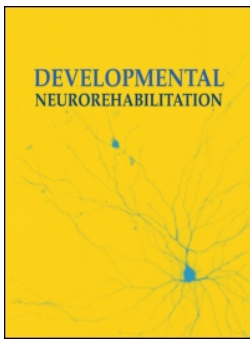




## **Transition program from school to employment in youths with intellectual disability: Evaluation of the Irish pilot study E-IDEAS**

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## Transition Program from School to Employment in Youths with Intellectual Disability: Evaluation of the Irish Pilot Study E-IDEAS

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# Transition Program from School to Employment in Youths with Intellectual Disability: Evaluation of the Irish Pilot Study E-IDEAS

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## ABSTRACT

**Aim:** The purpose of this pilot was to evaluate the effectiveness of the E-IDEAS curriculum, specifically designed for workplace inclusion of youths with intellectual disabilities (ID) and aimed to transfer social, communication, independent living and employment skills.

**Method:** The curriculum was attended by 5 participants, and it was provided concurrently with five different work-placements across a period of six months. Two assessment tools were used to demonstrate the acquisition of such skills and an evidence-base improvement of their quality of life. Pre and post-intervention standardized assessments were also taken for measuring the improvement in quality of life (through the San Martín Scale) and adaptive behavior (through the Vineland-II Adaptive Behavior Scale).

**Results:** The data collected showed increases in the acquisition of such skills. Evidence of maintenance and generalization were also demonstrated.

**Conclusion:** Implications for practice and further research are discussed.

## ARTICLE HISTORY

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employment skills; youths;  
intellectual disability;  
curriculum; E-IDEAS

## Introduction

### Employment

Employment is a crucial aspect of adult life as well as the acquisition of skills to access the Labor Market.<sup>1,2</sup> Being educated and being employed are human rights, as stated in the UN Convention on the Rights of Persons with Disabilities (UNCRPD), that in Article 27 recognizes “the right of persons with disabilities to work, on an equal basis with others.”<sup>3</sup> Employment represents an important opportunity to improve inclusion and positive outcomes<sup>4</sup> such as increased cognitive functioning, social interaction opportunities and peer relationships.<sup>5,6</sup>

Employment and work are beneficial not only for monetary and personal fulfillment but also for the maintenance of health.<sup>7</sup> In addition, it promotes social status, self-esteem, financial independence, as well as independent living, physical and psychological health, greater participation and emancipation.<sup>8,9</sup> Employment defines a person, his/her identity, gives meaning and purpose in day-to-day activities.<sup>10</sup> The World Health Organization<sup>11</sup> affirms work helps to provide regular activity, which is important for maintaining a healthy lifestyle.<sup>12</sup>

### Low Rates of Employment in People with Intellectual Disability (ID)

Employment studies of educational outcomes of youths with ID show high levels of unemployment and underemployment<sup>13</sup> and the challenge faced by them during the transition from education system to employment still persist.<sup>14–16</sup> The current context in Ireland is characterized by

mainstream or special schools with a well-meaning but outdated focus on caring for the individual, rather than promoting specific transition programs for acquiring employment skills and an active productive role in society.<sup>17</sup> The transition from school to employment is often a difficult time for youths with ID. The lack of employment and independent living skills can interfere with an individuals’ ability to have a paid job and participate in the community and, as a consequence, leads to poorer quality of life outcomes.<sup>18</sup>

### Transition Programmes

Transition programs can include any academic or functional curriculum,<sup>19,20</sup> support of job coaching,<sup>21</sup> or assistive technology.<sup>2,22,23</sup> Researchers continue to cite the need to conduct more studies on transition programs to determine exactly what should constitute good practice,<sup>24–27</sup> for the design of learning pathways aimed to facilitate the acquisition of job-related skills and the realization of experiences in real employment settings.<sup>28–33</sup>

Youth with ID are an under-studied population<sup>34</sup> and although in recent years some studies have been conducted on methodologies that favor inclusion in employment contexts, little research and even less practical case of curriculum have been designed to support the transition to adult life in order to facilitate their employability. Overall, there is a paucity of research addressing specific strategies and methods for transferring employment skills and provide experiences in real work settings, since successful employment contributes to improving the quality of life of individuals with ID.<sup>35–37</sup>

## What Skills are Important to Transfer?

The skills needed for an effective transition to adult life are social, independent living, communication and employment skills for performing work related tasks and being independent.<sup>38,39</sup> As studies show, deficits in such skills and professionalism are a significant barrier for obtaining and maintaining employment for individuals with ID.<sup>40–42</sup> Having difficulties in understanding social rules in the workplace, the communicative intent of others or being unable to understand facial expressions and tones of voice or the inability to seek help when needed and handling job feedback, often have resulted in obstacles.<sup>43–46</sup> Further lack of personal hygiene and inability to understand emotions of others can impact the overall employment experience, as the majority of workplaces require understanding and adherence to social norms.

## Methodology for Curriculum Development

The methodology adopted for the development of the Empowerment of youth with Intellectual Disabilities through Education and training for Acquiring Employment Skills (E-IDEAS) curriculum is based on task analysis and chaining. It comes from Applied Behavior Analysis and it is used to break complex tasks into a sequence of smaller steps or actions.<sup>47</sup> The understanding of all steps involved for a particular task can assist in identifying any steps that may need extra instruction, and this helps to learn the task in a logical progression. The methodology to design the curriculum was also influenced by projects and programs resulted from a systematic review concerning transition from school to employment, namely: Project SEARCH,<sup>a</sup> Project IDEAL,<sup>b</sup> Project STEP,<sup>c</sup> Bridges From School to Work Program,<sup>d</sup> Oregon's Youth Transition Program,<sup>e</sup> Bridget project,<sup>f</sup> Able to Include project<sup>g</sup> and ATLEC project.<sup>h</sup> These projects and programs are described in Table 1.

