

# **Post-secondary education for young people with intellectual disabilities:**

## **A systematic review of stakeholders' experiences**

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## **Abstract**

Post-secondary education (PSE) is an important option in the educational and employment paths of students with intellectual disabilities (ID). However, PSE for young adults with ID is not in wide use across the world. Different issues might affect the geographical spread of PSE programmes. Some of these are related to the attitudes, expectations and/or funding for those programmes. In this systematic review, the PSE experiences of different stakeholder groups (young adults with ID, their parents, PSE staff and students without a disability) were examined by reviewing findings across 22 studies that investigated PSE for students with ID. This examination encompassed attitudes and motivation to engage with PSE, as well as stakeholders' perceived barriers and facilitators in accessing and remaining in the three PSE models (separate, inclusive and mixed). Students with ID and their parents were the stakeholder groups least represented in the available evidence. Findings suggested that most stakeholder groups reported positive experiences of PSE derived mostly from gains in social skills and independence. Several barriers to accessing PSE were reported by each group, namely physical and academic barriers by students with ID, an understanding of the PSE system by their parents, and the lack of training by PSE staff. Evidence from the present review seems to indicate that inclusive PSE models were associated with a more positive experience across stakeholder groups.

**Keywords:**

Intellectual disability

Post-secondary education

Vocational and academic programme

Experience

## **Introduction**

The policy and practice of post-secondary education (PSE) for people with intellectual disabilities (ID) is not a recent phenomenon. Jones and Moe (1980) first referred to it 39 years ago. Since then, researchers, educators, parents, people with ID and other stakeholders in the field of education of individuals with special educational needs (SEN) have taken the practice of PSE seriously. As with many movements in the field of SEN, such as educational inclusion, PSE for people with ID originated in the United States of America (Stodden & Whelley, 2004). Nowadays, PSE programmes are in wide use across the world, in countries such as the United Kingdom, Spain, Canada and Iceland (Björnsdóttir, 2017; Camacho, Lopez-Gavira, & Díez, 2017; Owen et al., 2015; Seale, 2017). The growing interest in PSE can be attributed to the experience of educational inclusion of students with disabilities in general and those with ID in particular, as an extension of educational opportunities beyond the years of statutory schooling (Unesco, 1994; Yell, 1998).

Various studies have shown that adults with ID are very likely to experience unemployment after finishing high school due to their lower skill levels (Baer, Daviso, Flexer, McMahan Queen, & Meindl, 2011; Mock & Love, 2012) and fewer opportunities for participation in the labour market. However, evidence suggests that young people with ID who completed PSE programmes were more likely to be employed, as well as earning more money, compared to those who did not attend PSE (Butler, Sheppard-Jones, Whaley, Harrison, & Osness, 2016; Grigal, Migliore, & Hart, 2014; Migliore, Butterworth, & Hart, 2009; Schultz & Higbee, 2007). PSE programmes can improve the skill set of young adults with ID and train them for entering the workforce (Giust & Valle-Riestra, 2017; Lindstrom et al., 2007; Zafft, Hart, &

Zimbrich, 2004). In addition to practical skills, other general skills, such as self-determination, are very important for securing employment (Cobb, Lehmann, Newman-Gonchar, & Alwell, 2009). Students with ID who attended PSE programmes experienced increases in their levels of self-determination and self-esteem (Ju, Zeng, & Landmark, 2017). Moreover, after finishing PSE, the students had higher levels of confidence (Stefánsdóttir & Björnsdóttir, 2016). They also made more friends, especially with peers without disabilities (Cranston-Gingras et al., 2015).

It has been suggested that PSE programmes are currently increasing around the world, which might indicate that more young adults with ID have opportunities to access PSE. For instance, in 2018, there were more than 260 PSE programmes for adults with ID in the USA (Think-College, 2018) compared to 217 programmes in 2013 (Plotner & Marshall, 2014). Although PSE has been successfully embedded in many countries across the world, several studies suggest that there is still a lack of acceptance of people with ID in PSE. Barnes (2014) has questioned whether children with ID actually exercise the same educational rights as their peers without disabilities. Moreover, Newman (2005) found that students with SEN are 4.5 times less likely to attend 4-year college programmes compared to students without disabilities. Although the inclusion of students with some types of SEN (e.g., physical disabilities and mental health problems) in PSE is not a novel concept, the inclusion of students with ID is a relatively new phenomenon (Plotner & Marshall, 2014).

