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Exploring Essential Employability Skill Needs for Individuals with Intellectual Disabilities: A Systematic Review

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Abstract: Individuals with intellectual disabilities (ID) face significantly lower employment rates. Soft skills are critical for successful workforce inclusion, these skills are non-technical interpersonal and self-regulatory skills, such as, communication, teamwork, and problem solving, that make one stand out in the working field. This systematic review aimed to identify key employability skills for individuals with ID and synthesize strategies used to develop them. Following PRISMA guidelines, the review was registered on OSF (10.17605/OSF.IO/DRAU9). Web of Science, Scopus, PubMed and Google Scholar were searched in April 2023 and March 2025 using keywords such as "soft skills," "intellectual disability," and "employment." Inclusion criteria: adults with ID or employers with experience with individuals with ID, focus on employment-related skill development, and publications from 2013–2025. Twenty-one studies met inclusion criteria. Communication (n=19), social skills (n=14), hard and quality work (n = 10), attitude and motivation (n = 9), and autonomy and independence (n = 8) emerged as core skills, but the heterogeneity of terms and conceptualizations used across studies indicates that these skills are difficult to categorize consistently. Common strategies included vocational programs (n=7), mentoring (n=6), video modelling (n=4), and, less frequently, specific skill programs (n=2), audio coaching (n=2), role-playing (n=1), and sport (n=1). Findings highlight the need to strengthen targeted programs for employability skill development and to further investigate the role of underexplored approaches, such as sport, alongside greater inclusion of employer perspectives in future research.

Keywords: vocational; skills; intellectual impairment; job market; soft skills.

1. Introduction

Employment is a fundamental right (United Nations, 2006), yet people with disabilities, especially those with intellectual disabilities (ID), face significant barriers. Global data shows individuals with disabilities have higher unemployment/underemployment rates (Geiger et al., 2017; World Health Organization, 2011), with those with ID having the lowest (Chi et al., 2018; Taubner et al., 2022; Tøssebro & Olsen, 2020). For

example, less than 10% of people with ID in Europe are employed, compared to 50% of all disabilities and 75% for those without disabilities (Inclusion Europe, 2023). These figures highlight the urgent need for inclusive policies.

Employment offers individuals with ID community engagement, social skills development, economic well-being, identity, independence, and mental well-being (Birri et al., 2022; Dean et al., 2018; Ellenkamp et al., 2016; Evans et al., 2019; Holwerda et al.,

2013). Providing paid work experience and post-secondary education is crucial (Qian et al., 2018). Workforce inclusion also benefits society by reducing healthcare costs (Donnelly et al., 2010; Holwerda et al., 2013; van der Noordt et al., 2014), expanding the labour pool, boosting tax revenues, decreasing welfare reliance (Almalky, 2020) and fostering an equitable society (Ali et al., 2012). For all these reasons, labour inclusion is a global priority (OECD, 2022).

Core skill of employment, a mix of hard (technical) and soft (interpersonal) skills (ILO, 2013), are vital for employment. While training programs for ID have primarily focused on academic and technical skills (Rillotta et al., 2021; Roldan et al., 2022; Scanlon & Doyle, 2021; Walsh et al., 2018), soft skills have received less attention. This is problematic, as soft skills are increasingly recognized as crucial by employers worldwide (Herrick et al., 2022; Johnson, 2021; Kumar et al., 2022). While academic and technical proficiencies remain essential, employers increasingly prioritize soft skills in candidates (Asefer & Abidin, 2021; Chiu et al., 2016; Lyu & Liu, 2021; Roldan et al., 2022), acknowledging their positive impact on workplace dynamics and adaptability (Balcar, 2016; Dixon et al., 2010; Johnson, 2021). Hence, there is a need to emphasize the development of soft skills, as they complement and enhance their employability.

Evidence from other populations also underscores the importance of soft skills for employability. For example, studies in individuals with physical disabilities (Lindsay, 2011) and autism spectrum disorder (Herrick et al., 2022) highlight how communication, problem-solving, and

teamwork are critical for successful employment outcomes. Research in the general population similarly shows that soft skill training enhances job readiness and career adaptability (Dixon et al., 2010; Kumar et al., 2022; Robles, 2012). These insights suggest that soft skills are universally important and further support the relevance of investigating their role in individuals with ID.

Despite the recognized benefits of employment for individuals with ID and the efforts made to improve their access to the labour market, challenges remain in aligning their skills with the demands of employers. Moreover, the strategies and training programs designed to address these needs vary widely, leaving room for further investigation and evidence-based recommendations. Understanding these employability skill needs and the strategies used to address them is essential to fostering greater workforce inclusion for individuals with ID. Considering the factors outlined above, this study aims to review the literature to: (1) identifying the employability skills needs of individuals with ID, drawing on evidence from both employers' perspectives and research-based analyses of the skills these individuals need to succeed in the workplace; and (2) synthesize strategies to train these skills, promoting workforce inclusion.

2. Materials and Methods

This systematic review follows the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines (Page, McKenzie, et al., 2021) and was registered on OSF Registries prior to formal screening (10.17605/OSF.IO/DRAU9).

Some minor deviations from the original registered protocol occurred. First, the review title was shortened for clarity and to comply with journal requirements. Second, the initial pool of 26 eligible articles was reduced after consultation among all authors, as studies focusing exclusively on parents of individuals with ID were excluded. These studies did not report strategies for improving employability skills in individuals with ID and, therefore, did not align with the study's objectives.

