in which participants were asked to listen to stories and view pictures of social situations depicting people in need of the targeted skills. Hughes *et al.* [37] used direct instruction with the use of communication books and peer support in order to facilitate conversational initiations and responses from the students with IDs towards their general education peers.

Finally, Walker, Vasquez, and Wienke [49] used simulations in a mixed-reality environment to address the communicative difficulties and anxiety that many individuals with IDs face in interviews. An avatar interviewer was employed in order to train participants for a job interview for 5 to 15 minutes per session, while participants also interacted with physical items and environments. Furthermore, Bonet-Codina, von Barnekow, and Tost [35] used a “serious game” in order to train participants in real-life inspired professional and social situations. Participants interacted with a virtual environment where they were trained to work in a hotel. The social targeted skill was a response to the situation of knocking at a door before entering a room. The participants were faced with different situations wherein each case, and they were taught to wait or act.

In reference to the intervention settings, seven out of the sixteen reviewed studies implemented interventions in school settings [35, 37-41, 44]. Two studies applied interventions both in a school setting and a job site [46, 50]. Three took place only in job sites [34, 43, 45], while two studies were conducted in transition centers [43, 48]. Finally, one study took place in a research setting [49], and the last one was held in a community setting [42].

Documented Improvement, Maintenance, and Generalization

All studies in the present review documented improvement of ESS interventions by reporting performance rates within single-case designs, comparing control and intervention groups within the quasi-experimental design, and observations by teachers in the case study. All sixteen studies reported positive outcomes, but Crites and Dunn [38] found no significant differences between groups, though reporting some gains regarding solution generation.

Maintenance within single-case designs was assessed in ten out of the thirteen studies related to

different periods, ranging from 14 to 21 days [40, 46, 48, 49], 1 month [41, 50], 7 weeks [45, 47] up to 3 months [42, 44]. Maintenance was not assessed in the study of Gilson and Carter [36], Tekinarslan and Sucuoglu [43], and Hughes *et al.* [37] due to the methodology of their research.

As far as a generalization is concerned, nine out of the sixteen studies reported relative data [37-39, 41, 43, 46, 48-50]. In fact, when generalization data was reported, researchers would use a variety of methods and reports. More specifically, Clark, Konrad, and Test [46] used the Job Performance Rubric [51] not only for the initial data collection but to measure generalization in other non-targeted soft skills. Gilson and Carter [50] examined whether employment-related social behaviors were generalized in a job site by collecting generalization probes once a week, during four months.

In addition, Walker, Vasquez, and Wienke [49] assessed the generalization of the intervention social skills to natural settings. Live face-to-face job interviews took place, with the participants being interviewed by an unfamiliar faculty member to avoid participant familiarity. Live interview performance indicated generalization for each participant. Crites and Dunn [38], Hughes *et al.* [37], O'Handley *et al.* [41], Soresi and Nota [39], and Tekinarslan and Sucuoglu [43] evaluated the generalization of skills in novel conditions and reported positive outcomes. On the other hand, Park, Bouck, and Duenas [48], who also evaluated skills generalization in novel situations by using four different scenarios per behavior, reported that students were more accurate in generalization scenarios similar to the intervention scenarios.

Table 2 provides an overview of the reviewed studies, including methodological design, participant characteristics, intervention characteristics, and findings.

DISCUSSION

The present review aimed to identify studies that address ESS training and the approaches of interventions applied for teaching these skills to transition-age youth with IDs only. Our systematic search revealed 16 articles over 20 years, involving 84 participants with ID. Almost half of the studies, 7 out of 16, have recently been published after 2015, indicating an emerging interest in employability social skills research for this population.