Experts in the field of PSE have described three models of PSE implementation for students with ID (Hart, 2006; Neubert & Moon, 2006; Stodden & Whelley, 2004; Zafft et al., 2004).

a) The substantially separate model, where the students with ID only participate in classes with other peers with disabilities. Under this model, the focus of the curriculum is mostly on life skills and vocational training. Students with ID may have the opportunity to participate in generic social activities on campus and may be offered employment experience; b) the inclusive individual support model, which is the polar opposite of the first model. Here, through various programmes in college or university, students with ID receive individualised services, such as tutoring, technology support, educational coaching. With regard to the inclusive environment, the students with ID are taught in groups alongside students without disabilities on all their courses. Additional support services in this model are delivered individually, depending on each student's goals. The individual support is usually focused on increasing student skills in core academic areas such as mathematics, reading and writing; c) the mixed/hybrid model, which is situated between the two described above. In this model, the students with ID participate in social activities and/or academic classes with other students with ID and sometimes participate in classes with students without disability.

The PSE models described above are considered the cornerstone of any PSE programme (Hart, Grigal, & Weir, 2010). For instance, in the USA there are examples of all three models: inclusive (Folk, Yamamoto, & Stodden, 2012), mixed (Plotner & May, 2017) and substantially separate (Price, Marsh, & Fisher, 2017). Some countries such as Ireland and Northern Ireland, only use the mixed model (Black & Roberts, 2009; Prendergast, Spassiani, & Roche, 2017), whilst other countries, such as Spain and China, follow the separate model (Fullana, Pallisera, Catala, & Puyalto, 2016; Li, 1998).

Although PSE models are clearly defined and used in different countries around the world, there is no fixed definition of what PSE is, and in fact, PSE can be defined in a number of different ways (Gallinger, 2013). For example, some researchers define PSE as an academic programme at a university or college (Camacho et al., 2017; Papay & Bambara, 2011; Seale, 2017), while others define it as a training or vocational programme (Björnsdóttir, 2017). In addition, PSE can mean different things in different countries. For example, the Welsh and Scottish governments focused on improving the personal skills of students with ID through different training programmes available after finishing high school (Murphy & McTaggart, 2014). In the USA, PSE for people with ID involves focusing on academic skills or either personal or life skills (Think-College, 2018). As a result, different aims are defined for PSE in different countries and these can also vary between the different researchers working in this field. In this review, we use a general definition of PSE as participation in education following the age of compulsory schooling (i.e., education beyond 16 years of age, which is the minimum age students can formally exit education in most countries) in either special or inclusive settings.

Although interest in PSE for individuals with ID commenced in the 1980s, the wider roll-out of PSE opportunities for young adults with ID is a relatively recent phenomenon compared to their inclusion in statutory education (Grigal, Hart, & Migliore, 2011; Newman, Wagner, & Cameto, (2009); Wagner, et al., 2005; Arvidsson, Widén & Tideman, 2015). As a result, students with ID are less likely to be in further or higher education compared to their peers with or without other disabilities. A study by Grigal et al. (2011) found that only 11% of students with ID in the U.S. attended PSE compared to 58% of students with other types of disabilities. At the same time,

68.3% of for students without disabilities attended further or higher education in the same year in the US (U.S. Bureau of Labor Statistics, 2011). A recent Swedish study by Arvidsson et al. (2015) followed 12,269 young adults with ID who had just finished high school and found that only 6.6% accessed PSE. A first step to addressing this inequality is understanding the experiences of young students with ID who participate in PSE programmes.

To date, two existing reviews have examined PSE in ID (Neubert, Moon, Grigal, & Redd, 2001; Thoma et al., 2011). Neubert et al. (2001) conducted a review of the literature to examine evidence on the efficacy of PSE for ID and other significant disabilities. They summarised evidence on PSE practices and for this they restricted their review to professional journals in the USA and Canada. They did not synthesise evidence on stakeholders' experiences of participation in PSE. Thoma et al. (2011) extended the Neubert et al. (2001) review, but focussing only on USA evidence.

### **Purpose of the study**

The aim of the present systematic review was to synthesise evidence on the experience of PSE in relation to individuals with ID. To the best of our knowledge, this is the first review to consider the experience of participation in PSE as reported by various stakeholder groups, including students with ID, their parents, and staff in PSE settings. Given the variation in experience that might arise due to differences in implementation models or country characteristics, the present review also aimed to compare findings across the three PSE implementation models defined above, as well as across countries. Finally, a secondary aim of the review was to review stakeholders' perceptions of barriers and facilitators to accessing and/or participating in PSE.



## 1. Methods

The statement on the 27 Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; Moher, Liberati, Tetzlaff, & Altman, 2009) was taken into account when carrying out this review and reporting on it. Before carrying out the review, a protocol was drawn up and agreed by the research team.