Eligibility criteria and information sources - A systematic search was conducted in Web of Science, Scopus, PubMed and Google Scholar. Search terms used were related to "soft skills", "employment" and "intellectual disability" shown in supplementary material Table 1 and Table 2. Eligibility criteria were defined using a modified PICOS framework as suggested by Page and collaborators (2021) in the PRISMA 2020 guidelines to enhance clarity:

- Population: Adults (18 to 40 years) with ID, as well as employers who work with or have experience employing individuals with ID. Studies were eligible only if they provided information relevant to the employability skill needs or of training strategies for individuals with ID.
- Intervention/Exposure: Studies examining programs, interventions, or naturally occurring strategies aimed at developing employability skill-needs in adults with ID. Observational or descriptive studies were also included if they identified relevant skills or strategies.

- Comparator: Not applicable, as studies without control or comparison groups were eligible.
- Outcomes: Identification of employability skill needs and strategies or programs designed to develop these skills in adults with ID.
- Study design: Quantitative, qualitative, and mixed-methods empirical studies published in peer-reviewed journals between 2013 and 2025. The time frame was limited to studies published between 2013 and 2025. This decision was made because terminology in the field has evolved substantially in the past decade, with "intellectual disability" becoming the internationally recognized term following the publication of the DSM-5 in 2013 (Regier et al., 2013). In addition, employment for individuals with ID has gained increasing attention in recent years, where before 2013 almost no studies have been identified.

The review excluded articles that were: (1) systematic reviews, (2) focused on children, (3) included individuals with other impairment types (i.e., physical or visual impairments), (4) participants are parents, tutors or caregivers, and (5) grey literature. Articles were included if they were written in English, Spanish, German or Dutch. Systematic review reference lists were consulted as an additional search method (See supplementary material Table 3). Databases were consulted on the 10th March 2025. Article synthesis and eligibility checks were done in April 2025.

This systematic review analyzed publicly available data from previously published studies. The study process adhered to the ethical principles outlined in the Miguel Hernández University's Code of Ethics (ADH.DES.ARR.CM.24)

Selection process and data collection - Two reviewers C.M. and A.R.) independently screened titles and abstracts. Full-text eligibility was assessed by C.M., with A.R. reviewing any uncertain cases. Discrepancies were resolved through discussion or, if needed, consultation with a third reviewer (R.R.). Data extraction was conducted by C.M. using a standardized form and reviewed by A.R. to ensure accuracy. Extracted data were compiled in a Microsoft Excel table including: (a) authors/year, (b) research design, (c) aim, (d) participants, (e) method, (f) identified employability skills, and (g) training strategies.

The primary outcomes extracted from each study were: (1) the employability skill needs addressed, and (2) the strategies or interventions used to develop these skills. Depending on the study design, these outcomes were reported via a variety of methods, including interviews with adults with ID, questionnaires or surveys, observational data, and perspectives of employers. For synthesis purposes, studies were also categorized as descriptive (identifying employability skills without implementing a training program) or interventional (evaluating specific strategies or programs designed to develop employability skills). These categories, along with the methodological approaches (qualitative, quantitative, mixed methods), are reported in Tables 1a and 1b.

Specifically, Table 1a summarizes studies that examined employers' perspectives, as employers play a central role in hiring and therefore provide critical insights into which skills are valued in the workplace specifically for individuals with ID. Table 1b summarizes studies that included individuals with ID as participants, in which researchers assessed whether and how these employability skills were developed.

Study risk of bias assessment - The Quality Assessment with Diverse Studies (QuADS) tool (supplementary material Table 4 and 5) was used to determine quality of studies included in this review (Harrison et al., 2021). QuADS evaluates studies across 13 criteria, covering domains such as clarity of research aims, appropriateness of study design, data collection and analysis, and reporting of findings. Each criterion is scored from 0 to 3, with higher scores indicating better quality (highest score = 39), as described in Table 5 found in supplementary material. Although QuADS does not provide predefined thresholds for 'high' or 'low' quality, this narrative analysis can be used to discuss the limitations of lower-quality studies.

3. Results

Study Selection - The study selection followed PRISMA 2020 guidelines (Figure 1). From 1009 records retrieved, 208 duplicates were removed. Of the 801 remaining, 745 were excluded after title and abstract screening. Eleven full texts could not be retrieved despite attempts to access them through institutional subscriptions and interlibrary resources; authors were not contacted. Twenty-six were excluded for not

meeting inclusion criteria: no skill development ($n = 12$), unrelated to ID ($n=2$), not focused on employment/vocational training ($n = 6$), caregiver participants ($n = 6$). Nineteen studies met criteria, with two added via citation searching from 6 articles that were assessed for eligibility, four were excluded due to not including skill development ($n = 3$) and unrelated to ID ($n = 1$), totalling 21 included studies. Excluded articles after full text assessment can be found in Supplementary material Table 7.

Study characteristics - The characteristics of the studies included in this systematic review are summarized in Table 1a (employers' perspective) and Table 1b (individuals with ID). The studies were published between 2013 and 2023. Seventeen studies included individuals with ID as participants, while four collected data from employers. Sample sizes varied considerably, ranging from qualitative studies with 3 participants to larger surveys including more than 200 respondents.

In terms of methodology, qualitative designs were predominant ($n = 12$). Five studies used quantitative approaches (Fernández et al., 2021; Gomes-Machado et al., 2016; Liu et al., 2013; Lucas-Molina et al., 2020; Traina et al., 2022), and the remaining four studies utilized mixed-methods approaches (Campos et al., 2020; de los Santos & Costa, 2016; Felgueras-Custodio et al., 2020; Young & Rooney, 2023). The studies addressed a variety of employability-related outcomes.

Despite heterogeneity in design, sample, and context, this body of literature consistently highlighted the importance of employability skill needs, while also identifying strategies to foster these skills.