## Method

### Experimental Design

Despite the necessity for research on employment in individuals with ID, there has been little research conducted in the area of assessment of curriculum for transition to adult life. This may be partly due to the lack of appropriate measures (usually consisted of informal measures) available to assess the acquisition of employment skills. For this reason, two different assessment tools have been used at the beginning and at the end of the research including pre/post outcome measures, to evaluate changes in participant's behavior over time.

## Participants

To be part of the research, participants had to meet the following inclusion

criteria: have (i) 18 years or older, (ii) a diagnosis of ID, (iii) mild to moderate disability; (iv) can provide informed consent; (v) live in the community. Exclusion criterium was where an individual had a cognitive impairment that would affect reliable participation or capacity to give informed consent or to use materials (e.g., the assistive technology AVAIL<sup>®</sup>, tablets, worksheets, etc.) or to actively participate during lessons. Five participants ranging in age from 19 to 22 years were recruited from a vocational training center in the west of Ireland. One participant was diagnosed ID and four with Down Syndrome and a co-occurring mild to moderate ID. Participants' scores relating to diagnoses were obtained from their case files. All participants had been enrolled in special education services throughout their lives. Participation in the research was voluntary and informed written assent was also obtained from participant's parents. The Research Ethics Committee at the university and the Ethics Committee from the disability service provider approved this research. Pseudonyms were assigned to all participants to preserve anonymity and confidentiality (See Table 2).

## Setting

The pilot took place in two locations: the university and a disability service provider, for a total of 4 months (96 hours). The curriculum was delivered by one researcher supported by two undergraduate students from the School of Psychology in the university and one staff member from the disability service provider. The individualized work-placement took place in five different job placements (2 hours for 2 days per week for 3 months) with the support of five job coaches provided by a local organization involved in the research and the support of the education platform AVAIL<sup>®</sup>. Participants were trained to use this assistive technology through tablets during the classroom activities at the training center and during their work-placement with the support of job coaches.

## Curriculum Structure

The E-IDEAS curriculum is composed of two parts with different learning activities, delivered concurrently and representing a unique learning program:

- (1) Employment preparation curriculum.
- (2) Individualized work-placement.

The Employment preparation curriculum has been developed using a “top/down” driven approach, as it was based on

<sup>a</sup>[www.projectsearch.us/](http://www.projectsearch.us/).

<sup>b</sup>[www.projectidealonline.org/](http://www.projectidealonline.org/).

<sup>c</sup><http://transitionschooltowork.org>.

<sup>d</sup>[www.bridgestowork.org/](http://www.bridgestowork.org/).

<sup>e</sup><https://ytp.uoregon.edu/content/home>.

<sup>f</sup>[www.bridget.ie/](http://www.bridget.ie/).

<sup>g</sup><http://able-to-include.com/>.

<sup>h</sup><http://atlec-project.eu/>.

**Table 1.** Description of projects and programs influencing the methodology design of E-IDEAS curriculum.

Project/ Program	Description	Targets	Where implemented	Outcomes	Studies produced	Aspects used in E-IDEAS
PROJECT SEARCH	School-to-work program using a combination of classroom instruction, career exploration, hands-on training, training on the job and supported internship.	<ul style="list-style-type: none"> <li>• Students with IDD*</li> <li>• Teachers</li> <li>• Employers and employees</li> </ul>	<ul style="list-style-type: none"> <li>• High Schools</li> <li>• Job contexts Implemented in U.S. and 9 Countries.</li> </ul>	Program that includes CV, tools and training courses.	Book	The competences identified have been compared with the European Quality Assurance in Vocational Education and Training and used to define the curriculum structure.
IDEAL PROJECT	Preparing teachers to work with students with disabilities through video examples.	<ul style="list-style-type: none"> <li>• Students with IDD</li> <li>• Teachers</li> </ul>	Secondary and post-secondary schools. Implemented in U.S.	Design of modules and videos for training teachers.	N/A	The video materials to support participants during classroom activities.
PROJECT STEP	Transition program integrated into academic programs, including classes for a half day and two or more hours of hands-on skill building employment training at job site.	<ul style="list-style-type: none"> <li>• Students with disabilities</li> <li>• Teachers</li> <li>• Employers and employees</li> <li>• Families</li> </ul>	<ul style="list-style-type: none"> <li>• High schools</li> <li>• Job contexts Implemented in U.S.</li> </ul>	Program aimed to transfer social skills.	Articles	The approach is based on curriculum customization in order to match with needs and preferences of participants.
BRIDGES FROM SCHOOL TO WORK	PROGRAM	Aimed to find a job and support mutually beneficial employment relationships between business and workforce.	<ul style="list-style-type: none"> <li>• People with disability (17–22 years old)</li> <li>• Employers and employees</li> <li>• Teachers</li> <li>• Families</li> </ul>	<ul style="list-style-type: none"> <li>• High schools</li> <li>• Vocational rehabilitation centers</li> <li>• Workforce agencies</li> <li>• Local communities Implemented in U.S.</li> </ul>	4,000 employers, 20,000 youths with disabilities involved.	<ul style="list-style-type: none"> <li>• Books</li> <li>• Guidelines</li> </ul>
The idea of matching the workforce needs of local	employers with the skills and interests of participants.					
OREGON'S YOUTH	TRANSITION PROGRAM	Designed to prepare students with disabilities for employment or postsecondary education	<ul style="list-style-type: none"> <li>• Student with disabilities</li> <li>• Families</li> <li>• Teachers</li> <li>• Rehabilitation personnel</li> <li>• Employers and employees</li> </ul>	<ul style="list-style-type: none"> <li>• Vocational Rehabilitation centers</li> <li>• University</li> <li>• High schools Implemented in U.S.</li> </ul>	1500 students and 120 high schools involved.	<ul style="list-style-type: none"> <li>• Reports</li> <li>• Procedurals manual</li> </ul>
Pre-	employment supports for preparing to enter the Labor market and adult life					
BRIDGE PROJECT	Preparing young adults for the transition from special school to adult life through a work experience program and an individual transition plan.	<ul style="list-style-type: none"> <li>• Students with ID (16–18 years)</li> <li>• Teachers of special schools</li> <li>• Employers and employees</li> </ul>	<ul style="list-style-type: none"> <li>• Special schools</li> <li>• Job contexts Implemented in Ireland</li> </ul>	Provision of independent skills to 50 students with ID and training on the job experience.	Reports	Focus on work experience and aimed to train participants and acquire independent living skills.
ABLE TO INCLUDE PROJECT	Integration of people with ID through innovative applications and new technologies applied to education and employment fields.	<ul style="list-style-type: none"> <li>• Young adults with IDD</li> <li>• Teachers and professionals</li> </ul>	<ul style="list-style-type: none"> <li>• Leisure and information society Implemented in different EU Countries</li> </ul>	Implementation of services, products and training courses for using technology to support learning activities	<ul style="list-style-type: none"> <li>• Reports</li> <li>• Articles</li> <li>• Academic papers</li> </ul>	The use of assistive technology to support learning activities
ATLEC PROJECT	Development of tailored curriculum for training disabled persons in the use of Assistive Technology (AT) for improving their communication skills	<ul style="list-style-type: none"> <li>• People with disabilities</li> <li>• Teachers</li> <li>• Trainers, careers and tutors</li> <li>• Academics</li> <li>• AT experts and organizations</li> </ul>	<ul style="list-style-type: none"> <li>• Schools</li> <li>• Associations</li> <li>• AT centers Implemented in different EU Countries</li> </ul>	Design and piloting of AT curriculum for people with disability and competences framework for using AT	<ul style="list-style-type: none"> <li>• Reports</li> <li>• Papers</li> <li>• Handbook</li> </ul>	Tools as Easy to Read and Simplified Text to improve the communication skills