### *1.2 Search strategy*

Seven databases were searched for this review in two main languages. For the literature in English, we used the following five databases: ERIC, MEDLINE, PubMed, Web of Science Core Collection and British Education Index. For the Arabic literature, we used the two databases: Almanhal and Dar AlMandumah.

To ensure that we searched in a structured way, the PICO framework (Population, Intervention, Comparison and Outcomes) was used to guide the development of the search terms (Liberati et al., 2009). The population (1) included different stakeholder groups: individuals with ID, their parents, students with or without disabilities, teachers/education administrators. For intervention (2), we considered PSE programmes defining models of PSE that fitted the definition of PSE as used in the present review (see Introduction). A comparison group (3) was not always available, but where present it included PSE students without ID or with a disability other than ID. In terms of the outcome (4), the focus was on the experiences of ongoing PSE participation, including stakeholders' perceptions of barriers and facilitators to accessing and/or participating in PSE. From these key terms, we developed search strings for use across the databases (Table 1). After extensively piloting these search terms, final searches were conducted on terms related to Population (ID and synonyms),

Intervention (PSE and synonyms) and Outcome (experience and synonyms), as no differences were found in the pilot search results when Comparison was included.

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To develop equivalent search terms in Arabic, the first author involved in the review (SA) translated the English search terms but the final search strings were applied to all fields to ensure that no studies were missed as overall the literature in Arabic is more limited. Searches were conducted in June 2018 and no restrictions were placed on the publication dates of the studies included in the search.

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### **1.3 Study selection**

The inclusion and exclusion criteria used in the current review were based on the following conditions:

- Studies were included if they considered PSE that was consistent with our definition of education following the age of compulsory schooling (i.e. education beyond 16 years of age) in either special or inclusive education settings. One-to-one tuition was not considered PSE.
- Studies eligible for inclusion employed a qualitative, quantitative or mixed methods design. Case studies and theoretical, review, or policy reports were excluded.
- To be included, studies had to include data on the experience of PSE for people with ID, or their family members, or teachers, lecturers or other education administrators.

- Eligible studies included participants over 16 years of age. No maximum age limit was set.
- Eligible studies researched PSE in special education or inclusive settings, where at least 50% or more of the study participants were identified as having ID.
- Eligible studies that included more than one group of participants were included in the review, as long as data from participants with ID (and/or their teachers, parents and other students with or without disabilities) could be extracted.
- Eligible studies included individuals with ID *currently* registered in PSE. Studies where the experience of PSE participation was researched retrospectively or considered as an option for the future were excluded.
- Eligible studies were published in English or Arabic.
- Eligible studies were published in a peer-reviewed academic journal.

-----Please insert Figure (1) of the selection process here -----

Initial searches resulted in 12,361 records which were reduced to 11,080 studies once duplicates were removed. The first stage of screening was carried out by the first author (SA) and 20% of all records were independently reviewed by a second reviewer (BA). In this phase, inter-rater agreement was 98.8%, and any disagreements were resolved through discussions between all researchers. A total of 270 studies remained in the review following the first stage of screening. Full-text copies of the 270 studies were independently reviewed for inclusion by two reviewers (SA and BA). Agreement between the reviewers at this stage was 99.6%, and any disagreements were resolved through consultation with another researcher. Twenty-two studies met the criteria for full inclusion at this stage. Rayyan QCRI (a web and mobile app for systematic reviews

<https://rayyan.qcri.org>.) was used to document all review processes (Ouzzani, Hammady, Fedorowicz, & Elmagarmid, 2016).

#### **1.4 Data extraction and quality synthesis**

Data were extracted from each study on: (a) the study characteristics, including author, year of publication and the country where the research was conducted; (b) participant data; (c) study design; (d) PSE setting and models (see the definition provided in the introduction); (e) PSE content and whether it was an academic or vocational degree. A pilot form that included 10% of the extracted data was reviewed by a second person and inter-rater agreement at this stage was 100%. The synthesis of findings for the quantitative studies was based on percentages reported by researchers on questions regarding the experience of PSE (e.g., What do you think you will do when you finish college? What motivated you to be open to including a student ID in your class? Are you happy about your experience there? ). The same approach to synthesis was followed for qualitative studies, where if views were reported (by authors) to be held by 50% (or over) of the participants, this was taken as a view held by the majority of study participants.

