Original Research Article

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Systematic Review of Job Transition Programs Addressed to Youths With Intellectual Disability

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Abstract
This systematic review aimed to determine what existing job transition programs are evidence-based and methodologically founded. The PRISMA method was used for the review, and the inclusion criteria were to include studies where there were a description of transition programs and functional curriculum for acquiring employment competences; internship experiences in employment context; single-case or group-design studies with youths as participants; and diagnosis of intellectual disability. Forty-six studies were initially selected, and three final articles met all the criteria set for assessing the methodology quality. Although the review results show that more research is needed to provide empirical programs for enhancing the acquisition of employment capabilities, some evidence emerged from the analysis of studies. These concern mainly four aspects: curriculum contents facilitating the development of self-determination and the acquirement of job-related skills, chance to have individualized internships, support of job coaches, and technological solutions and programs anchored in community-based settings.

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Introduction

Background

In the last decades, research on intellectual disability concentrated almost exclusively on
childhood and early interventions. Adolescents and young individuals are an under-
studied population (Bickenbach, 2011; Groce, 2004; Groce et al., 2013; Lai et al., 2016;
Lawrence, 2004), and a paucity of research characterized the studies on transition
programs from compulsory education to work and independent life, including detailed
curricula for the acquisition of employment skills and internship experiences realized in
real-life work settings to facilitate employability (Gilson & Carter, 2016).

Research points to the need for a more coordinated approach to the planning and
delivery of programs and education services aimed to create effective opportunities to
obtain paid jobs (Fasching, 2014; Foley et al., 2012; Gebhardt et al., 2011; Grigal et al.,
2011; Vilà et al., 2009; Winn & Hay, 2009).

Transition can represent a valuable opportunity for starting with work experiences,
participating in the community, and becoming emancipated from the family.

Transition programs can include any academic or functional curriculum (Bouck &
Joshi, 2012; Rich-Gross, 2014), support of job coaching (Gilson & Carter, 2016), or
assistive technology (Cheong & Yahya, 2013; Fasching, 2014; Strickland et al.,
2013).

These aspects are considered predictors of successful transition into an autonomous
adult life and crucial to living an empowered life (Ankeny & Lehmann, 2011; Cobb &
Alwell, 2009; Shogren et al., 2007). Also, transition can help to overcome barriers,
facilitate access to the labor market, and support the acquisition of independent living,
employment, and self-determination skills (OECD, 2014; Wilson-Clark & Saha, 2019).

The majority of the studies analyzed were carried out in the U.S., even if in the last
decades there was an increasing interest for research on this topic in many countries,
especially in Europe. This paucity of studies in other countries made it difficult to define
criteria for cross national comparative studies; therefore, we decided to identify positive
elements that could allow the elaboration of successful transition programs.

As a consequence, to the increasing interest for this topic, some documents were
elaborated, such as the European Social Charter[1] and the Charter of Fundamental Rights
of the European Union,[2] that state individuals with a disability have the right to attend
learning pathways and vocational training to access employment.

Research on educational outcomes of youths with intellectual disability concerning
employment highlighted high levels of unemployment (Simonsen, 2010), difficulties in
the transition from education system to labor market (Test et al., 2009), and need to
conduct more studies to identify good practice (Landmark et al., 2010) of transition

pathways from school to adult life to support the acquisition of employment competences for task execution in real-life contexts.

Objective

The objectives of the review were to analyze methodological limitations within existing programs developed starting from the entry into force of the United Nations Convention on the Rights of Persons with Disabilities (May 2008)[3] to 2019, and to identify positive elements to take in consideration for elaborating successful interventions. The following research questions were addressed:

- *"What transition programs with an original empirical research design exist for youths with intellectual disability and to what extent do transition programs outline functional curriculum?"*
- *"What are the programs that show to be effective for realizing internship experiences and demonstrate to have a sound methodological quality?"*

In order to do so, this paper used different sources and databases to collect information. It summarizes current intervention studies that focus on transition programs aimed to provide employment preparation curriculum, internship experiences, and job-related skills. This benchmarks new strategies and highlights gaps that need to be further analyzed by research on labor market access.

Method Applied

The method applied for searching and reviewing the studies was based on PRISMA approach (Moher, 2009). The databases selected were PsycINFO, CINAHL, Social & Behavior Science, Taylor & Francis, and ERIC, as they contain a wide part of the literature on transition programs. PsycINFO contains information on psychological sciences and related fields across a host of academic disciplines, CINAHL refers to medical and health fields, and Social & Behavior Science is a leading source on social and behavioral sciences concerned with mental, emotional, and social well-being.

In addition, searches included the database ERIC, and Taylor & Francis, since these databases contain information for academic study and professional development across a wide range of subjects in social science and humanities. Only studies that maximize the understanding of factors that would increase the chance of successful transition were included, in order to inform future intervention studies on the access to employment.

Within each database, 13 searches were conducted using the combinations of keyword (see Appendix A) and key Boolean terms, in five different subject areas:

(1) Transition programs, including the search terms work preparation, vocation*, vocational, training, mentor*, job coach*, internship, and curriculum.
(2) Employability skills, including the search terms employ*, employment, labour market, skills development, and support employment.

(3) Special education, including the search terms education*, inclusion, inclusive education, post-secondary education, special school, and vocational education.
(4) Students with disability, including the search terms disab*, intellectual disability, cognitive disab*, moderate disab*, and mild disab*.
(5) Youths, including the search terms adolescent, youth, and young adult.