\* IDD: Intellectual or Developmental Disabilities.

**Table 2.** Description of participants.

Variable	Participant				
	# 1 M	# 2 F	# 3 K	# 4 M	# 5 G
Demographics					
Age (years)	20	19	20	22	19
Gender	M	M	F	F	F
Diagnoses	DS	DS	ID	DS	DS
Level of Intellectual functioning	Moderate ID	Mild ID	Moderate ID	Moderate ID	Moderate ID
Previous job-experience	Yes	No	Yes	Yes	No
Previous job-training experience	Yes	No	Yes	Yes	No

F female, M male, DS Down Syndrome, ID Intellectual disability.

previous research and projects outcomes. While the Individualized work-placement was organized adopting a “bottom/up” driven approach that consists of analyzing the work placement context, identifying employment needs, organizing focus groups and collecting feedback from all the stakeholders involved. Also, a person-centered approach was used for designing job related activities and employment tasks.<sup>48</sup>

The E-IDEAS curriculum was developed starting from the identification of skills that are significant to overcome barriers for obtaining and maintaining paid employment. These have been further analyzed and organized in four categories of skills: basic, social, independent living and employment, and each one in sub-category with its own specific and detailed skills to be transferred, as reported in Table 3.

The curriculum was organized on the base of these categories of skills that resulted in modules. The sub-category under didactical unit including aims, objectives, activities and materials, is detailed in Table 4.

The learning assumptions are:

- The starting point is the learner.
- The content of lesson is drawn from the daily experiences of learners.
- The teacher is also a learner whose role is to facilitate a participatory process.
- What is learned and how it is learned can teach a sense of self-confidence, the ability to think critically, the courage to confront difficult communication situations, and skills to solve daily problems individually and collectively.
- A variety of materials and tools help learners participate more actively in class.
- Learning should be fun.

### Teaching Activities Adopted

These were as follows:

- *Individual reflections*: stimulated by questions and answers for examining participant’s personal experiences, beliefs and needs.
- *Group discussions*: provided the opportunity to share perceptions, feelings and experiences.
- *Group activities*: used to guided participants to understand, practice and solve problems.
- *Role-play*: provided a friendly setting to practice skills needed.

- *Team-working*: focused on strengthening participants oral communication skills, sense of collaboration, problem solving aptitude, conflict resolution and to make decisions.
- *Practical cases and exercises*: participants were required to complete ad-hoc exercises based on specific real-life situations or imagined scenarios.
- *Slides, photos and videos*: used to provide simple information to support participants’ learning and understanding.
- *Non-structured interviews*: used to collect participants feedback about their work placement experiences.

### Individualized Work-placement

The individualized work-placements took place within the community. One participant was placed in a hair salon, one was placed in a cafeteria, one in a restaurant, one in a supermarket and one in a youth organization. The job-related tasks were performed with the support of job coaches. Examples of activities performed were folding the towels for the barbers, pricing different products using the pricing gun, cleaning counters, tables and chairs, emptying and filling the dishwasher, recycling, organizing the drawers. Many of these activities were previously introduced and explained to participants through the AVAIL platform and this helped them to understand the different steps required to successfully perform the tasks.

### Materials and Tools Used

Materials and tools used were as follows:

- *Power point presentations*: helped participants to stay focused on each argument presented during sessions and provided a visive support to better understand the content delivered. These were developed using an Easy-to-Read style.
- *Photos/images*: used as text alternatives for identifying learning contents and for helping participants to improve the accessibility of topic presented.
- *Videos*: used to add details or focus on the arguments presented in order to support the learning process.
- *Worksheets*: used for exercises and practical cases.
- *Maps and timetables*: used to help participants to orientate in the community as well as for familiarizing with traveling resources.
- *Tablets*: used with applications appropriate to the level of ability of participants. These have enhanced engagement in learning as well as increased participants independence.
- *AVAIL® platform*: assistive technology used through Tablets. It is an educational platform that utilizes the principles of Applied Behavior Analysis (ABA), Audio/Video modeling and other prompting for helping individuals to acquire skills that are critical to their success and to live independently. It utilizes key strategies, task analysis, chaining, prompt-fading and positive reinforcement.<sup>49</sup> The prompts used were composed by instructions and demonstrations of job-related tasks to increase the likelihood that individuals will make the