Risk of bias assessments were conducted using the Mixed Methods Appraisal Tool checklist (MMAT) – Version 2018 (Hong, Pluye, et al., 2018). This scale was selected for its established psychometric properties (Pace et al., 2012) and flexibility to evaluate both qualitative, quantitative and mixed methods studies (Hong, Gonzalez-Reyes, & Pluye, 2018). The scale has five items for each qualitative, quantitative or mixed methods study and the value of each item is 20%. If a study scored only 20% it would have a very high risk of bias, while a score of 60% would indicate a moderate level of bias, and so on (Hong, Pluye, et al., 2018). A random sample of over 20% of the studies

(N=5) included in the review was independently rated by a second person, and disagreement arose over only one of the studies. This was resolved through communication between those involved in the review. Results from the studies were analysed through a narrative synthesis.

## **2. Results section**

We first provide an overview and description of the 22 studies included in the review. After that, a brief description is provided of the types of PSE programmes used in different countries. A review of the empirical studies follows, organised according to the following themes: the attitudes of different stakeholders towards PSE, their motivation to participate in PSE and, finally, the perceived barriers and facilitators they experienced in PSE.

### *2.1 Study Description.*

Table 3 provides a description of the included studies, including information on study participants, study design, and type of PSE. Regarding study design, most studies (64%) were qualitative. The remaining studies were split evenly between quantitative and mixed methods (18% each). The total number of participants who took part across all studies included in the review was 1,310. This number included students with ID (12.9%), their parents (1.5%), peers without disabilities (59%) who were enrolled in inclusive classes with the PSE students, as well as PSE staff (26.6%). PSE students with ID were aged between 17 and 53 years, and there was no significant gender imbalance, with male students with ID only exceeding female students with ID by 4.21%. Unfortunately, some studies did not record the gender or the age of the

participants. More details of the participants who took part in the studies are provided in Table 3

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The studies included in this review covered all PSE models. Tables 3 and 4 summarise the three PSE designs and findings which were described in the 22 included studies. In total, 30 different PSE programmes were included in this review, and half of them used a mixed or hybrid model. The separate model was the second most common one, and was used in eight of the PSE programmes. The PSE inclusive model was less common and used in only seven programmes.

**-----Please insert Table 4 here -----**

## **2.2 The experiences of stakeholders in Post-Secondary Education for students with intellectual disabilities**

### 2.2.1 Attitudes towards PSE

Generally, most of the stakeholder groups who participated in PSE programmes for adults with ID had positive views regarding their experience, regardless of their position on the programme (for example staff or students). With two exceptions (Jahoda, Markova, & Cattermole, 2008; Li, 1998), studies focusing on the experiences of students with ID found that they were happy and had positive experiences of participation in PSE (Andrews & Rose, 2010; Black & Roberts, 2009; Folk et al., 2012; Fullana et al., 2016; Jahoda et al., 2008; Li, 1998; O'Brien et al., 2009; Owen et al.,

2015; Plotner & May, 2017; Prendergast et al., 2017; Price et al., 2017; Ryan, Nauheimer, George, & Dague, 2017; Spassiani et al., 2017). Moreover, studies reported that students with ID felt they gained many benefits when they enrolled in PSE programmes. Some of these benefits related to personal development, such as making new friends and improving personal skills, especially their level of self-determination (Black & Roberts, 2009; Folk et al., 2012; O'Brien et al., 2009; Prendergast et al., 2017; Price et al., 2017; Spassiani et al., 2017). Other benefits were related to the resources in the programmes, such as projectors and computers, which made their course easier to understand (Fullana et al., 2016; Owen et al., 2015).

On the other hand, the parents of students with ID held mixed views regarding their child's PSE participation. Some were supportive and found the PSE programme useful from both a personal and social point of view. With regard to personal skills, they saw the improvement of their children during the programme, especially with regard to independence skills. Concerning social aspects, parents with a child in an inclusive programme were happy about the social relationships formed with other students without disabilities (Causton-Theoharis, Ashby, & DeClouette, 2009; Owen et al., 2015). However, most of those who participated in the programme studied by Jahoda et al. (1988) had the opposite views and experiences. They did not find the PSE programme useful for their sons or daughters due to the lack of improvement in their child's social and personal skills. This might be due to the programme model followed in the Jahoda et al. (1988) study, where the students with ID did not receive PSE in a real environment alongside non-disabled people, with the result that these students were still dependent on their parents.