In-depth research has been applied on specific journals such as *European Journal of Special Needs Education, Disability & Society, Journal of Intellectual and Developmental Disability and Equality, and Diversity and Inclusion: An International Journal*, in order to consider studies in press or not yet indexed in the databases analyzed.

Search Strategy

The search began by conducting several pilot scans with no restriction on date of publishing and using only the concept search. The authors reached consensus that the date of the review should begin with articles published from May 2008 (since the introduction of the UN Convention on the Rights of Persons with Disabilities) until April 2019, in order to understand what advancements have been made in the last 10 years and respect to the right to work of youths with intellectual disability.

Study Selection

The review process has been divided in four phases: identification, screening, eligibility, and inclusion. The first phase has identified 9979 records, and then a title review considering one or more keyword related to most important subjects for research (transition programs, employability skills, special education, students with disability, and youths) led to 151 relevant results. A thorough review of abstracts followed based on the inclusion criteria where 46 articles were identified and subjected to full-text analysis for assessing the methodological quality. Forty-four were excluded after the assessment of methodological quality. To identify additional publications, the reference lists of publications selected, and journals have been manually reviewed for inclusion and three other studies were found. After the manual search, one record was included, resulting in a total of three studies being selected and included in the final sample. Minor modifications have been made to the search strategy as needed within individual databases and journals.

The selection process is shown in the following information flow diagram Figure 1.

The results of keyword subject searches in the databases allowed to select and review titles and abstracts on the basis of subject such as original empirical research, programs outlining functional curriculum, acquisition of specific employment skills, or report of specific achievements. The full-text articles analysis was reviewed to determine if they met the eligible criteria. These procedures were repeated by authors in order to guarantee the results were screened objectively.
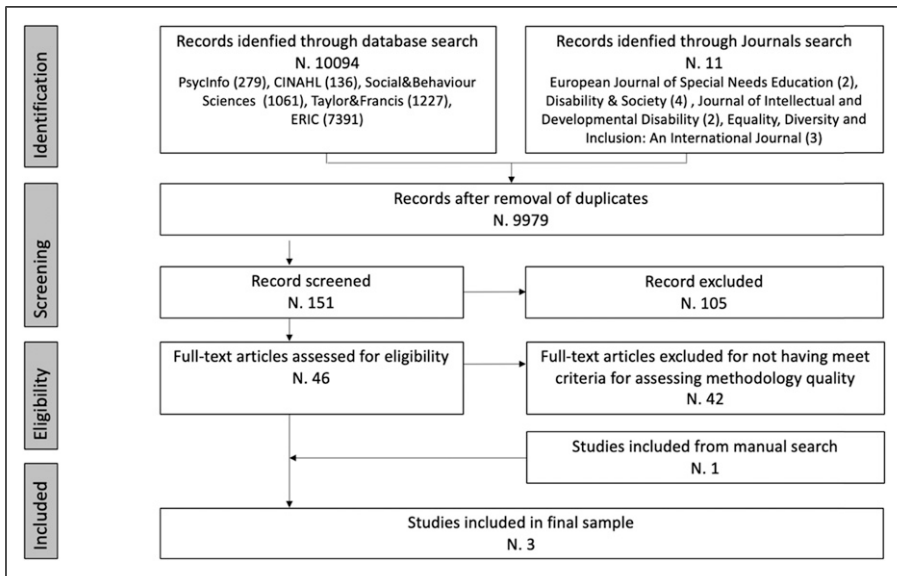
Figure 1. Flow diagram.

Criteria for Study Inclusion

The criteria that needed to be met by articles in order to be selected and included in the review were as follows: (a) Age: Transition programs needed to be for youths with intellectual disability (16–22 year old);[4] (b) diagnosis: moderate and mild intellectual disability (IQ 50–70);[5] (c) detailed curricula: Transition programs have to include detailed curricula for the acquisition of employment skills or internship experiences realized in real-life employment settings; (d) outcomes: Studies have to report production of tools, methodologies, guidebooks, or manual; (e) original empirical research design: Studies have to outline qualitative or quantitative methods to assess the interventions; (f) period: Published between May 2008 and April 2019; (g) language: Written in the English language; (h) validity: Studies should have collected data or have been published within a peer-reviewed journal.

These criteria were defined after an initial literature analysis and projects review focused on transition programs. Also, the criteria allowed for the exclusion of studies not reporting outcomes directly related to employment skills acquisition, studies including participants with no diagnoses of intellectual disability, articles that were not peer-reviewed, studies where the sample was not clearly defined, or studies that did not include the design of interventions to support an effective transition from school to employment.

Process of Data Collection

The authors assessed the studies that met the inclusion criteria, and a second review was conducted to evaluate the quality of articles. Specific data were extracted and recorded,

including design, sample size, interventions, as well as outcome measures, statistical analyses, results, follow-up measures, and study conclusions.

The 46 studies selected were scored according to 16 criteria (reported in Tables 1 and 2) to determine the methodological quality of transition program identified, main outcomes, internal and external validity, as well as measures used to assess the acquisition of skills and statistical validity. A total of three articles met all the criteria established.

This process was based also on Critical Appraisal Skills Program (CASP, 2018)[6] checklist to systematically assess the studies for collecting data, allowing authors to look for evidence of effectiveness of interventions reported in the studies identified.