**Table 3.** List of skills to be transferred.

Category	Sub-category	Specific Skills
1. Basic skills	1.1. Health and Wellness	<ul style="list-style-type: none"> <li>• Care of their own               <ul style="list-style-type: none"> <li>• Follow correct nutritious diet</li> <li>• Follow a healthy lifestyle, stress management</li> </ul> </li> <li>• Linking good physical and mental health with personal achievement</li> </ul>
	1.2. ICT-AT*	<ul style="list-style-type: none"> <li>• Basic knowledge of ICT               <ul style="list-style-type: none"> <li>• Turn on and off a computer, smartphone or tablet</li> <li>• Access and manage Apps for supporting learning and work activities</li> <li>• Use technology to locate basic information</li> </ul> </li> <li>• Online safety               <ul style="list-style-type: none"> <li>• Basic knowledge of AT</li> <li>• Use of AVAIL platform</li> </ul> </li> </ul>
	1.3. Money Management	<ul style="list-style-type: none"> <li>• Counting and sorting of money               <ul style="list-style-type: none"> <li>• Knowledge of basic financial information</li> <li>• Identification of methods of withdrawing and deposit funds</li> </ul> </li> </ul>
2. Social skills	2.1. Communication Skills	<ul style="list-style-type: none"> <li>• Use of verbal, nonverbal, written and electronic communication skills</li> <li>• Use of appropriate conversational skills with peers and adults</li> <li>• Identity, express and understanding feelings of oneself and others</li> <li>• Follow and give information</li> <li>• Presentation skills</li> </ul>
	2.2. Adult related Social Skills	<ul style="list-style-type: none"> <li>• Getting an adult attention               <ul style="list-style-type: none"> <li>• Responding to requests from parents, teachers, employers</li> <li>• Working independently</li> </ul> </li> </ul>
	2.3. Self-related Skills	<ul style="list-style-type: none"> <li>• Using self-control               <ul style="list-style-type: none"> <li>• Feeling good about her/his-self</li> <li>• Resolve problems with others</li> </ul> </li> </ul>
3. Independent living skills	3.1. Navigation in the community	<ul style="list-style-type: none"> <li>• Knowledge of the transportation system               <ul style="list-style-type: none"> <li>• Knowledge of the main signals</li> <li>• Knowledge on how to orientate in the community</li> <li>• Ability to move and travel independently</li> </ul> </li> </ul>
	3.2. Time management	<ul style="list-style-type: none"> <li>• Knowledge and understanding of time               <ul style="list-style-type: none"> <li>• Being organized</li> <li>• Ability to plan, prioritize work and setting clear goals</li> <li>• Dealing with unexpected events</li> </ul> </li> </ul>
	3.3. Professionalism	<ul style="list-style-type: none"> <li>• Knowledge of appropriate interview etiquette               <ul style="list-style-type: none"> <li>• Ability to keep track of appointment and be on time</li> <li>• Demonstrate appropriate conversational skills with coworkers and customers</li> <li>• Maintaining an appropriate appearance</li> </ul> </li> </ul>
	3.4. Advocacy skills	<ul style="list-style-type: none"> <li>• Identify barriers and difficulties in the community               <ul style="list-style-type: none"> <li>• Understand Advocacy and Self Advocacy</li> <li>• Reflect on what it means to be a person with a disability in Ireland</li> <li>• Identify resources and support within local community</li> </ul> </li> </ul>
4. Employment skills	4.1. Team Building	<ul style="list-style-type: none"> <li>• Ability to communicate personal needs               <ul style="list-style-type: none"> <li>• Team-building practice</li> <li>• Solve conflicts within a team</li> <li>• Complete assigned tasks, establish procedures, respect a timeline</li> </ul> </li> </ul>
	4.2. Job Searching	<ul style="list-style-type: none"> <li>• Develop a personal resume and cover letter               <ul style="list-style-type: none"> <li>• Identify interests, abilities, personal priorities and family responsibilities affecting carrier choice</li> <li>• Identify employment opportunities related to personal employment goal</li> <li>• Identify various sources to use in finding job opportunities</li> </ul> </li> </ul>
	4.3. Safety at work	<ul style="list-style-type: none"> <li>• Knowledge of the work-place               <ul style="list-style-type: none"> <li>• Identify safe working practices</li> <li>• Knowledge of personal safety practices</li> </ul> </li> </ul>

\*ICT-AT: Information Communication Technology and Assistive Technology.

right response. For example, the audio/video modeling was used to show to participants how to clean tables, to use a dishwasher, to introduce oneself and other tasks addressed to employment skills acquisition.<sup>50</sup>

### Data Analysis

An inductive approach was taken to data analysis.<sup>51</sup> To assess the efficacy of the curriculum to transfer social, communication, independent living and employment skills, visual and qualitative analyses were utilized. Changes in scores obtained from pre and post-intervention collected through indirect measures (San Martín and Vineland-II scales) were analyzed to assess a real participants'

improvement of quality of life and an effective acquisition of skills. The effect sizes of intervention were interpreted using informal interviews, observations and analysis of the scores obtained through the scales before and after the curriculum delivery. Also, work placements experiences were observed and further analyzed and discussed with job-coaches that supported participants. The small number of participants has not allowed a significative statistical or quantitative analysis of data collected.