Findings regarding the views of peers without disabilities suggested they held positive views regarding PSE for students with ID, and knew at least one student with ID taking part in PSE at their university (Westling, Kelley, Cain, & Prohn, 2013). Moreover, these students liked the inclusive environment in their class and saw that the students with ID had gained in independence in terms of using the campus facilities and did not need much help to participate successfully in PSE (Izzo & Shuman, 2013). Students without disabilities felt they gained many benefits from their experience in PSE, such as being more aware of people with ID (Ryan et al., 2017). They also reported increased confidence in dealing with students with ID, which led to benefits for their own personal development (Izzo & Shuman, 2013; Remis, Moore, Pichardo, Rosario, & Moore, 2017). Students without disabilities were not the only ones to appreciate the positive aspects of experiencing a PSE programme. The pre-service teachers in the studies by Carroll, Petroff and Blumberg (2009) and Remis et al. (2017) were very positive about their experiences as teachers for students with ID in PSE. They believed that students with ID had the right to attend further education, and that they were highly motivated to learn new things, a factor that would help them achieve good educational outcomes.

The overall positive views of PSE staff were based mostly on teachers' views regarding the rights of students with ID, and student skills at managing the demands of PSE participation. The university lecturers in O'Connor, Kubiak, Espiner and O'Brien (2012) and staff members in Thoma (2013) believed that students with ID had the right to access universities and colleges. Staff in Folk et al. (2012) and Fullana et al. (2016) felt that students with ID had the ability to succeed in PSE. In addition, other PSE staff who worked as ID service directors in the study by Sheppard-Jones, Kleinert,



Druckemiller and Ray (2015) reported being aware of the PSE options for students with ID after finishing high school and were happy to help the students access PSE. PSE staff perceived PSE as beneficial in terms of social and personal gains for the students with ID (Black & Roberts, 2009; Causton-Theoharis et al., 2009), but also because of the value added by the students with ID in their classes (O'Connor et al., 2012). They reported that the students with ID were willing to speak out with comments or questions which the other students may have been too shy to make. Furthermore, participants in Black and Roberts (2009) and Folk et al. (2012) suggested that staff members who were involved in PSE programmes experienced a change in their attitudes towards people with ID, especially regarding their abilities. However staff positive views were not uniform across the included studies. Staff in Jahoda et al. (1988) disagreed regarding the abilities and rights of students with ID in PSE: half of the staff held the view that there were differences between the students with and without ID in terms of their right to an education as well as their ability to succeed in further education programmes.

### 2.2.2 Motivation to participate in PSE programmes

Students with ID were motivated to participate in PSE for two main reasons: the perceived social benefits or the desire to improve their chances of finding a job and securing paid employment. Finding a job was a core factor across a number of studies (Andrews & Rose, 2010; Li, 1998; Prendergast et al., 2017; Spassiani et al., 2017). The second motivating factor for adults with ID to enroll in PSE programmes was the opportunity to make new friends, especially among those without disabilities (Andrews & Rose, 2010; Folk et al., 2012; Li, 1998). Finally, Plotner and May (2017) compared the motivation to attend college between students with ID, those with Moderate Learning Difficulties (MLD) and students without disabilities. They found no

difference in the motivations of students with and without disabilities for attending college. Across all three groups, reasons for attending PSE included learning new things, earning more money and finding a job. Differences among the groups emerged when researchers explored further dimensions of these global reasons: students with ID were less likely to view PSE as the route to a specific career or higher studies, which was the case for students with MLD. However students with ID were more likely to rate anticipated social gains as more motivating, including anticipated gains in independence and moving away from parents to live on their own.

Similar to students with ID, undergraduate students who worked as pre-service teachers or mentors of peers with ID in the PSE programmes reflected on the gains of their current experiences in terms of future employment opportunities (Izzo & Shuman, 2013; Remis et al., 2017). They believed that the experience of working with people with ID in PSE would increase their employment opportunities. On the other hand, with the exception of a study by Causton-Theoharis et al. (2009), studies with data from parents of students with ID had not explored reasons why these parents had supported their children to participate in PSE. In the Causton-Theoharis et al. (2009) study, two couples fought to enrol their sons or daughters in PSE because they did not want them to stay at home after finishing high school, and also because they believed that PSE is important for adults with ID.

Three main reasons were reported by PSE staff for teaching students with ID: (a) social equity (O'Connor et al., 2012), (b) because they had been asked to (Sheppard-Jones et al., 2015), or (c) perceived social pressure through enquiries they received from students with ID or their families concerning opportunities for further study after high school (Sheppard-Jones et al., 2015).