Extraction of Data

The extraction of data from studies analyzed followed the indications of the Cochrane Handbook for Systematic Reviews (Briggs, 2006; Higgins & Green, 2011), while the Methodological Quality Checklist by Downs and Black and the work of Lydon (2016) were used to define the 16 criteria for assessing the methodological quality of the final sample selected. Also, a narrative approach was used to synthesize and interpret results (Cronin et al., 2008; Evans, 2002). Data were analyzed based on the following areas for assessing the validity of the studies selected:

(1)   Descriptive validity: including the description of experimental transition program, sample-size, age, gender, co-morbid medical and psychological diagnosis, measure of background factors which affect psychological or behavioral responses, prior-learning, acquisition of employment and independent living skills, realization of internships, production of tools, methodologies, guidebooks, report or manual, and description of statistical methods or standardized measures if present.

(2)   Internal validity: including the realization of internship, employment activities, and tasks in a real-life employment setting and assessment of the acquisition of job-related skills.

(3)   External validity: including the evaluation of the experiences realized and skills acquired to determine if these were effective to perform employment tasks.

Results

Summary of Studies Selected

Most of the studies selected were appropriate for evaluating the consistency, efficacy, and originality of the empirical research carried out for designing transition programs for youths with intellectual disability. However, article coding showed a high level of reliability of seven criteria, and five criteria with a low level of reliability. In particular, the criteria: evaluation of prior learning, the realization of internship experiences, and employment activities carried out in real-life employment settings, the measures to assess the acquisition of skills and group analysis resulted as not specified. Also, the majority of

Table 1. Criteria to determinate the methodological quality and outcomes of transition program studies selected.

Article	Experimental transition program for the acquisition of employment skills design	Sample size	Age (16–22 years)	Gender and ethnicity	Co-morbid medical and psychological diagnosis	Prior learning	Acquisition of employment and independent living skills	Realization of internship experiences during the transition program
Alnahdi (2016)	No transition programs. Analysis of the literature on best practices in transition to work	n. 369 teachers of students with mild ID	NS	NS	Mild ID	NS	NS	NS
Hart Barnett & Crippen (2014)	Vocational program for implementing an inclusive employment training program	NS	NS	NS	ASD and ID	It is related to take and pass the state food safety exam	Skills for performing tasks related to restaurant setting	Internship realized in a classroom restaurant setting
Berg et al. (2017)	Case study on the "Triumph transition program"	n. 32	Mean 21.4	6 Female and 4 male. 5 White, 2 Black, 1 Latina, 1 Hispanic, and 1 Asian	Intellectual and/or developmental disabilities	It is considered in terms of disability awareness	Adaptive behavior skills, social skills, life skills, self-determination, and employment skills	NS

Table I. (continued)

Article	Experimental transition program for the acquisition of employment skills design	Sample size	Age (16–22 years)	Gender and ethnicity	Co-morbid medical and psychological diagnosis	Prior learning	Acquisition of employment and independent living skills	Realization of internship experiences during the transition program
Black & Lawson (2017)	Evaluation of "The Greenside Studio," a special school's vocational teaching resource space	n. 21 including students, head teacher, coordinators, shop manager, and creative partner	3–19	NS	Severe learning difficulties	NS	Travel skills and job skills	NS
Bouck & Joshi (2012)	No transition programs. Analysis of data of NLTS2[a] to understand curriculum and educational programs	n. 58167 students with moderate/severe ID involved in NLTS2	15–20	Gender and ethnicity reported	Moderate/severe ID	NS	NS	NS
Bouck & Joshi (2012)	Analysis of NLTS2 and outcomes of students with ID in high school and post-school	n. 60664 students with mild ID involved in NLTS2	13–16	Gender and ethnicity reported	Mild ID	NS	NS	NS
Bouck & Joshi (2016)	Analysis of data NLTS2 and focus on school transition services and post-school goals	n. 32239 students with mild ID involved in NLTS2	17–21	Gender and ethnicity reported	Mild ID	It refers to instruction received before secondary and post-secondary education	Employment and independent living skills	NS

(continued)

Table 1. (continued)

Article	Experimental transition program for the acquisition of employment skills design	Sample size	Age (16–22 years)	Gender and ethnicity	Co-morbid medical and psychological diagnosis	Prior learning	Acquisition of employment and independent living skills	Realization of internship experiences during the transition program
Bross & Travers (2017)	Description of a tool for planning activities for the acquisition of employment and independent living skills	NS	NS	NS	ASD	It is used to define special area of interest	NS	NS
Cheong & Yahya (2013)	Case study on transitional needs from secondary education to employment	n. 2 high-school educators and 4 persons with learning disabilities	NS	NS	Down syndrome and autism	It is used for assessing prior-vocational training	Social skills, computer skills, independent living skills, and money management skills	NS
Dragula (2009)	No transition programs. Analysis of research articles on students with moderate/severe disabilities and employment	NS	NS	NS	Moderate/severe disabilities	NS	NS	NS
Dubberly (2011)	Description of multi-faceted instructional model for increasing positive transition	NS	13–18	NS	ID	NS	NS	NS

Table 1. (continued)

Article	Experimental transition program for the acquisition of employment skills design	Sample size	Age (16–22 years)	Gender and ethnicity	Co-morbid medical and psychological diagnosis	Prior learning	Acquisition of employment and independent living skills	Realization of internship experiences during the transition program
Gilson & Carter (2016)	**Single-case study on job coaching for supporting employment preparation**	**n. 3 students with ASD and ID**	**20–22**	**Male**	**1 ID, 1 autism, and 1 attention deficit hyperactivity disorder**	**It is taken into account as participants are already enrolled in a PSE program**	**Employment skills for working in market, parochial preschool, and university campus office**	**Participants have realized an internship of 4–8 h per week**
Giust & Valle-Riestra (2017)	Description of the Project Panther LIFE	Academic mentors and peer coaches (n. 31)	NS	NS	ID	NS	NS	NS
Green et al. (2017)	Description of TOPS program and resources	NS	13–18	NS	ID	NS	NS	NS
Grigal & Dwyre (2010)	Description of the Postsecondary Education Research center (PERC) project	n. 96 students	18–21	NS	ID	NS	Employment skills (e.g., food service, maintenance, retail, and trades)	NS
Hartman (2009)	Description of community-based transition program for students with ID	n. 10 students	18–22	NS	ID	NS	NS	Some internship experiences