Employability skill needs – Soft skills -

All included articles highlighted soft skills deemed necessary for the employment of individuals with ID. Data on these skills were extracted from descriptive studies ($n = 7$) or via their status as outcomes of interventions based on improving employability among individuals with ID ($n = 14$). Descriptive studies typically employed qualitative or survey-based approaches, while interventional studies included both qualitative and quantitative evaluations of training programs. The review revealed several key soft skills highlighted in literature from different perspectives. Among the articles focusing only on employer's perspectives, the most frequently emphasized skills included: communication ($n = 4$), attitude and motivation ($n = 4$), and social skills ($n = 3$) (Table 1a). Additionally, studies that collected data directly from individuals with ID identified communication ($n = 15$), social skills ($n = 11$), hard and quality work ($n = 8$), and autonomy and independence ($n = 6$) (Table 1b). When considering all the articles reviewed (combining findings from Table 1a and Table 1b), the most frequently identified skill are communication ($n = 19$), social skills ($n = 14$), hard and quality work ($n = 10$), attitude and motivation ($n = 9$), and autonomy and independence ($n = 8$).

Strategies Identified - Various strategies to enhance employability of people with ID were identified across the reviewed studies, as detailed in Table 1a and Table 1b. Some studies lack specific interventions, relying instead on descriptive methods in which stakeholders provided insights into how employability skill needs for individuals with ID could improve, hence the use of

“used” and “identified as useful” in tables 1a and 1b. In Table 1a, one study employed a vocational training program as an intervention to develop employability skills (Almalki, 2021). Two of these studies identified vocational training programs (Campos et al., 2020) or school-based exposure programs (Young & Rooney, 2023) as beneficial, though not implemented within the scope of their research.

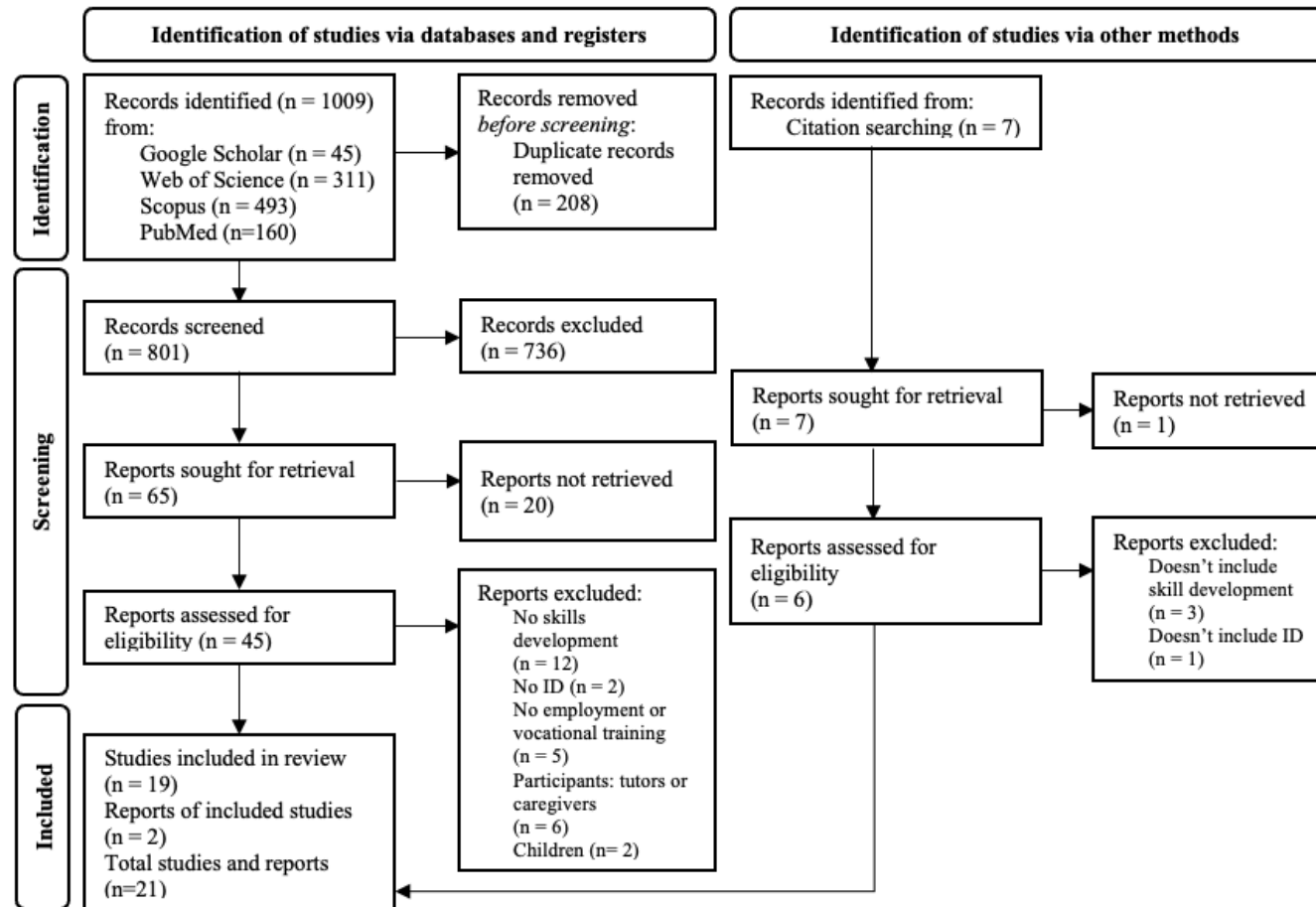
Table 1b outlines a broader range of strategies used with individuals with ID to improve their employability skill needs, with most studies incorporating these strategies as part of their intervention. Two descriptive studies identified school-based exposure programs (Sigstad & Garrels, 2022) and vocational training programs with mentoring at job site (de los Santos & Costa, 2016) as useful approaches. Among the studies that utilized strategies, vocational training programs emerged as most employed (Gomes-Machado et al., 2016; Helbig et al., 2021; Lucas-Molina et al., 2020; Scanlon & Doyle, 2021; Traina et al., 2022; Walsh et al., 2018). Several studies also implemented mentoring at the job site or internships as key strategies (Clark et al., 2018; de los Santos & Costa, 2016; Gilson & Carter, 2016; Liu et al., 2013; Park et al., 2018; Traina et al., 2022). Additionally, video modelling was identified in four studies as an effective tool (Helbig et al., 2021; Kellems et al., 2020; Park et al., 2018; Walsh et al., 2018). Less frequently mentioned strategies included remote audio coaching (Gilson & Carter, 2016; Joseph et al., 2021), role play (Helbig et al., 2021) and engagement in sport (Dailey et al., 2020). Two studies included specific skill training programmes (Clark et al., 2018; Felgueras-Custodio et al., 2020). Lastly, two included