### Dependent Measures

The skills measures were selected to assess participants before and after the curriculum. The dependent measures for the

**Table 4.** Modules, didactical units, aims, objectives, activities and materials of E-IDEAS curriculum.

Module	Didactical unit	Aim	Objectives	Activities	Materials and tools
0. Warm-up	Introduction	Create a positive environment providing information on activities	<ol style="list-style-type: none"> <li>1. Introducing him/herself</li> <li>2. Creating a welcome environment</li> <li>3. Establishing positive relationships</li> <li>4. Understanding of roles</li> <li>5. Setting goals</li> </ol>	<ul style="list-style-type: none"> <li>• Introduction</li> <li>• Questions and answers for introducing participants</li> <li>• Project presentation</li> <li>• Group discussion on activities</li> <li>• Presentation and practical case on setting goals</li> </ul>	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Worksheets</li> </ul>
1. Basic skills	1.1. Health and Wellness	Acquire independence in caring his/herself and recognize the value of maintaining an appropriate standard of personal care and wellness	<ol style="list-style-type: none"> <li>1. Stimulating care of their own</li> <li>2. Understanding correct healthy diet and healthy lifestyle</li> <li>3. Awareness of the relationship between good physical and mental health and personal achievement</li> <li>4. Ability to plan daily meals and physical activities</li> </ol>	<ul style="list-style-type: none"> <li>• Presentation of personal care skills</li> <li>• Group activity on personal care</li> <li>• Video and group discussion about taking care of your belongings</li> <li>• Group activity on “a list of belongings you need for tomorrow”</li> <li>• Presentation of the Healthy Eating Pyramid</li> <li>• Video on healthy eating</li> <li>• Group activities on “make a list of what you generally eat”</li> <li>• Practical case about how to use a food chart</li> <li>• Group discussion about healthy lifestyle</li> <li>• Questions and answers on nutrition habits</li> <li>• Delivery of “to do list” for a healthy lifestyle</li> <li>• Group activity about correct nutrition diet and physical activities</li> <li>• Practical case: “how to use a physical activity chart?”</li> <li>• Role-play: “how to prepare for going to work”</li> </ul>	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Videos</li> <li>• Worksheets</li> <li>• Charts</li> </ul>
	1.2. ICT-AT	Enable participants to acquire a basic knowledge of ICT and AT and recognize the role of technology to find support and help	<ol style="list-style-type: none"> <li>1. Ability to access smartphone and tablet</li> <li>2. Using Apps to perform tasks</li> <li>3. Safety online</li> <li>4. Using technology searching basic information</li> </ol>	<ul style="list-style-type: none"> <li>• Basic information on ICT</li> <li>• Practical case: “how to turn on and off a tablet”</li> <li>• Questions and answers about smartphone and tablet</li> <li>• Video on what is and how to manage an App</li> <li>• Video and practical case on how to search information on internet</li> <li>• Introduction on AVAIL platform</li> <li>• Group discussion, video and exercise on safety online</li> </ul>	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Worksheets: the use of ICT, searching information on internet, safety online</li> <li>• Videos</li> <li>• App AVAIL</li> </ul>
	1.3. Money Management	Enable participants to familiarize with money management and financial issues	<ol style="list-style-type: none"> <li>1. Ability to count and sort money</li> <li>2. Understanding of basic financial information</li> <li>3. Identifying methods of withdrawing and depositing funds</li> </ol>	<ul style="list-style-type: none"> <li>• Group activity and practical case on counting and sorting of money</li> <li>• Provision of basic financial information</li> <li>• Questions and answers on bank account</li> <li>• Video on opening a bank account</li> <li>• Presentation of methods of withdrawing, maintaining and depositing of funds</li> <li>• Video: “how to use ATM, credit or debit cards”</li> <li>• Role plays: “Paying a bill at restaurant and Shop keeper and customer”</li> </ul>	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Worksheets: questions and answer, quiz on bank account, budget money</li> <li>• Videos</li> </ul>

(Continued)



Table 4. (Continued).

Module	Didactical unit	Aim	Objectives	Activities	Materials and tools
2. Social skills	2.1.	Communication Skills	Enable participants to acquire communication skills and abilities to follow instructions and give information	<ol style="list-style-type: none"> <li>1. Demonstrating effective use of verbal and nonverbal communication</li> <li>2. Stimulating appropriate conversational skills with peers and adults</li> <li>3. Understanding feelings of oneself and others</li> <li>4. Ability to follow instructions and give information</li> </ol>	<ul style="list-style-type: none"> <li>• Examples and Videos on verbal and nonverbal communication</li> <li>• Explanation and group activity on how to use different types of communication</li> <li>• Practical case: how to introduce yourself to others</li> <li>• Explanation of the difference between a conversation with friends and a conversation with other adults</li> <li>• Role-play: “say something to a friend” and “say something to other adults”</li> <li>• Exercise: “describe a feeling and the time you felt it”</li> <li>• Group discussion on expressing and understanding feelings of oneself and others</li> <li>• Role-play: “what do you feel when . . .”</li> </ul>
	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Videos</li> <li>• Worksheet with tips for introducing oneself to others</li> </ul>				
	2.2. Adult related Social Skills	Enable participants to acquire skills for acting as adults, demonstrate politeness, good manners and working independently	<ol style="list-style-type: none"> <li>1. Getting an adult attention</li> <li>2. Demonstrating politeness and good manners</li> <li>3. Responding to requests from parents, friends, employers</li> <li>4. Demonstrating confidentiality</li> </ol>	<ul style="list-style-type: none"> <li>• Role-play: “apologize and thank you”</li> <li>• Good manners in everyday life and work</li> <li>• Video on bad manners to avoid</li> <li>• Group activity: example of politeness and good manners</li> <li>• How to work independently</li> <li>• Confidentiality at work</li> </ul>	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Videos</li> <li>• Worksheet with examples for working independently</li> </ul>
2.3. Self-related Skills	Enable participants to use self-control, think positively and collaborate with others	<ol style="list-style-type: none"> <li>1. Using self-control</li> <li>2. Thinking positively</li> <li>3. Collaboration with others</li> </ol>	<ul style="list-style-type: none"> <li>• Group discussion and tips to improve self-control</li> <li>• Role-play: handle stress and thinking positively</li> <li>• Collaboration with others</li> <li>• Video on cooperative spirit</li> <li>• Practical case: solving a puzzle with others</li> <li>• Practical case on collaboration: how to prepare a dish of pasta</li> </ul>	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Videos</li> <li>• Worksheet with examples to improve self-control</li> <li>• List of ingredients for preparing pasta</li> </ul>	

(Continued)

Table 4. (Continued).