Table 1. (continued)

Article	Experimental transition program for the acquisition of employment skills design	Sample size	Age (16–22 years)	Gender and ethnicity	Co-morbid medical and psychological diagnosis	Prior learning	Acquisition of employment and independent living skills	Realization of internship experiences during the transition program
Hatfield et al. (2018)	Description of BOOST-A™ protocol for evaluating successful transitions of adolescent with autism	n. 6 adolescents with ASD	8–11	NS	ASD	NS	NS	NS
Hendrickson et al. (2013)	Description of UI REACH post-secondary program	n. 14 adolescents with ASD	18–25	NS	ASD and ID	NS	Soft skills, time management, and use of transportation system	The program includes student-driven inclusive internships
Kaehne & Beyer (2014)	Description of "The Getting a Life project"	n. 44 young people	NS	NS	ID	NS	NS	NS

(continued)

Table 1. (continued)

Article	Experimental transition program for the acquisition of employment skills design	Sample size	Age (16–22 years)	Gender and ethnicity	Co-morbid medical and psychological diagnosis	Prior learning	Acquisition of employment and independent living skills	Realization of internship experiences during the transition program
Lancioni et al. (2014)	Description of 2 studies on technology-aided programs to help persons with multiple disabilities at work	n. 5	In study 1) 13 and 30 years old, in study 2) 43, 44, and 36 year old	Gender reported	Congenital encephalopathy, profound ID, and sensory disabilities	NS	Employment skills	NS
Lee & Carter (2012)	No transition programs	NS	NS	NS	ASD	NS	NS	NS
MacIntyre (2014)	No transition programs	n. 20 young people with learning disabilities	18–21	Gender reported	Moderate learning disability	NS	NS	NS
McDonough & Revell, (2010)	Description of 2 cases of employment plans provided by State Vocational Rehabilitation agencies	n. 2 individuals with ASD	22 & 27	Gender reported	ASD and Tourette syndrome	NS	Employment and independent living skills	NS

Table 1. (continued)

Article	Experimental transition program for the acquisition of employment skills design	Sample size	Age (16–22 years)	Gender and ethnicity	Co-morbid medical and psychological diagnosis	Prior learning	Acquisition of employment and independent living skills	Realization of internship experiences during the transition program
Moore & Schelling (2015)	No transition programs. Case study on 2 post-secondary education programs and employment outcomes	n. 34 graduates with ID	NS	NS	ID, ASD, multiple disabilities, dyslexia, and attention-deficit hyperactivity disorder	NS	NS	NS
Neubert & Redd (2008)	Case study at Montgomery County Public Schools on transition practices	n. 16 students with ID	19–21	Gender and ethnicity reported	ID	It has been assessed in focus groups with participants	Employment and independent living skills	Realization of internships and paid job experiences
O'Bryan et al. (2014)	Description of lessons learned from Project SEARCH	NS	NS	NS	ID	NS	Criterion partially met as the article reports some evidence	This criterion is partially met as the article reports some evidence
Pallisera et al. (2012)	It provides guidelines for practices for participating in society	NS	NS	NS	Learning disabilities	NS	NS	NS

Table 1. (continued)

Article	Experimental transition program for the acquisition of employment skills design	Sample size	Age (16–22 years)	Gender and ethnicity	Co-morbid medical and psychological diagnosis	Prior learning	Acquisition of employment and independent living skills	Realization of internship experiences during the transition program
Pallisera et al. (2014)	No transition programs	n. 45 professionals from different schools. No people with disabilities	NS	NS	ID	NS	NS	NS
Papay & Bambara (2011)	No transition programs	NS	18–21	NS	ID and other developmental disabilities	NS	NS	NS
Papay & Bambara (2014)	No transition programs	NS	13–16	NS	ID	NS	NS	NS
Poppen et al. (2017)	Analysis of data from Oregon Vocational Rehabilitation to identify predictors of positive transition	n. 4.443 young adults with disabilities	Mean 21	Gender and ethnicity reported	ID	Participants completed the Individualized Plan for Employment (IPE) to be eligible	NS	NS
Rich-Gross (2014)	No transition programs	NS	NS	NS	ID	NS	NS	NS

(continued)

Table 1. (continued)

Article	Experimental transition program for the acquisition of employment skills design	Sample size	Age (16–22 years)	Gender and ethnicity	Co-morbid medical and psychological diagnosis	Prior learning	Acquisition of employment and independent living skills	Realization of internship experiences during the transition program
Rogan, et al. (2014)	Description of SITE program (Skills for Independence, Transition, and Employment)	n. 20 students	NS	NS	ID	NS	Employment and independent living skills	NS
Santos & Costa (2016)	No transition programs	n. 4.048 including workers with disabilities, training managers, and experts	NS	Gender reported	Mental disabilities	NS	Basic skills	NS
Scheef et al. (2017)	No transition programs. Description of qualitative research on employability skills	n. 20. No people with disabilities	NS	Gender reported	ID and developmental disabilities	NS	Soft skills	NS
Shogren & Plotner (2012)	No transition programs	NS	14–16	Gender reported	ASD or ID	NS	NS	NS