Table 2: Summary of Studies by Research Design, Participants, Level of Intellectual Impairment, Target Skill, Intervention Approach, Setting, and Findings

Article	Research design	Participants	Intervention characteristics			Setting	Findings including maintenance and generalization
			Target skills		Approach		
			Personal /Non-task-related	Task-related			
[35]	Case study	6 M 4 F (between 15-18) not specified		Social interaction of the worker with clients and patience	Simulation game (IntegraGame)	school	Participants were engaged during the game, had no difficulties with the environment, and understood the aim of the game.
[36]	Single-subject	1 M (20) not specified	Social-related interactions, proximity	Task-related interactions, task engagement	Audio-based coaching	Jobsite	Intervention was effective in increasing target behaviors. Maintenance and generalization were not assessed.
[37]	Single-subject	1 M (17) not specified	Conversational initiations and responses		Communication books and peer support	school	Intervention was effective in increasing target behaviors. Participants generalized skills with different peers.
[38]	quasi-experimental	12 M 6 F (mean age 17) mild	A work problem, a people problem, and a money problem		Solving your problems training package	school	No significant differences between groups were identified. Generalization was assessed through alternative scenarios, no significant differences between groups after intervention were identified.
[39]	quasi-experimental	10 M 10 F (mean age 18,5) mild to moderate	Say "hello" to peers and teachers, introduce oneself, start and maintain a brief conversation with peers	Paying attention in class, start and maintain a brief conversation with teachers	Staying with others: No problems Program	special vocational school	The intervention effectively increased task-centered behaviors towards the teacher and the non-task-centered behaviors towards both the peers and teachers. Generalization was assessed under different conditions.

(Table 2), continued.

Article	Research design	Participants	Intervention characteristics			Setting	Findings including maintenance and generalization
			Target skills		Approach		
			Personal /Non-task-related	Task-related			
[40]	Single-subject	1 M (17) mild	Initiate a conversation and greet a fellow student		Self-management	school	The intervention was effective in increasing target behaviors. Intervention effects were maintained for 14 days. Generalization was not assessed.
[41]	Single-subject	4 M (15, 16) mild and moderate	Expressing wants and needs, conversation, and turn-taking		Superheroes Social Skills Program	school	The intervention was effective in increasing target behaviors. Intervention effects were maintained 3 to 6 weeks post-intervention for some of the participants. Participants generalized behaviors under novel conditions.
[42]	Single-subject	1 F (20) severe	Social interactions with persons without disabilities		coaching	community	The intervention was effective in increasing target behaviors. Intervention effects were maintained for 13 to 14 weeks post-intervention—lack of long-term follow-up data.
[43]	Single-subject	3 M 6 F (between 15-19) mild to moderate	Apologizing, coping with teasing, avoiding inappropriate touching		Social Skills Training Program, cognitive process approach	Training center	The intervention was effective in increasing target behaviors. Participants generalized skills in different situations depicted in pictures but not in real-life settings.
[44]	Single-subject	2 M (14, 15) moderate		Following directions	Self-management	school	The intervention was effective in increasing target behaviors. Intervention effects were maintained 30 to 60 days post-intervention. Generalization was not assessed.

(Table 2), continued.

Article	Research design	Participants	Intervention characteristics			Setting	Findings including maintenance and generalization
			Target skills				
			Personal /Non-task-related	Task-related	Approach		
[45]	Single-subject	1 F (26) mild		Making a request	Literacy-based behavioral instruction, Social Stories	Jobsite	The intervention was effective in increasing target behavior. Intervention effects were maintained 7 weeks post-intervention. Generalization was not assessed.
[46]	Single-subject	1 F (16) 1 M (19) mild		Teamwork and communication with fellow workers	Self-management using a handheld prompting device	School and job site	The intervention was effective in increasing target behaviors. Intervention effects were maintained 20 days post-intervention—participants generalized behaviors to other non-targeted soft skill areas.
[47]	Single-subject	1 F (20) moderate		Waiting to respond, and appropriate verbal response to directions, feedback, and criticism	2 training protocols, written scripts, and role-play	Jobsite	The intervention was effective in increasing target behaviors. Intervention effects were maintained 7 weeks post-intervention. Generalization was not assessed.
[48]	Single-subject	1 M (19) 2 F (19) mild and moderate		Offering assistance, responding appropriately to constructive feedback, requesting clarification for unclear instructions	Video-based instruction	transition center	The intervention was effective in increasing target behaviors. Intervention effects were maintained 14 days post-intervention. Response generalization was assessed in a different context, but all participants struggled to cope.

(Table 2), continued.