Module	Didactical unit	Aim	Objectives	Activities	Materials and tools
3.	Independent living skills	3.1. Navigation in the community	Enable participants to acquire basic knowledge of the main transport system in the community and ability to move independently	<ol style="list-style-type: none"> <li>1. Understanding of the transportation system in the community</li> <li>2. Awareness of transportation signals</li> <li>3. Ability to orientate in space</li> <li>4. Safety when moving independently</li> </ol>	<ul style="list-style-type: none"> <li>• Explanation of public and private transportation system in the community</li> <li>• Group activity on how to take a bus or train</li> <li>• Exercise on public transportation</li> <li>• Provision of basic elements about the main road signs</li> <li>• Group discussion and video on road safety</li> <li>• Provision of basic elements to read a map</li> <li>• Exercise on signals and moving independently</li> </ul>
	<ul style="list-style-type: none"> <li>• Slides</li> <li>• City map</li> <li>• Timetables of buses and trains</li> <li>• Video</li> </ul>				
	3.2. Time management	Enable participants to acquire skills to be organized, respect time, prioritize work and deal with unexpected events	<ol style="list-style-type: none"> <li>1. Awareness of time and reading the clock</li> <li>2. Ability to manage a personal agenda</li> <li>3. Ability to plan, prioritize work and setting clear goals</li> <li>4. Ability to deal with unexpected time-consuming events</li> </ol>	<ul style="list-style-type: none"> <li>• Practical case: how to read time</li> <li>• Exercise and group discussion: "sign your weekly appointment in your personal diary"</li> <li>• Practical case: when to use a personal diary</li> <li>• Exercise on matching time</li> <li>• Explanation and role play: "how to deal with unexpected event"</li> <li>• Provision of basic elements on planning and prioritizing activities</li> <li>• Delivery of table to help setting goals</li> </ul>	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Worksheet with exercise for planning appointments, tasks and activities</li> <li>• Table to set goals</li> <li>• Personal Agenda</li> </ul>
	3.3.	Professionalism	Enable participants to assume appropriate behavior for sustaining an interview, ability to keep track of appointments, conversational skills and good appearance	<ol style="list-style-type: none"> <li>1. Awareness of appropriate interview etiquette</li> <li>2. Ability to keep track of appointments and be on time</li> <li>3. Demonstrating conversational skills with coworkers and customers</li> <li>4. Importance of maintaining an appropriate appearance</li> </ol>	<ul style="list-style-type: none"> <li>• Group activity on appropriate interview etiquette</li> <li>• Role-play and tips: "job interview"</li> <li>• Explanation how to keep track of appointments and be on time</li> <li>• Exercise and Role-play on appropriate conversation</li> <li>• Video: topics for small talk</li> <li>• Group discussion: maintaining appropriate appearance</li> </ul>
	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Worksheets: preparing a job interview and basic steps to maintain appropriate appearance</li> <li>• Video</li> </ul>				

(Continued)

Table 4. (Continued).

Module	Didactical unit	Aim	Objectives	Activities	Materials and tools
3.4. Advocacy skills	Enable participants to understand the meaning of advocacy, self-advocacy, to identify and face barriers and difficulties in the community, resources and support	<ol style="list-style-type: none"> <li>1. Understanding the concept of advocacy</li> <li>2. Stimulating reflection on self-advocacy</li> <li>3. Ability to identify barriers and supports in the community</li> <li>4. Stimulating reflection on personal rights</li> </ol>	<ul style="list-style-type: none"> <li>• Explanation of the concept of advocacy</li> <li>• Group activity and video on self-advocacy and decision making</li> <li>• Delivery of examples of barriers in the community, resources and support</li> <li>• Group discussion: difficulties in everyday life caused by barriers</li> <li>• Explanation of fundamental rights</li> <li>• Group discussion and exercise on fundamental rights</li> </ul>	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Worksheets: exercise on the meaning of Advocacy and personal rights</li> <li>• Video</li> </ul>	
4.	Employment skills	4.1. Team Building	Enable participants to communicate personal needs, be familiar with Team-building practice and appropriate way to solve conflicts	<ol style="list-style-type: none"> <li>1. Ability to communicate personal needs</li> <li>2. Familiarity with working within a team</li> <li>3. Stimulating reflection on appropriate way to solve conflicts</li> </ol>	<ul style="list-style-type: none"> <li>• Explanation of the importance to communicate personal needs and make requests at work</li> <li>• Provision of basic elements for teamwork</li> <li>• Practical cases: "express needs and make requisitions"; "let's create our common fantasy history!" and "let's try to solve this issue all together"</li> <li>• Video and provision of tips for conflict resolution</li> <li>• Role-play: "appropriate way to solve conflicts at work"</li> </ul>
	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Video</li> <li>• Worksheet on conflicts resolution</li> </ul>	4.2. Job Searching	Enable participants to search for job, develop a resume, career priorities and goals	<ol style="list-style-type: none"> <li>1. Developing Curriculum Vitae (CV) and presentation letter</li> <li>2. Identifying interests and employment goal</li> <li>3. Ability to identify sources for finding job opportunities</li> </ol>	<ul style="list-style-type: none"> <li>• Provision of basic elements to develop a CV</li> <li>• Practical case: "create your personal CV"</li> <li>• Group activity: identification of interests and priorities</li> <li>• Explanation how to prepare a presentation letter</li> <li>• Practical case: "examples of employment goals"</li> <li>• Provision of basic elements, video and Role-play on how do you prepare for a job interview?</li> </ul>
					<ul style="list-style-type: none"> <li>• Slides</li> <li>• Worksheet for developing CV and presentation letter</li> <li>• Video</li> </ul>
4.3. Safety at work	Enable participants to be aware of personal safety practices at work	<ol style="list-style-type: none"> <li>1. Ability to understand the main rules at workplace</li> <li>2. Awareness of working practices</li> <li>3. Stimulating reflections on personal safety at work</li> </ol>	<ul style="list-style-type: none"> <li>• Group discussion on the importance to respect rules at workplace</li> <li>• Delivery of examples and practical case for being safe in a work placement</li> <li>• Group activity on safe working practices and personal safety</li> <li>• Role-play: "try to explain to others the rules to be safe in a work-place"</li> </ul>	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Worksheet with tips for being safe at work</li> </ul>	

intervention included evaluations on direct observational measure, scores from the San Martín Scale<sup>52</sup> and Vineland-II Adaptive Behavior Scales – 2nd edition.<sup>53</sup> Data were also collected regarding participant's participation in work experience throughout the study. Also, job coaches that supported participants during the work placements completed a report on the job-related tasks performed and were interviewed about their experience with participants.