Table 1. (continued)

Article	Experimental transition program for the acquisition of employment skills design	Sample size	Age (16–22 years)	Gender and ethnicity	Co-morbid medical and psychological diagnosis	Prior learning	Acquisition of employment and independent living skills	Realization of internship experiences during the transition program
Strickland et al. (2013)	Evaluation of an internet training program to support the transition	n. 22	16–19	Gender and ethnicity reported	Autism and Asperger's disorder	NS	Job interview skills	NS
Swedeen et al. (2010)	No transition programs	NS	NS	NS	Severe disabilities	NS	NS	NS
Taylor & Seltzer (2011)	No transition programs	n. 66 young adults	10–52	NS	ASD or ID	NS	NS	NS
Trainor et al. (2012)	No transition programs	NS	NS	NS	Learning disabilities and emotional and behavioral disabilities	NS	NS	NS
Virues-Ortega et al. (2013)	Description of program TEACCH	n. 172	5–18	NS	ASD	NS	NS	NS
Wehman et al. (2017)	**Description of Project SEARCH**	**n. 49 students**	**18–21**	**Gender and ethnicity reported**	**ASD**	**Previous work and/ or internship experiences**	**Employment and independent living skills**	**Realization of internship experiences**

Table 1. (continued)

Article	Experimental transition program for the acquisition of employment skills design	Sample size	Age (16–22 years)	Gender and ethnicity	Co-morbid medical and psychological diagnosis	Prior learning	Acquisition of employment and independent living skills	Realization of internship experiences during the transition program
Wehman et al. (2014)	**Description of Project SEARCH**	**n. 40 students (16 in the control group and 24 in the treatment group)**	**18–21**	**Gender and ethnicity reported**	**ASD**	**It was assessed through written applications and interviews**	**Job skills**	**Realization of internship experiences**
Wehman et al. (2013)	**Description of Project SEARCH**	**n. 2**	**19 and 20**	**Gender and ethnicity reported**	**ASD and Asperger syndrome**	**It was evaluated in terms of total credits achieved during school**	**Job skills, communication skills, and social skills**	**Realization of internship experiences in Richmond hospital (Virginia, U.S.)**
Wilczynski et al. (2013)	No transition programs	NS	NS	NS	ASD	NS	NS	NS
Xu et al. (2016)	Description of Kohler's Taxonomy of Transition Programming in the Chinese context	NS	NS	NS	ID	NS	NS	NS

aNLTS2: National Longitudinal Transition Study-2, NS = not specified.

studies presented small sample sizes, incomplete information concerning the curriculum features, lack of information on what aspects facilitate the acquisition of self-determination skills, as well as absence of methods for analyzing specific achievements, as obtaining paid jobs.

Answers to the Initial Research Questions

What Transition Programs With an Original Empirical Research Design Exist for Youths With Intellectual Disability and to What Extent do Transition Programs Outline Functional Curriculum and Specific Employment and Independent Living Skills to be Acquired?. This systematic review identified three studies describing three transition programs addressed to individuals with intellectual disability that presents an original empirical research design and outlines a functional curriculum for acquiring employment and independent living skills including information and data on the achievement of paid jobs. These programs are as follows:

(1)   Job coaching program.[7]
(2)   Project SEARCH program.[8]
(3)   Transition Service Program (TrP) at Montgomery County Public Schools.[9]

Which Transition Programs are Effective for Realizing Internship Experiences and With a Sound Methodological Quality Design?. The three transition programs identified also showed to be effective for realizing internship experiences in real work setting and obtaining a paid job as demonstrated by the cases included in the systematic review. The articles analyzed related to these programs respect all criteria used for methodological quality assessment and are given in Table 1 and Table 2 (marked in bold).

The three transition programs reported have some common themes such as the adoption of a person-centered approach to design learning activities (Gilson & Carter, 2016; Neubert & Redd, 2008). These programs provide internships within community or in real-life employment settings, during which youths with intellectual disability are supported with job coach (Cheong & Yahya, 2013; Giust & Valle Riestra, 2017; Hart Barnett & Crippen, 2014; Wehman et al., 2017).

The collaboration between educational environments, adult services staff, and employers emerge as a successful factor for realizing experiences that help them to acquire self-esteem, self-advocacy, and independence, besides the knowledge and competences to gain competitive employment. Other common features are the age of participants (18–21) and the use of intensive instruction for acquiring social, communication, and job skills (Bouck & Joshi, 2012; Lancioni et al., 2014; O'Bryan et al., 2014; Strickland et al., 2013; Wehman et al., 2014).

This systematic review has identified 12 other transition programs from compulsory education to work and independent life. Although they did not meet the criteria for assessing the methodological quality, these deserve to be mentioned in order to inform and complement the discussion. They can be used as inspiration sources for the design of further transition programs, and even if they cannot be considered as satisfactory for being

Table 2. Criteria to determinate the methodological quality and outcomes of transition program studies selected.