Article	Research design	Participants	Intervention characteristics			Setting	Findings including maintenance and generalization
			Target skills				
			Personal /Non-task-related	Task-related	Approach		
[49]	Single-subject	1 M (20) 4 F (18, 20, 21, 21) mild		Proper communication during a job interview	Simulation and coaching	Research laboratory	The intervention was effective in increasing target behaviors. Intervention effects were maintained 14 to 21 days post-intervention—participants generalized behaviors in live job interviews.
[50]	Single-subject	3 F (18, 20, 22) 2 M (19, 22) mild and moderate	Verbally acknowledge others, initiate and end a conversation, listen attentively without interrupting, remain engaged while talking.	Ask for help, respond appropriately to directions	Video-based instruction	School and job site	The intervention was effective in increasing target behaviors. Intervention effects were maintained one-month post-intervention. Generalization data were collected weekly during four months at the job site; however, the authors did not make causal claims related to generalization.

Note: M = male, F = female.

Most of the studies, 12 out of the 16, involved students either attending secondary education or transition planning programs. Indeed, a recent systematic review on the effectiveness of rehabilitation interventions on the employment and functioning of people with IDs showed that the employment of people with IDs could be promoted through secondary education, including proper teaching methods and interventions [54]. Admittedly, this population receives less attention due to lack of funding and data complications, e.g., providing consent, having communication difficulties, or exhibiting behavior problems [55]. Reviewing ESS interventions for youth with IDs can help develop novel practices in this population and thus potentially address the issue of their lowest employment rates among individuals with disabilities.

Those were divided between personal /non-task-related, task-related social skills, or both in terms of target skills. In fact, when interventions would take

place in schools, the targeted behaviors were personal /non-task-related skills. The need for including task-related social skills training in the transition planning school curricula has strongly emerged from our search, thus promoting positive employment outcomes. Those “salient employability skills” are the ones that are more important and those which usually predict workplace success [17].

In addition, intervention approaches varied significantly. Training programs and packages were linked to promoting personal /non-task-related social skills, while video-based instruction and simulations to task-related social skills. Park, Bouck, and Duenas [56] demonstrated that video modeling is now considered an evidence-based practice for individuals with IDs. After all, videos and simulations offer a medium that permits students to experience multiple situations associated with task-related social skills without actually leaving the classroom. In the current review, its implementation varied across studies, mainly because

additional strategies have been combined with video modeling, suggesting that they can enhance its effectiveness [57]. Differences between students regarding video modeling effectiveness on its own might be due to individual characteristics, such as the ability to attend, imitate, and develop self-recognition [58, 59].

Besides, technology was employed in the form of videos, ear-bugs, and handheld prompting devices to demonstrate social behaviors or promote greater independence of the individual with ID. Similarly, Damianidou *et al.* [60] found that the use of technology support was correlated with the enhancement of adaptive functions for individuals with ID, thus resulting in more positive employment-related outcomes. Interestingly, mixed-reality environments were also implemented in order to train individuals in professional social training. Although their outcomes seem promising, more research is needed in order to prove that the virtual social medium can offer assistance in the learning process of vital social skills [61]. Future studies may consider the implementation of more technology-based interventions either in the form of simulations or games and measure their effectiveness on transition outcomes.

Findings based on documented improvement, maintenance, and generalization of the interventions seem promising. Yet, more research is needed to explore the instructional approaches that meet the needs of this population and examine the extent to which the improvements noted in the studies generalize in other social skills or novel situations.

LIMITATIONS

The present review is not without limitations. First of all, only English studies were included, and it is possible that other research papers may have been published in other languages. Additionally, a systematic search in other databases apart from the 6 used might have yielded other studies which were not included in the current review. Lastly, intervention outcomes have been broadly described since this review aimed to describe the nature and extent of existing literature regarding ESS for transition-age youth with IDs.

CONCLUSION

The present review provided an insight into the social skills training related to employment for transition-age youth with IDs. At present, research on

interventions targeting ESS for individuals with IDs only is scarce. The limited number of individual studies included in this review suggests promising outcomes. Nonetheless, more research is needed to investigate what training protocols and training conditions result in the maintenance and generalizations of the trained skills while considering the heterogeneous identity of ID.

CONFLICT OF INTEREST

The authors state no conflicts of interest.

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