### **Direct Measures**

Observations of participants were conducted across different settings. For example, in training rooms during class times, canteen during lunch and break, kitchen and places for practical activities at the training center. During the research, specific exercises and tests were used to assess the acquisition of knowledge and awareness on different behaviors across the four skills domains outlined in the curriculum.

### **Indirect Measures**

#### **The San Martín Scale**

The scale is a tool to assess the quality of life of people with significant disabilities taking into account psychometric characteristics to ensure validity and reliability. The domains of quality of life are emotional well-being, interpersonal relationships, material well-being, personal development, physical well-being, self-determination, social inclusion and social rights. The tool consists of 95 items to be answered by respondents through a Likert-type 4-point scale. Each domain yields a total raw score which is converted into a standard score. Previous studies on the validity of the San Martín Scale demonstrated that the eight quality of life domains assessed on the scale are reliable (Cronbach's alpha ranging, from .821 to .933).<sup>52</sup>

#### **The Vineland-II Adaptive Behavior Scale (VABS)**

The VABS is an informant-based measure designed to assess adaptive behavior and acquisition of independent living skills. It consists of four sub domains including communication, daily living skills, socialization, and motor skills (this skills domain is used only for children 6 years of age and younger, as it is only valid for this age group). Respondents answer on a Likert-type 3-point scale to 307 items. Each domain yields a total raw score which is converted into a standard score then summed and converted into an overall adaptive behavior composite score. The reliability of the Vineland-II was evaluated through previous studies.<sup>54</sup>

## **Results**

### **Findings**

All five participants were evaluated using pre and posttesting in order to provide a social and qualitative validity of Intervention. Outcomes were evaluated using questionnaires administered directly to participants, families, care givers and job coaches. The scales used allowed for the collection of data to assess the improvement of participants' quality of life and acquisition of skills. A summary of results deviation obtained

through tests before and after the intervention for each participant is presented in [Figures 1 and 2](#).

Across all curricular areas, including social, communication, independent living and employment skills, participants demonstrated they acquired such skills correctly following the implementation of teaching and training activities. This improvement occurred when the intervention was implemented and the work placements started, suggesting that the curriculum was responsible for the improvements in job related tasks performed by participants. Results show that young adults who attended the E-IDEAS curriculum have higher scores at posttest. The San Martín and Vineland-II scales, which were the primary outcome measure of the study, showed an increase in the achievement of independent living and employment skills.

Although there was no statistical analysis of scores, the posttest results were greater than baseline and are indicative of empirical and clinical significance. The scores obtained in pre and posttest using the San Martín scale show that all participants increased the scores comparing the results of pre and posttest ([Figure 1](#)), and improvements were observed in the domains of emotional well-being, interpersonal relationships and self-determination. Comparing the pre and posttest results of Vineland-II scale all participants increased the scores ([Figure 2](#)) related to their adaptive behavior. The domains where they have most improved were communication, daily living skills and socialization. In addition, job coaches and care givers reported that social, communication, independent living and employment skills improved following the curriculum, demonstrating a significant improvement in overall social competencies. These included peer and adults-related social skills and independent living skills, which have led to more appropriate social behaviors in employment settings, and improved personal competence in managing daily activities. Based on job coaches feedback collected through reports and interviews, the main employment skills acquired by participants consisted of communication and interaction skills with colleagues, timekeeping, cleanliness and independence.

The 3-month follow-up probes provided further information about the skills acquired and additional work experiences were carried out by some participants after the intervention. Following completion of the curriculum and work placement, F. was successful in gaining employment in a restaurant four days per week. Mt. obtained a paid job at a supermarket and for M. the work-placement period was extended for two additional months. The other two participants (K. and G.) were appointed for job interviews at a cafeteria and a restaurant.

After completion of the pilot study a measure of social validity was undertaken by the authors with each participant through a questionnaire to rate the participant's satisfaction with transition program. The first researcher completed a social validity interview with participants during and after the work placements and following completion of the curriculum. Another social validity questionnaire was sent out to families for assessing parent's satisfaction with the intervention and the progress they felt their son/daughter made in social, communication, independent living and employment skills.