Article	The experimental transition program has produced tools, methodologies, guidebooks, or manual	If statistical methods or standardized measures are used, they have to be described	Internship, employment activities realized in real employment settings	Measures are used to assess the acquisition of skills	Experiences realized and skills acquired are representative of those which may be encountered in everyday life	If statistical findings are reported, they have to be examined	Analyses appropriate for the research question are utilized	If group analyses are employed, individual responding is also examined
Alnahdi (2016)	3 best practices on services for employment transition	Specified	NS	NS	NS	Specified	Specified	NS
Hart Barnett & Crippen, (2014)	Process for designing school-based employment programs	NS	Yes (restaurant)	NS	Yes	NS	NS	NS
Berg et al. (2017)	Case study report	Yes	NS	NS	NS	Yes	Yes	Yes
Black & Lawson (2017)	Case study report	NS	NS	NS	NS	NS	Yes	NS
Bouck & Joshi (2012)	NS	Yes	NS	NS	NS	Yes	Yes	NS

Table 2. (continued)

Article	The experimental transition program has produced tools, methodologies, guidebooks, or manual	If statistical methods or standardized measures are used, they have to be described	Internship, employment activities realized in real employment settings	Measures are used to assess the acquisition of skills	Experiences realized and skills acquired are representative of those which may be encountered in everyday life	If statistical findings are reported, they have to be examined	Analyses appropriate for the research question are utilized	If group analyses are employed, individual responding is also examined
Bouck & Joshi (2012)	Functional curriculum	Yes	NS	Measures to assess post-school outcomes (skills acquisition not specified)	NS	Yes	Yes	NS
Bouck & Joshi (2016)	NS	Yes	NS	Measures to assess post-school outcomes (skills acquisition not specified)	NS	Yes	Yes	NS

Table 2. (continued)

Article	The experimental transition program has produced tools, methodologies, guidebooks, or manual	If statistical methods or standardized measures are used, they have to be described	Internship, employment activities realized in real employment settings	Measures are used to assess the acquisition of skills	Experiences realized and skills acquired are representative of those which may be encountered in everyday life	If statistical findings are reported, they have to be examined	Analyses appropriate for the research question are utilized	If group analyses are employed, individual responding is also examined
Bross & Travers (2017)	Tools for planning activities and questionnaires for rank-ordering activity	NS	NS	NS	NS	NS	NS	NS
Cheong & Yahya (2013)	Transition plan	NS	Yes	NS	Yes	NS	Yes	Yes
Dragula (2009)	NS	NS	NS	NS	NS	NS	Yes	NS
Dubberly (2011)	Instructional model	NS	NS	NS	NS	NS	NS	NS
Gilson & Carter (2016)	**Job coaching package**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Giust & Valle-Riestra (2017)	Curriculum	Yes	NS	NS	NS	NS	NS	NS

(continued)

Table 2. (continued)

Article	The experimental transition program has produced tools, methodologies, guidebooks, or manual	If statistical methods or standardized measures are used, they have to be described	Internship, employment activities realized in real employment settings	Measures are used to assess the acquisition of skills	Experiences realized and skills acquired are representative of those which may be encountered in everyday life	If statistical findings are reported, they have to be examined	Analyses appropriate for the research question are utilized	If group analyses are employed, individual responding is also examined
Green et al. (2017)	TOPS model (Transition Options for Postsecondary Settings)	NS	NS	NS	NS	NS	NS	NS
Grigal & Dwyre (2010)	Program of the Postsecondary Education Research center (PERC) project	NS	NS	NS	NS	NS	Yes	NS
Hartman (2009)	Community-based transition program	NS	Yes	NS	NS	NS	NS	NS
Hatfield et al. (2018)	The BOOST-A™ program	Yes	NS	Yes	NS	Yes	Yes	Yes
Hendrickson et al. (2013)	The UI REACH Program	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 2. (continued)

Article	The experimental transition program has produced tools, methodologies, guidebooks, or manual	If statistical methods or standardized measures are used, they have to be described	Internship, employment activities realized in real employment settings	Measures are used to assess the acquisition of skills	Experiences realized and skills acquired are representative of those which may be encountered in everyday life	If statistical findings are reported, they have to be examined	Analyses appropriate for the research question are utilized	If group analyses are employed, individual responding is also examined
Kaehne & Beyer (2014)	Program for using web and support for employment	Yes	NS	NS	Yes	Yes	Yes	Yes
Lancioni et al. (2014)	NS	NS	Yes	Yes	Yes	NS	Yes	Yes
Lee & Carter (2012)	NS	NS	NS	NS	NS	NS	NS	NS
MacIntyre (2014)	NS	NS	NS	Yes	NS	NS	NS	NS
McDonough & Revell, (2010)	NS	NS	NS	NS	NS	NS	NS	Yes
Moore & Schelling (2015)	Post-secondary education programs	NS	NS	Yes	NS	Yes	Yes	Yes
Neubert & Redd (2008)	10 transition practices	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 2. (continued)

Article	The experimental transition program has produced tools, methodologies, guidebooks, or manual	If statistical methods or standardized measures are used, they have to be described	Internship, employment activities realized in real employment settings	Measures are used to assess the acquisition of skills	Experiences realized and skills acquired are representative of those which may be encountered in everyday life	If statistical findings are reported, they have to be examined	Analyses appropriate for the research question are utilized	If group analyses are employed, individual responding is also examined
O'Bryan et al. (2014)	**Project SEARCH model**	**Criterion partially met**	**Yes**	**Yes**	**Yes**	**NS**	**Yes**	**NS**
Pallisera et al. (2012)	Best practices	NS	NS	NS	Yes	NS	Yes	NS
Pallisera et al. (2014)	NS	NS	NS	NS	NS	NS	Yes	Yes
Papay & Bambara, (2011)	NS	Yes	NS	NS	NS	Yes	Yes	Yes
Papay & Bambara, (2014)	Best practices	Yes	NS	NS	NS	Yes	Yes	NS
Poppen et al. (2017)	YTP program	Yes	NS	NS	NS	Yes	Yes	Yes
Rich-Gross (2014)	NS	NS	NS	NS	NS	NS	NS	NS
Rogan et al. (2014)	SITE program	NS	Criterion partially met	NS	NS	NS	Yes	NS