studies did not talk about any strategy to develop these skills (Fernández et al., 2021; Scheef et al., 2019).

While many studies implemented these strategies as part of broader, multi-component interventions, nine studies used these strategies as the sole focus of their intervention (Clark et al., 2018; Felgueras-Custodio et al., 2020; Helbig et al., 2021; Joseph et al., 2021; Kellems et al., 2020; Liu et al., 2013; Lucas-Molina et al., 2020; Park et al., 2018; Traina et al., 2022), whereas the remaining studies embedded strategies within wider programmatic approaches.

Risk of bias in studies - The methodological quality assessment, conducted using the QuADS tool, is presented in the supplementary material Table 6. The assessment reveals varying levels of methodological quality and reporting standards across the studies, yielding total scores ranging from 26 to 38. This inclusive approach ensures a comprehensive scrutiny of the relevant literature, allowing for nuanced evaluation of diverse research contributions which enriches the overall synthesis of finding in this systematic review. Strengths identified in the reviewed studies include a clear theoretical or conceptual underpinning, well-defined research aims, appropriate study designs, and detailed descriptions of research settings and target populations. However, common weaknesses were noted in sampling strategies, recruitment data reporting, and the consideration of research stakeholders in study design or conduct, with some studies providing limited or vague information in these areas

Figure 1. PRISMA 2020 flow diagram for new systematic reviews which included searches of databases, registers and other sources



From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: <http://www.prisma-statement.org/>

Table 1a. Characteristics and findings of studies involving employer's perspective.

<i>Study</i>	<i>Research Design</i>	<i>Aim</i>	<i>Participants</i>	<i>Methods</i>	<i>Employability skill-needs</i>	<i>Strategies identified</i>
<i>Almalki (2021)</i>	Qualitative: Phenomenological approach	Understand the involvement and perceptions of supported employment within Project SEARCH for co-workers of interns and staff	n = 6 (Staff working with individuals with ASD and/or ID)	Data collection: Face-to-face group semi-structured interviews (90 min) with staff of the SEARCH project and employers of the medical centre where individuals with ID work at. Intervention: A 9-month internship program called Project SEARCH	Social skills, communication, maturity, work efficient	Used: Vocational training program
<i>Campos et al. (2020)</i>	Mixed methods	Have a first overview about the opinions and experiences of employers of companies of the industrial sector about employees with borderline ID	n = 9 (Companies with interns with ID)	Data collection: Focus groups, individual interviews and two questionnaires No intervention: Descriptive study	Social relationships, effort, pride of belonging, organization of their task, productivity, autonomy/independent, decision-making, communication, integration, responsibility, motivation, punctuality	Identified as useful: Vocational training programs
<i>Scheef et al. (2019)</i>	Qualitative: Exploratory approach	Having a better understanding of desirable employability skills aids in allowing professionals to develop programs that will target the needs of those who make decisions relating to human resources	n = 12 (Employers with knowledge of ID)	Data collection: Interviews with employers on personal views on multiple topics involving employment of youth with ID. No intervention: Descriptive study	Attitude, dependability, stamina, mental flexibility, communication	-

Young & Rooner (2023)	Mixed methods	To explore the critical soft skills necessary for employment for young people with ID and identify the opportunities available to develop soft skills during their school years	n =30 (Employers with experience with ID)	Data collection: Questionnaires No intervention: Descriptive study	Oral communication, written communication, numeracy/math skills, teamwork/collaboration, Problem-solving/independently finding solutions, showing initiative, ability to plan/be organized, ability to manage oneself/not need constant supervision, willingness to learn new things, confidence using technology, punctuality and reliability, personal grooming/hygiene, social skills, following instructions	Identified as useful: School-based work exposure programs
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Notes: Acronyms: Autism Spectrum Disorder (ASD), Intellectual Disability (ID). Strategies marked as 'used' were implemented in the study intervention; strategies marked as 'identified as useful' were reported by participants or researchers as relevant, but not implemented in the study.

Table 1b. Characteristics and findings of studies involving individuals with intellectual disabilities.