### 2.2.3 Challenges faced in PSE

Different barriers were reported by the various stakeholder groups. Students with ID reported facing academic and non-academic barriers, as well as barriers due to social attitudes. For instance, the students with ID felt that some of the lecturers or teachers were not aware of their abilities and characteristics when they gave them very unsuitable homework and examinations which were beyond their abilities (O'Brien et al., 2009). Non-academic barriers were discussed in Spassiani et al. (2017). All of the students in this programme agreed that they faced only physical barriers, such as difficulties with opening doors, going up steps and stairs, things which were too high up, cobblestones, signs which were hard to read, and going through the main gates. The reason why this study identified only physical barriers might relate to the study design because students with ID were the researchers and one of their aims was to find barriers facing students with disabilities in general. Finally, students reported facing barriers related to others' social attitudes. The students in the study by Folk et al. (2012) felt that they were stigmatised and suffered prejudices and assumptions made by lecturers who judged them by their disability (ID).

In contrast, students without disabilities did not report facing any barriers during their experience of studying with peers with ID. However, those who worked with the students with ID as pre-service teachers or peer mentors reported facing some challenges. The main challenge encountered by the mentors and pre-service teachers in the studies by Carroll et al. (2009) and Izzo and Shuman (2013) was encouraging their peers with ID to do their homework and keep up with the students without disabilities. Izzo and Shuman (2013) suggested that this might be due to the students not having received training in how to support their peers with ID. Peer mentors who took part in

the study by Ryan et al. (2017) reported four major challenges in their experience of PSE. Firstly, they faced challenges dealing with the students themselves. Sometimes this could be due to the bad mood of a student or other issues, such as their choosing to eat unhealthy food or not taking responsibility for completing homework. Mentors spoke about the second challenge they faced in PSE, which related to the parents of the students they mentored. Problems encountered by students without disabilities related to parents of students with ID having unrealistic expectations or being overprotective. The third challenge the peer mentors faced was the negative comments made by some undergraduate students about the adults with ID (Ryan et al., 2017). Finally, peer mentors criticised the educational system in high schools for not adequately preparing students with ID for the real world after high school: because of their experience in high school, students with ID expected to get good marks even if they did not do the homework (Ryan et al., 2017).

The lack of evidence on barriers potentially faced by parents of students with ID who were supporting their children through PSE occurred because the included studies tended not to ask parents about this. A study by Thoma (2013) reported how two parents with children who were enrolled in two different PSE programmes both experienced problems obtaining course completion certificates for their children. In these examples, the PSE programmes did not give the adults with ID a certificate. The parents thought that this might affect their child's future, especially when other PSE programmes issued student certificates. Moreover, in the study by Causton-Theoharis et al. (2009), a mother of a girl with PSE as well as a PSE team member described the problem facing the mother. The lecturers who taught her daughter were not open-minded about accepting new things, such as adults with ID attending their classes.

Every semester the mother experienced problems registering her daughter in inclusive classes, even though the PSE model followed by her daughter was an inclusive one. Some of the lecturers did not welcome her daughter in their classes and student admissions were not helpful concerning this issue.

Finally, PSE staff members in various countries reported facing many challenges and obstacles during their experiences of working on PSE programmes which used different models. These obstacles were different depending on the staff member's position in the programme. For example, some lecturers reported not having sufficient skills or knowledge about teaching students with ID in their inclusive classes (Fullana et al., 2016; O'Connor et al., 2012). To avoid that, some staff suggested that students with ID should meet their lecturers each semester to plan their goals. Other staff members reported that the students' families were the biggest challenge as some parents did not see inclusion as useful for their children (Li, 1998). Others suggested that families of students with ID were not aware of the opportunities for their children after high school (Sheppard-Jones et al., 2015).

Logistical obstacles were the ones that were mentioned most frequently by staff in the studies included in this review (Causton-Theoharis et al., 2009; Thoma, 2013): even though students had been admitted for study in inclusive programmes, they needed permission from each module lecturer before being allowed to register on specific modules, but some of these lecturers were unwilling to allow these students into their class. In addition, some of the PSE programmes did not give the students with ID a certificate to show that they had finished their programme and gained certain skills. The staff thought this might affect the motivation of the students to study or work harder on these programmes. Parking and accommodation were also raised, especially for

students living in rural areas and having no public transport from their home to the programmes. The final logistical issue brought up by staff on two PSE programmes (Causton-Theoharis et al., 2009) was that students with ID faced difficulty accessing some services on the campus. For instance, it was not easy for them to take books out of the library because they had difficulty getting the appropriate identification cards.

Plotner and Marshall (2015) asked 79 administrators of PSE programmes for students with ID in 30 USA states about their perceptions of the supports and barriers encountered during programme development. The main challenge reported by administrators was funding. Over 50% of the programme directors participating in this survey reported that their primary funding source was external money in a combination of grants and private contributions. This might have affected their power to increase the number of students on their programme each semester.