Table 2. (continued)

Article	The experimental transition program has produced tools, methodologies, guidebooks, or manual	If statistical methods or standardized measures are used, they have to be described	Internship, employment activities realized in real employment settings	Measures are used to assess the acquisition of skills	Experiences realized and skills acquired are representative of those which may be encountered in everyday life	If statistical findings are reported, they have to be examined	Analyses appropriate for the research question are utilized	If group analyses are employed, individual responding is also examined
Santos & Costa (2016)	NS	Yes	NS	NS	NS	Yes	Yes	Yes
Scheef et al. (2017)	NS	NS	NS	NS	NS	NS	Yes	NS
Shogren & Plotner (2012)	NS	Yes	NS	NS	NS	Yes	Yes	Yes
Strickland et al. (2013)	Internet training program to acquire job interview skills	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Swedeen et al. (2010)	NS	NS	NS	NS	NS	NS	NS	NS
Taylor & Seltzer (2011)	NS	Yes	NS	NS	NS	Yes	Yes	Yes
Trainor et al. (2012)	Tips for designing transition program	NS	NS	NS	NS	NS	Yes	NS

Table 2. (continued)

Article	The experimental transition program has produced tools, methodologies, guidebooks, or manual	If statistical methods or standardized measures are used, they have to be described	Internship, employment activities realized in real employment settings	Measures are used to assess the acquisition of skills	Experiences realized and skills acquired are representative of those which may be encountered in everyday life	If statistical findings are reported, they have to be examined	Analyses appropriate for the research question are utilized	If group analyses are employed, individual responding is also examined
Virues-Ortega et al. (2013)	TEACCH program	Yes	NS	Yes	Yes	Yes	Yes	Yes
Wehman et al. (2017)	**Project SEARCH model (adaptation for individuals with ASD)**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Wehman et al. (2014)	**Project SEARCH model**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Wehman et al. (2013)	**Project SEARCH model**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Wilczynski et al. (2013)	NS	NS	NS	NS	NS	NS	NS	NS
Xu et al. (2016)	Kohler's Taxonomy for Transition Programming	Yes	NS	NS	NS	Yes	Yes	NS

NS = Not specified.

included in the final sample of study, they provide interesting avenues for future research. These are Best Buddies Jobs Program,[10] BOOST-A™[11] transition program, YT Program,[12] Postsecondary Education Research Center project,[13] Project Panther LIFE's curriculum,[14] SITE Program,[15] TEACCH Program,[16] Getting a Life Project,[17] Greenside Studio,[18] TOPS Program,[19] Triumph Transition Program,[20] and UI REACH Program.[21]

Concerning these programs and summarizing what was reported in Table 1 and Table 2, not all of the articles analyzed are focused on experimental curriculum designed for the acquisition of employment skills. In the majority of articles, sample is often not specified, as well as age, gender, and ethnicity. Concerning the background factors which affect psychological or behavioral responses, such as the analysis of prior learning or the acquisition of employment and independent living skills, these are barely considered. Internship experiences realized in real-life employment settings are reported in few samples.

Analyses of statistical findings (including group analysis and individual responding) are often used and examined but not always for measuring the effective acquisition of skills through standardized measures of assessment. Few experimental transition programs described have produced tools, methodologies, guidebooks, report, or manual. A lot of criteria used for assessing the internal and external validity methodological quality were not met or partially met.

Discussion

Summary of Evidence and Implications for Practice

The main aspect emerged through the analysis of literature is that youths with intellectual disability who participated in specific interventions for supporting the transition from compulsory education to employment achieve better results than individuals that did not attend any transition program or specific intervention (Clodagh & Gleeson, 2017; Fleming et al., 2013; Green et al., 2017; OECD, 2011).

The strength of evidence emerging from the analysis of the transition programs reported in the articles reviewed, and practical implications for designing new programs concern mainly four key aspects: (1) Curriculum contents facilitating the development of self-determination and the acquirement of job-related skills, (2) chance to have real-life work experiences through individualized internship, (3) support provided by job coaches and technological solutions, and (4) transition programs anchored in community-based rather than school-based settings. These aspects are relevant to key groups such as teachers/trainers, program designers, professionals, users, carers, families, and policy decision-makers.

Curriculum Contents. Concerning this aspect, it resulted that self-determination is a key element because it includes abilities of problem solving, choice and decision making, self-advocacy, and objectives definition. This is a mix of skills, such as soft, social, independent living that should be included in any transition program. These skills are considered the defining constructs to help learners to have a career development and

increase employment after graduation (Dubberly, 2011). The self-determination should be supplemented with a functional curriculum based on how to teach learners the skills useful to conduct a satisfactory adult life (Bouck & Joshi, 2012; Guy, 2006).

Chance to Have Real Work Experiences Through Individualized Internship. The self-determination is strictly connected with the second aspect mentioned above, the chance to have real work experiences. Once the knowledge and skills are transferred to carry out a job activity through a functional curriculum, an individualized internship designed with a person-centered approach became an essential part of the transition program for the assimilation of learning. In order to provide effective opportunities to put into practice what is learned, early work experiences are fundamental. The individualized internship should be provided simultaneously with the teaching activities that should include practical methods as explicit instructions, modelling, role-play, and feedback on performance.