Study	Research Design	Aim	Participants	Methods	Employability skill-needs	Strategies identified
Clark et al. (2018)	Qualitative: Multiple-probe design	Investigate the effects of a soft skills instructional package called UPGRADE your Performance on the acquisition of soft skills of students with disabilities	n = 4 (Students with disabilities, one with ID) Age: no data reported Severity: mild	Data collection: Students were observed doing a job task to see behaviour changes and skill acquisition. Intervention: Soft skills instructional package called UPGRADE Your Performance. Instrument: Job Performance Rubric, created based on a survey of employers' perceptions of needed soft skills.	Attitude, cooperation, reliability, productivity, on task, quality of work, teamwork, communication, time management, integrity, honesty, following instructions, respect, cooperation, punctuality	Used: Soft skill instructional package, mentoring at job site
Dailey et al. (2020)	Qualitative: Phronetic Iterative process	Understand how communication during Special Olympics serves as a form of anticipatory socialization for individuals with ID, and	n = 19 (Athletes with ID) Age: 20 - 40 Severity: no data reported	Data collection: Semi-structured interviews No intervention: Descriptive study	Communication, ability to follow instructions, teamwork, time management, focus, value of hard work, social awareness, multiple responsibilities, physical work, routinized work, independent tasks, self-esteem, willingness	Used: Engagement in sport specifically Special Olympics

		how it helped them at their job			to ask questions, bravery, self-confidence, setting goals, leadership skill	
<i>de los Santos & Costa (2016)</i>	Mixed methods	Training needs analysis as a guiding purpose, within the framework of competences, focusing on workers with disabilities in special sheltered employment centres	n = 256 (Adults with disabilities, 226 with ID) Age: no data reported Severity: no data reported	Data collection: Questionnaires and individual interviews No intervention: Descriptive study	Communication, numbers and calculations, problem solving, information processing, knowledge of everyday objects, accessing and processing information, technologies, personal skills, motivation, flexibility, quality of work, learning to learn, autonomy, initiative, social skills, teamwork, social thought	Identified as useful: Vocational training programs, mentoring at job site
<i>Fernández et al (2021)</i>	Quantitative: Descriptive study	Evaluation of the quality of life and employment skills development of users of some occupational centers in Barcelona	n = 100 (Adults with ID) Age: 20 - 60 Severity: mild - moderate	Data collection: Questionnaires filled by job trainer or supervisor Instruments: GENCAT scale (Verdugo et al. 2008); Employability skills scale (Jariot et al. 2020)	Learning and cognitive skills, functional skills, social and attitudinal skills, communicative skills	-
<i>Felgueras-Custodio et al. (2020)</i>	Mixed methods	Analyse the results of the application of the intervention in social and emotional skills aimed at university students with intellectual disabilities.	n = 13 (Adults with ID) Age: 18 - 27 Severity: mild	Data collection: Systematic observation through an evaluation rubric subjected to expert judgement using the Delphi technique. Intervention: Social skills training programme (20 sessions of 4 hours)	Assertive communication, conflict resolution, decision making, cooperation and group cohesion, emotional management, frustration tolerance, stress management, personal development.	Used: Social skills training program

Gilson & Carter (2016)	Qualitative: Multiple-problem design	Extend previous work on covert audio coaching (CAC) by examining the effect of a job coaching package comprised of audio cuing, social-focused coaching, and reduced job coach proximity	n = 3 (Adults with ID or ASD) Age: no data reported Severity: no data reported	Data collection: Visual behaviour change analysis, collected for 30 min during internship shifts. Intervention: A 4-8h per week internship with guidance using CAC	Reach out for support when needed, independent, treat those around with kindness and interest, start conversation, respond to others and engage, get to know co-workers, greet people kindly, engage with task and maintain, conversation simultaneously, engaged and hardworking, friendly, receptive, approachable, welcoming to others	Used: Covert Audio coaching, mentoring at job site
Gomes-Machado et al. (2016)	Quantitative: Longitudinal study	Verify the effects of a vocational training program on the need for assistance and support of a group of people with ID and to analyse the social impact of vocational training on them, after exercising a function in the labour market for 1 year.	n = 43 (Adults with ID) Age: 18 - 28 Severity: mild - moderate	Data collection: Questionnaires and interviews, were sent before training, after training and follow up after 1 year Instruments: Sociodemographic questionnaire; Supports Intensity Scale (AAID, 2010); Social Impact Questionnaire (interview developed specifically for this study) Intervention: Vocational training program	Problem solving, learning basic functions, decision making, getting around the community, interacting with the community, quality of work, good rhythm, self-care, hygiene	Used: Vocational training program
Helbig et al. (2021)	Qualitative: Multiple-probe design	Evaluate the effectiveness of a treatment package designed to target social skills for employment settings. Skills were selected based on concerns from respective work supervisors.	n = 8 (Adults with IDD, 5 with ID) Age: 18 -21 Severity: no data reported	Data collection: Visual analysis before, during and after intervention. Observation of maintenance of skill Intervention: A 1h per week course on social skills training	Body language, initiating and exchanging conversation, ending a conversation, asking for help	Used: Vocational training program, Video modelling, role play
Joseph et al. (2021)	Qualitative: Multiple-probe design	Determine the effectiveness of remote audio coaching (RAC) to increase on-topic small talk exchanges in social	n = 3 (Students with ID) Age: no data reported	Data collection: Observation using a self-defined Small Talk Code Definitions. Intervention: Online Zoom coaching sessions	Communication skills	Used: Remote audio coaching