### 2.3 PSE experiences across different PSE models and countries

Overall, no differences were seen in terms of attitudes and experiences of PSE between stakeholders in the mixed model programmes (Black & Roberts, 2009; Carroll et al., 2009; Folk et al., 2012; Fullana et al., 2016; Izzo & Shuman, 2013; O'Brien et al., 2009; O'Connor et al., 2012; Plotner & Marshall, 2015; Plotner & May, 2017; Prendergast et al., 2017; Remis et al., 2017; Spassiani et al., 2017; Thoma, 2013) and those in the inclusive programmes (Causton-Theoharis et al., 2009; Folk et al., 2012; Plotner & Marshall, 2015; Ryan et al., 2017; Westling et al., 2013). In both of these models, stakeholders reported overall positive attitudes and experiences of PSE for adults with ID. Furthermore, participants in programmes which used the separate model of PSE (Fullana et al., 2016; Owen et al., 2015; Plotner & Marshall, 2015; Price et al., 2017; Thoma, 2013) had the same positive experiences, with the exception of two

programmes (Jahoda et al., 1988; Li, 1998). Findings regarding perceived obstacles across PSE models were less homogenous. No common barriers were reported across the three PSE models, although similar obstacles were reported within each group of stakeholders, such as physical and academic challenges facing the students with ID, and lack of knowledge about students with ID facing the PSE staff and the other students without disability.

Of the 22 studies included in the present review, PSE programmes took place in eight countries, mostly across the Western world. Among the included studies, most PSE programmes (21) were reported in the USA, followed by Ireland with four PSE programmes. In the remaining countries (Canada, China, England, Northern Ireland, Scotland and Spain) only one PSE programme was reported. The USA was the only country to use the inclusive model. On the other hand, Canada, China, Scotland and Spain only reported separate models of PSE, where students with ID study without any contact with students without disabilities. A mixed model was the most commonly encountered model reported in the included studies and was the only PSE model used in Ireland and Northern Ireland.

Social skills and independence were fostered through various taught modules and teaching methods in PSE programmes. Inclusive models emphasised the acquisition of academic skills but also focused on self-determination (Ryan et al., 2017, Westling et al., 2013, Carroll et al., 2009, Folk et al., 2012). As an example, the Honolulu Community College (HCC) in Folk et al.'s (2012) study employed a long-term plan for supporting students with ID over three stages that students had to pass. This commenced in the transition from secondary school, with the second stage being

the enrollment into the PSE program. At that stage, training included goal setting, test-taking and study skills, employability skills, money management, and further topics. The final stage involved supporting students to establish an independent life following PSE by creating an Individualized Plan regarding employment. This plan was developed with his/her vocational rehabilitation counsellor and with collaboration from the programme's partners (Folk et al., 2012).

On the other hand, mixed PSE programmes focused more on preparation for community integration through the promotion of social and communication skills. For instance, the PSE programme described in Spassiani et al. (2017) included sport alongside other modules, such as research skills. Through sports participation, students with ID developed friendships with other students without disabilities, as well as learning how to achieve their personal goals in the gym. Another mixed PSE programme called Tell It Like It Is (TILII) in Black and Roberts (2009) trained adults with ID to be more aware of their rights and responsibilities. To achieve those aims, they asked the young adults with ID to identify things that were irritating or annoying them and to develop a PowerPoint presentation to train other community members on these issues. For instance, one of those issues was respect for their personal space and privacy

In contrast to the previous models, separate PSE programmes supported independence by training students on daily living or vocational skills. For example, the PSE programme in Price et al. (2017) mainly aimed to train students to use public transportation through a GPS application (Google maps) so that they can go from home to the PSE setting and vice versa. Other PSE separate programmes focused narrowly



on job coaching by training students with ID on a specific job (Owen et al., 2015, Li, 1998). More information about each PSE programme can be found in table 3.

In studies that provided information on the academic content of their PSE, inclusive models generally focused on modules such as maths, community participation skills, test-taking, and study skills. These modules were offered to both students with ID and students without disabilities. Students with ID in inclusive programmes were set individual learning goals and received additional support during their studies (Folk et al., 2012; Westling et al., 2013; Causton-Theoharis et al., 2009). The majority of separate models of PSE focused on vocational skills tailored to the job that students were being trained to perform, such as the skills necessary for working in a supermarket, cafe or factory (Owen et al., 2015; Li, 1998). Mixed models of PSE typically involved integrated coursework in regular college courses, such as presentation skills, career planning, inclusion in social activities, with residential living on campus and significant academic and social supports for students with ID (Black & Roberts, 2009; O'Brien et al., 2009; Plotner & May, 2017).