Support Provided by Job Coaches and Technological Solutions. The third aspect consists of the support of job coach and technological aids. These supports can guarantee an effective realization of the internship. Learners can be supported for receiving guidance, increasing the level of performance in job-related tasks, and social interactions with others in the workplace. Realizing a real work experience supported by the help of trained person and/or specific technological tools can enhance learning and independence. An interesting example was provided by the Application Avail,[22] an educational platform that supports the acquisition of skills and knowledge through videos and customizable instructions on the base of learner's needs, job tasks to be performed, and independent living skills to be acquired. Another useful example is the internet training program JobTIPS[23] that through visual supports and virtual reality teach job interview skills.

Transition Programs Anchored in Community-Based Rather Than School-Based Settings. It has long been clear that the transition of learners with intellectual disability should be realized within the community rather than school settings, for a variety of reasons. First, peers of their age exit school at age 18. Schools lose their relevance after students have attended for four or more years. Individuals who learn in authentic and integrated environments are more likely to acquire meaningful jobs, community living, mobility, and social and other skills for adulthood (Rogan et al., 2014).

This aspect fosters a direct involvement of local employment providers and employers to promote the design of interventions for enhancing the transition (Beyer et al., 2008). As studies show, their involvement is necessary to validate employment outcomes and foster effective social inclusion (Lysaght et al., 2012).

Recommendations

The recommendations drawing from findings of this review are that (a) transitional needs of youths with intellectual disability require a collaborative support system for designing

person-centered programs; (b) programs should include supportive elements such as job coaching and career guidance; (c) vocational training initiatives addressed to personnel and community transition services are required; (d) a collaborative process between agencies is fundamental in order to guarantee effective achievements (Cheong & Yahya, 2013). United Nations, 2006.

Moreover, the following aspects need to be considered for designing a successful transition program aimed at improving employment outcomes:

- Individualized-based transition services,
- early work experiences,
- interagency involvement,
- family supports,
- self-determination,
- employment support (Poppen et al., 2017),
- job-related competences (Alverson et al., 2014).

The review on the validity of transition programs aimed to support the transition to labor market found three experimental studies (Job coaching program, Project SEARCH, and Transition Service Program at Montgomery County Public Schools). These provide details on interventions that predictably foster the development of employment outcomes and define what works for youths with intellectual disability.

Finally, potential sources of bias of this review concern the fact that only studies published in peer-reviewed journals were considered. Also, studies selected span over one-decade, and this could hide the results of research not included in peer-reviewed journals or databases consulted.

The limitations reported above could be further examined by future research through other inclusion criteria and alternative process for assessing the methodological quality of studies. As it is important to examine, redefine and readapt successful elements that can effectively support the transition to adult life. Results of this review indicated that additional research is needed to provide sound empirical research aimed to support the acquirement of employment competences. Also, other transition domains such as career development and early work experiences tend to promote post-secondary education interventions rather than real-life work experiences.

Declaration of Conflicting Interests

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Ethical Approval

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committee on human experimentation with the Helsinki Declaration of 1975, as revised in 2008. Informed consent was obtained from all individual participants included in the study. The study protocol was approved by the ethics committee of the participating institution.

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Notes

1. https://www.coe.int/en/web/turin-european-social-charter
2. http://www.europarl.europa.eu/charter/pdf/text_en.pdf
3. Available at: https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html
4. This range was based on previous literature, although there are cases (e.g., England) where the definition of "young people" applies until 25 years.
5. The rationale for including only youth with moderate to mild intellectual disability is due to avoid the risk of generalization (if considering all cognitive disabilities), and to the research aims designed to focus on this specific audience.
6. CASP Systematic Review Checklist is a pedagogic tool composed by 10 questions to help to make sense of a Systematic Review. In particular, it helps to reflect on the validity of results. Available at: https://casp-uk.net/images/checklist/documents/CASP-Systematic-Review-Checklist/CASP-Systematic-Review-Checklist-2018_fillable-form.pdf
7. Website not available.
8. Additional reading on research outcomes of Project SEARCH is available at: https://www.projectsearch.us/outcomes-research/
9. Additional reading on research outcomes of Transition Service Program at Montgomery County Public Schools is available at: https://www.montgomeryschoolsmd.org/departments/sharedaccountability/
10. Available at: https://www.bestbuddies.org/blog/2015/12/04/best-buddies-jobs-program/
11. Available at: https://step-a.azurewebsites.net/
12. Available at: https://ytp.uoregon.edu/
13. Available at: https://perc.utk.edu/
14. Available at: http://fiuembrace.fiu.edu/home/fiu-embrace-panther-life/
15. Available at: http://site.iupui.edu/
16. Available at: https://teacch.com/
17. Available at: http://www.gettingalife.org.uk/
18. Available at: http://www.greenside.herts.sch.uk/Learning/GreensideStudio.html
19. Available at: https://www.scvths.org/Page/149
20. Available at: https://triumphservices.org/
21. Available at: https://education.uiowa.edu/services/reach

22. Available at: https://www.availsupport.ie/
23. Available at: http://www.do2learn.com/JobTIPS/

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Appendix A

Combinations of keywords and subject areas used for article identification.

1. "Transition programs" and "employability skills";
2. "Transition programs" and "students with disability";
3. "Transition programs" and "special education";
4. "Transition programs" and "youths";
5. "Transition programs" and "employability skills" and "students with disability";
6. "Transition programs" and "employability skills" and "special education";
7. "Transition programs" and "employability skills" and "special education" and "students with disability";
8. "Transition programs" and "employability skills" and "special education" and "students with disability" and "youths";
9. "Employability skills" and "students with disability";
10. "Employability skills" and "special education";
11. "Employability skills" and "youths";
12. "Employability skills" and "special education" and "students with disability";
13. "Employability skills" and "special education" and "students with disability" and "youths."