	conversations in college students with ID.	Severity: no data reported			
<i>Kellems et al. (2020)</i>	Qualitative: Multiple-probe design	Explore and develop evidence-based interventions to teach conversation skills to adults with disabilities in order to improve their social effectiveness.	n = 6 (Adults with ID or ASD, 4 with ID) Age: no data reported Severity: no data reported	Data collection: Conversations with randomized partner were recorded, graphed and analysed. This was done before, during and after intervention. Intervention was videorecorded for interobserver agreement. Intervention: Conversation sessions	Communication skills Used: Video modelling, direct feedback, video feedback
<i>Liu et al. (2013)</i>	Quantitative: Experimental design	Explore the effectiveness of workplace training programme that aims to enhance the work-related behaviours in individuals with ASD and ID	n = 14 (Adults with ID and ASD) Age: 18 - 40 Severity: mild - moderate	Data collection: Questionnaires before and after intervention. Intervention: A 5 day, 6h per day workplace training programme. Instruments: Workplace social behaviours - Work Personality Profile (Siu et al., 1998); Social communication skills - Scale of Independent Behaviour Revised (Bruininks et al., 1996); Emotional control - Observational Emotional Inventory Revised (McCarron & Dial, 1986)	Orientation, social skills, work performance, teamwork, personal presentation, social interaction, language comprehension, language expression, impulsivity-frustration control, anxiety control, depression-withdrawal control, socialization, self-concepts, aggression control, confusion control Used: Mentoring at job site

Lucas-Molina (2020)	Quantitative: Longitudinal study	Analyse the impact of an intervention in emotional education in a group of young people with ID.	n = 16 (Adults with ID) Age: 18 - 28 Severity: mild - moderate	Data collection: Questionnaires before and after intervention Intervention: Four practical 4h sessions of an emotional control and social skills programme. Instruments: Emotional Quotient inventory Young Version (Baron & Parker, 2000); Children's Assertive Behaviour Scale (Woods et al., 1978); Self-elaborated satisfaction questionnaire	Emotional awareness, emotional regulation, emotional autonomy, social skills, life and well-being skills	Used: Vocational training program
Park et al. (2020)	Qualitative: Multiple-probe design	Examine the effectiveness of video modelling to improve social skills for employment.	n = 3 (Adults with ID) Age: 19 Severity: mild - moderate	Data collection: Observation in 5 trials during baseline, intervention, maintenance and generalization phases. Intervention: 15 minutes, 1 or 2 days per week video modelling session and internship	Offering assistance (verbally), responding appropriately to constructive feedback, requesting clarification for unclear instructions	Used: Video modelling, mentoring at job site
Scanlon & Doyle (2021)	Qualitative: Phenomenological approach	Explores that engaging with a supported model of transition can increase self-awareness, self-determination and autonomy, to enable students to make informed and autonomous decisions about post-school options and pathways as opposed to transitioning to segregated settings	n = 31 (Students with ID) Age: no data reported Severity: no data reported	Data collection: Focus groups and interviews Intervention: A 5-year vocational training called WALK PEER Programme	Self-awareness, self-determination, self-advocacy, personal skills, social skills, focusing attention, personal presentation, workplace communication	Used: Vocational training program

<i>Sigstad & Garreis (2022)</i>	Qualitative: Inductive data-driven approach	Explore the ideas and experiences of young adults with mild intellectual disability who have managed a successful school-work transition, as we investigate which factors, they consider important on their path to employment	n = 10 (Adults with ID) Age: 18 - 25 Severity: mild	Data collection: Semi-structured interviews No intervention: Descriptive study	Personal development, identifying and expressing preferences, goal orientation, problem solving, self-advocacy, punctuality, perseverance, interpersonal skills (sociable, likeable, positive), trustworthiness, high work morale	Identified as useful: School-workplace collaboration
<i>Traina et al. (2022)</i>	Quantitative: Experimental design	Evaluate the effectiveness of the E-IDEAS curriculum, specifically designed for workplace inclusion of youths with ID and aimed to transfer social, communication, independent living and employment skills.	n = 5 (Adults with ID) Age: 19 - 22 Severity: mild - moderate	Data collection: Observation across different settings. Intervention: Vocational training program with 4-month internship and mentoring Instruments: Quality of Life - The San Martin Scale (Verdugo et al., 2014); Vineland-II Adaptive behaviour Scale (Sparrow et al., 2005)	Health and wellness, Information Communication Technology and Assistive Technology, money management, communication skills, adult related social skills, self-related skills, navigation in the community, time management. Professionalism, advocacy skills, team building, job searching, safety at work	Used: Vocational training program, mentoring at job site
<i>Walsh et al. (2018)</i>	Qualitative: Multiple-probe design	Evaluate the effectiveness of the ACCESS program, and video modelling on increasing social communication skills necessary for workplace inclusion in adults with ASD and ID.	n = 7 (Adults with ID and ASD) Age: 19 - 22 Severity: mild - moderate	Data collection: Questionnaires before and after intervention Intervention: Twice per week social skill training Instruments: Social responsiveness scale - Second Edition (Constantino, 2012); Social Skills Improvement System Rating Scale (Gresham & Elliott, 2008); ACCESS placement Test (Walker et al., 1988)	Peer related social skills: listening, greeting other people, joining in with other, having conversation, borrowing, offering assistance, complimenting, showing a sense of humour, keeping friends, interacting with the opposite sex, negotiating with other, coping with being left out, handling group pressure, anger control, coping with aggression. Adult-related social skills: getting an adult's attention, disagreeing with adults, responding to requests, doing quality work, working independently, developing good work habits, following classroom rules, developing good study habits. Self-related social skills: taking pride in your	Used: Vocational training program, video modelling

appearance, being organized, using self-control, doing what you agreed to do, accepting the consequences of your actions, coping with being upset or depressed, feeling good about yourself

Notes: Acronyms: Autism Spectrum Disorder (ASD), Intellectual Disability (ID), Intellectual and developmental disabilities (IDD). Strategies marked as 'used' were implemented in the study intervention; strategies marked as 'identified as useful' were reported by participants or researchers as relevant, but not implemented in the study.