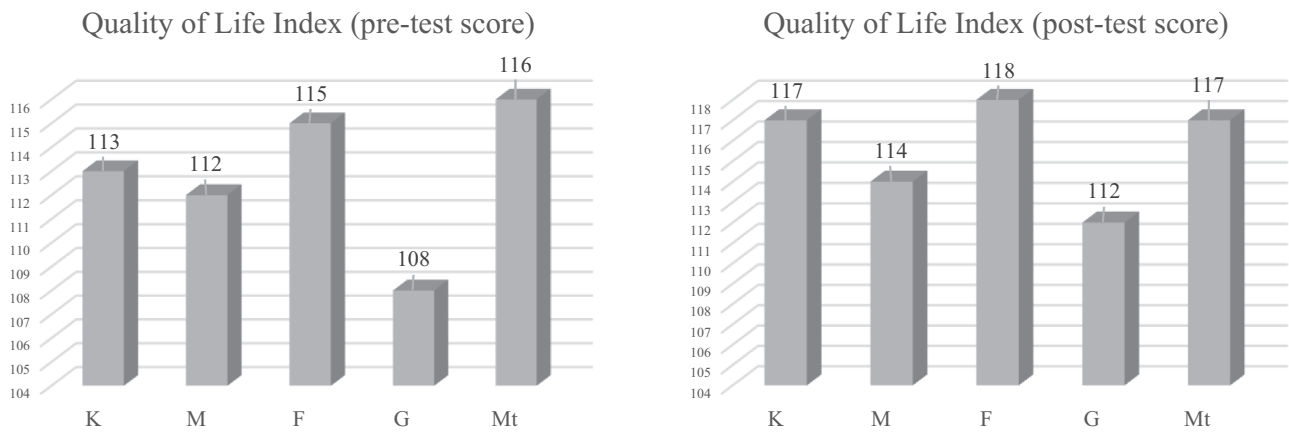


Figure 1. Scores obtained in the pre and post-test using the San Martín scale.

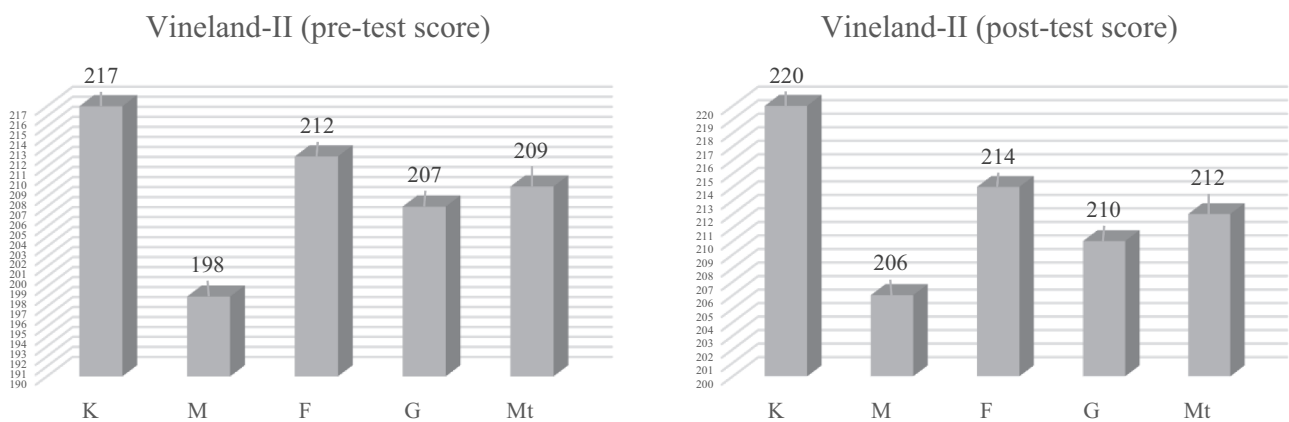


Figure 2. Scores obtained in the pre and post-test using the Vineland-II scale.

## Discussion

### Findings

Findings from the current study support the effectiveness of the E-IDEAS curriculum, demonstrating that it may be used for designing training intervention in vocational rehabilitation centers aimed to transfer social, communication, independent living and employment skills necessary for workplace inclusion. These show an improvement in the acquisition of skills following the implementation of the intervention for all five participants. All participants showed evidence of responding positively to classroom's activities and during the work placement. Maintenance of gains following 3 months post intervention were observed. The tests scores obtained after the intervention increased on some measures of social skills and quality of life.

Concerning the social validity, parents were asked to describe any differences they noticed in the behavior of their son/daughter. One respondent described the intervention as helping her son have an increased communication and to be more assertive. Two parents stated that their daughter helped out more in the kitchen. One parent highlighted that her daughter was more responsive and confident with others. All parents felt their son/daughter enjoyed the intervention. The staff members involved in the intervention also completed a social validity questionnaire and reported that the curriculum

and work placement were both acceptable and effective in improving the skills of participants.

These findings support the potential benefit, as well as the feasibility, of implementing this transition program, confirming that a specific preparatory intervention provided simultaneously with a work placement may enhance competencies acquisition and the possibility to find a job. The results suggest that the E-IDEAS curriculum offers promising results as a training protocol to enhance skills for workplace inclusion.

### Limitations

While this pilot utilized a methodical approach to evaluate empirically the efficacy of the curriculum, potential sources of bias exist. These are due to the lack of specific tools for measuring the acquisition of employment skills by persons with ID as well as for analyzing specific achievements. The lack of testing for generalization within the workplace environment to ascertain true social fit is another limitation. Generalization of target social skills was measured in naturalistic settings throughout the university and training center. Further research might examine the transfer and generalization of targets skills in work environments and provide additional evidence to support the social validity of the curriculum.

## Future Research

Future research could explore the effects of the intervention on larger group samples. Research could explore the use of group designs, as the small sample size included in this study might reflect an issue. Further study could examine the effects of this curriculum (developed in Ireland) in other countries, as the topography of skills useful to obtain and maintain a job and social norms can vary across cultures and locations. What is needed is to carefully examine and replicate features of the curriculum that builds capacities for transition to adult life and provide empirical and research-based programs for the acquisition of job-related skills.

## Conclusion

This pilot provides an important foundation for future research in this area. Since there is not much empirical research focusing on transition programs, including the availability of curricula showing evidence of the achievements in obtaining meaningful and paid jobs. The research carried out delivers useful elements to replicate, adapt or re-design transition programs grounded on evidence-based research and real work experiences. To conclude, the E-IDEAS curriculum can be used by care givers, educators and teachers to enable the implementation of a transition program that simultaneously provides an employment preparation and individualized work-placement which can successfully support the acquisition of skills for work inclusion and the obtaining of a paid job.

## Disclosure statement

The authors declare that they have no conflict of interest.

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## Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of National University of Ireland Galway and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

## Informed consent

Informed consent was obtained from all individual participants included in the study.

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