4. Discussion

This systematic review identifies crucial employability skills and enhancement strategies for individuals with ID.

Employability skill needs – Soft skills –

The skills most frequently reported across the included studies (ranked by frequency of mention) were communication, social skills, hard and quality work, attitude and motivation, and autonomy and independence. These skills were consistently reported across both employers' perspectives and studies with individuals with ID. Less frequent mentioned skills found in this study, should not be dismissed, as their significance may vary depending on the specific job roles and responsibilities (Lyu & Liu, 2021), these skills include: time management, teamwork and cooperation, initiative, problem solving and decision making among others.

Effective communication improves expression, avoids misunderstanding and increases productivity (Pouliot et al., 2016), fostering inclusive environments (Beyer et al., 2010; Lindsay et al., 2018). Social skills are essential to manage workplace relationships, resolving conflicts, and adapting to changing and social dynamics (Irvine & Lupart, 2008; Sigstad & Garrels, 2022). Combined, these promote harmony and teamwork, enhancing inclusivity for workers with ID (Lysaght et al. 2022; Lysaght, Ouellette-Kuntz, and Lin 2012). These findings align with similar work-related skill search not focused on individuals with ID, where they identify similar skills as essential (Asefer & Abidin, 2021; Dixon et al., 2010; Robles, 2012).

Independence and autonomy also emerged as a key skill, enabling initiative, decision making, and task management,

improving self-reliance and job performance (Donnelly et al., 2010; Taubner et al., 2022). These contribute to problem-solving, adaptation, confidence and resilience (Ellenkamp et al., 2016), enhancing overall employability (Johnson, 2021). These skills are interconnected; strengthening one skill often enhances others (Marin-Zapata et al., 2022).

Recent research highlights broader soft skills like adaptability and integrity (Fletcher & Thornton, 2023), employers may prioritize different skill sets when hiring individuals with ID, given the unique challenges they may face in the workforce (Gilson et al. 2022). Communication, social awareness, and teamwork are critical for workplace interactions, while attitude, motivation, hard work, and quality work often require tailored training due to cognitive differences (Lindsay et al., 2018). This suggests specific employability skill needs for individuals with ID may diverge from broader workforce expectations.

Findings from this review align with research on these types of skills in the general population. For instance, Robles (2012) reported that business executives prioritize soft skills such as communication, social skills, teamwork, positive attitude, which were also frequently identified in the present study. A more recent study by Fletcher and Thornton (2023) highlighted skills such as social skills, integrity, positive energy among the most critical skills for employability, mirroring findings of this study. At the same time, other skills such as agency, create clarity, or engage the mess reflect emerging perspectives that go beyond what is currently addressed in the literature for individuals

with ID suggesting potential areas for future exploration.

While the findings of this review align with broader literature on employability skills in the general population, it is important to recognize that the evidence base specifically addressing youth and adults with disabilities remains limited. Previous research has shown that the perception of lower soft skills in individuals with disabilities is a major barrier to securing and maintaining permanent, paid employment (Müller & Vangilder, 2014). Employers, in particular, often view individuals with disabilities as lacking in communication and social skills compared to other workers (Lindsay et al., 2014) which directly corresponds with the skills most frequently identified in the studies included in this review. These perceptions highlight the importance of fostering and documenting the development of such skills among individuals with disabilities in general, not only with ID, to strengthen their employability and to counteract persistent biases in hiring practices.

Strategies Identified - The predominant strategy identified involves vocational training programs, which may be essential preparation for individuals with ID to join the workforce (Almalki, 2021; Campos et al., 2020; de los Santos & Costa, 2016; Gomes-Machado et al., 2016; Helbig et al., 2021; Lucas-Molina et al., 2020; Scanlon & Doyle, 2021; Traina et al., 2022; Walsh et al., 2018). However, many of these programs tend to emphasize technical and academic aspects of employment, highlighting the need to prioritize the development of soft skills alongside hard skills to make individuals stand out in this competitive

labour market. In fact, a recent study analyzing hard skills and soft skills requirements for different job applications, identified that those jobs that require less technical and academic knowledge, do require a greater emphasis on soft skills (Schultheiss & Backes-Gellner, 2023). In addition, it is also recommended to develop soft skills in order to continually adjust to the evolving job market and enhance employability (Succi & Canovi, 2020). This, however, is only seen in two of the identified studies for individuals with ID, where individuals go through a specific course focused on developing exclusively soft skills (Clark et al., 2018; Felgueras-Custodio et al., 2020). While other studies incorporate soft skill development, it was typically embedded within a broader vocational training programs rather than being the sole focus. Supported internships and on-site mentoring were also frequent, providing hands-on practice and feedback. With these programs, individuals with ID start to understand their specific employment tasks, while their supervisor can give them feedback on how to improve certain aspects of soft skills, such as, being able to initiate a conversation with co-workers or clients (Joseph et al., 2021). The downside to this approach is the need of constant support and work assistance for the employee, which can be perceived as a challenge for employers and co-workers (Fasching, 2014).

Other strategies include remote audio feedback, video modelling, and role-playing. These methods offer structured approaches to skill acquisition, particularly for specific tasks or workplace scenarios. Video modelling and remote audio feedback have been highlighted as effective tools for

reinforcing repetitive skills, fostering problem solving (Joseph et al., 2021; Kellems et al., 2020; Park et al., 2018). Role-playing allows individuals to simulate real-world workplace interactions, which can build confidence and adaptability (Helbig et al., 2021). However, its specific impact amidst broader interventions is unclear. These strategies require personalized, career-oriented plans and were primarily research-controlled, differing from real-world employer implementation.

While strategies were synthesized broadly due to heterogeneity, the mapping of specific strategies to individual soft skills remains unclear. Notably, although sport has been identified as a promising context for skill development in other populations (Feraco & Meneghetti, 2022; Gould et al., 2006; Newman et al., 2023; ter Harmsel-Nieuwenhuis et al., 2025), only one study in this review explicitly examined this approach for individuals with ID, highlighting an important avenue for future research. Sport emerged as an underrepresented strategy (Dailey et al., 2020). Sports enhance motor proficiency, executive functioning, interpersonal skills, and communication abilities, all of which are critical for adapting to future employment (Dailey et al., 2020; Gozzoli et al., 2023). Its effectiveness is supported by broader literature focused on individuals with ID (Agarwal et al., 2021; Griffiths et al., 2017; Roldan et al., 2022). Sport's unobstructive nature and implicit skill development (teamwork, discipline, communication) are advantages (Dailey et al., 2020), fostering not only skills but also a healthy lifestyle. However, intentional integration of soft skill development into

training could amplify benefits, requiring further investigation (Gozzoli et al., 2023).

Other key finding - Inconsistent terminology (e.g., "soft skills", "transferable skills") created ambiguity (Commers et al., 2022). "Soft skills" is suggested as the most inclusive term for ID contexts (International Labour Organization, 2013; Marin-Zapata et al., 2022). Other terms like "adaptive behaviours" hold a diagnostic significance in ID contexts and emphasize practical, conceptual, and social domains (Tassé & Balboni, 2020). This variability complicates research and practice, underscoring the need for standardizing terminology.

Furthermore, this review highlights a notable lack of studies focusing on the perspectives of employers; understanding their needs, expectations, and challenges is crucial for designing effective training programs. Additionally, research suggests the employers themselves may require further training and education to better support the development of these skills in individuals with ID (Athamanah et al., 2022; Ju et al., 2014).

Limitations - Despite providing valuable insights into strategies for developing employability-related soft skills in individuals with ID, this review also faces several limitations that influence the scope and interpretation of its results. This systematic review included a heterogeneous collection of studies, with substantial variability in design, intervention type, participant characteristics, and outcomes assessed. This diversity complicates direct comparisons and limits our ability to draw generalizable conclusions. Importantly, many of the included studies were descriptive in nature, while such studies are

useful for identifying potentially relevant strategies, they do not provide evidence of effectiveness. Although we distinguished between descriptive and intervention studies in the synthesis, results integrate findings across both types, and readers should interpret these accordingly.

Additionally, the review was limited to studies published within the past decade, which may have excluded relevant older studies. Furthermore, while two reviewers independently screened article eligibility, data extraction was performed by a single reviewer. However, the extracted data was thoroughly reviewed by a second reviewer. Lastly, in many studies, individuals with ID were assessed by researchers who determined which employability skills they believed were important to develop. However, these skills might not necessarily align with those that employers actively seek.

5. Practical Applications

The findings of this systematic review provide valuable practical implications for young people with ID and for professionals working with them. Specifically, they offer valuable guidance for coaches, athletes and researchers within the field of sport physiology and sport performance, particularly in contexts involving individuals with ID. Coaches can use the identified soft skills as a reference to design training environments that not only aim at improving physical performance but also foster essential personal and social competencies that may contribute to athletes' broader development, including employability prospects. By becoming more aware of the potential for soft skill development through sport, practitioners

can intentionally integrate strategies that promote these skills within their coaching practices.

For researchers, this review highlights key areas where further investigation is needed. First, future studies should adopt more rigorous designs, such as randomized controlled trials or well-structured quasi-experiments, to establish the effectiveness of specific strategies. Mixed methods approaches could also capture both measurable outcomes and participants' lived experiences, providing richer insights into how skills are developed. Second, studies should include clearer reporting of participant characteristics and detailed descriptions of intervention protocols to enhance replicability and comparison across studies. Third, greater attention should be paid to the alignment of skill development with employer needs, ensuring that the soft skills targeted in interventions match the competencies valued in the labour market.

Although this review identified only one study explicitly examining sport as a context for employability skill development in individuals with ID, sport is considered to be a particularly promising strategy for several reasons. Sport naturally integrates many of the most frequent identified employability skills (e.g., communication, frustration management, decision making, teamwork), with engaging, real-life contexts. Unlike more traditional vocational training, sport promotes these skills implicitly through participation, offering repeated opportunities for practice and feedback in dynamic social settings. Moreover, sport has well-documented benefits for physical and mental health, executive functioning, and self-efficacy, which may indirectly support

employability outcomes. Finally, sport-based interventions can be adapted to different ability levels and cultural contexts, making them a versatile approach that complements existing vocational training initiatives. However, their effectiveness remains largely untested in the field of employment preparation for individuals with ID, underscoring the need for purposefully designed and evaluated sport-based interventions.

6. Conclusion

This review identifies key employability skills for individuals with ID: communications, social skills, hard and quality work, attitude and motivation, and autonomy aligning with broader employment research of individuals without disabilities. Among the strategies reviewed, vocational training programs are the most implemented. A sport-based intervention was observed in only one study, but showed potential as a desirable method to develop these skills in individuals with ID. Terminology inconsistency makes it difficult to synthesize all the information and the term “soft skills” is recommended to be used in future research. Priority areas for future investigation include evaluating the effectiveness of these vocational training programs across diverse contexts, clarify which approaches best foster specific employability skill needs, and incorporating employer perspective to inform program design.

Supplementary Materials: The following are available online at <http://eurjhm.com/index.php/eurjhm>, Figure S1: title, Table S1: title, Video S1: title.

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