#### **2.4 Quality appraisal results**

Tables 5, 6 and 7 present the results of the methodological quality of the studies included in the review. The results show mixed levels of bias across the included studies. Eight studies presented a low level of bias, a similar number had a moderate level of bias and the remaining six studies presented a high level of bias. Table 5 shows that six of the qualitative studies presented a low level of bias with the lowest level being found in the study by O'Connor et al. (2012). However, the highest level of bias in the qualitative studies occurred in those by Jahoda et al. (1988), Remis et al. (2017)

and Ryan et al. (2017). The main areas of weakness in these studies were: (a) the components of the study did not adhere to the quality criteria, and (b) the qualitative data collection methods were inadequate to address the research question.

-----Please insert Table 5 here -----

Table 6 shows the level of bias in the four quantitative studies included in the review. Half of the quantitative studies had a moderate level of bias (Plotner & Marshall, 2015; Sheppard-Jones et al., 2015). The lowest level of bias in the quantitative studies occurred in the study by Westling et al. (2013), while the highest was found in the study by Plotner and May (2017). The main areas of weakness in these studies were: (a) the sampling strategy was not appropriate for addressing the research question, (b) the risk of non-response bias was high, and (c) the sample was not representative of the target population.

-----Please insert Table 6 here -----

Out of the four mixed methods studies presented in Table 7, one had a low level of bias (Fullana et al., 2016) and one had a moderate level of bias (Black & Roberts, 2009). However, half of the mixed methods studies (Folk et al., 2012; Izzo & Shuman, 2013) included in this review had a high level of bias, according to the MMAT (Hong, Pluye, et al., 2018). The main areas of weakness in these studies were: (a) there was not an adequate rationale for using a mixed methods design to address the research question and (b) the different components of the study did not adhere to the quality criteria of each tradition of the methods involved.

### 3. Discussion

The present systematic review found that most of the stakeholders involved in PSE for young people with ID reported positive experiences. The positive experiences stemmed mostly from stakeholders' perceived benefits for the students, in particular, gains in social skills, self-determination and independence. Moreover, the environment and the PSE model played a factor in facilitating this. Stakeholders in the inclusive and mixed models were more likely to report these benefits, especially gains in social skills, compared to those in the separate model (Grigal & Hart, 2010; May, 2012; Meyers & Lester, 2016). Increased gains in social skills in inclusive or mixed PSE models might relate to the structure of these models (more opportunities for social interaction with peers) or to the curriculum of these models (where, for example, social skills may be explicitly taught). The present review cannot identify what characteristics of inclusive or mixed PSE models might be associated with perceived larger gains in social skills and independence. Moreover, less stigma is experienced by those with ID in these models. There is evidence that the wider community feel that students with ID are less able to succeed in PSE compared to students without ID (Crabtree, 2007; Mirza, Tareen, Davidson, & Rahman, 2009). As a result, these studies and other literature (Field, Sarver, & Shaw, 2003; Finn, Evans Getzel, & McManus, 2008) suggest that inclusivity is important in PSE for both students with ID and for other students without disabilities. Students without disabilities propose that inclusion in either the academic classes or in the social activities will not affect the quality of the programme (Izzo & Shuman, 2013; Westling et al., 2013). On the contrary, this experience will make the

course more attractive to students without ID as they increase their skills communicating with and supporting their peers with ID (Griffin, Summer, McMillan, Day, & Hodapp, 2012; Meyers & Lester, 2016).

Although most of the stakeholders in this review had positive experiences in PSE, in line with the findings of a previous study (Davies & Beamish, 2009), we believe that much still needs to be done before setting up a new PSE programme for students with ID. It is important to build partnerships between schools and universities, colleges and vocational programmes to provide places for the students with ID after finishing high school (Benz, Lindstrom, & Latta, 1999; Pearman, Elliott, & Aborn, 2004). In addition, to add more value to these partnerships, the students and their parents should participate in transition plans which can play a significant role in the success of their experiences in PSE (Doyle, Mc Guckin, & Shevlin, 2017).

Moreover, the general attitudes and views of the PSE staff are important factors in the success of a PSE programme. It is important that the staff who will become involved in PSE believe that students with ID have the same rights to education and to continuous skills development as everyone else. Several studies highlight the importance of value training for staff before they start working with students with ID in PSE (Hadjikakou & Hartas, 2008; Moriña, Cortés-Vega, & Molina, 2015). Further, our findings would suggest that ongoing positive engagement requires clear communication and collaboration between all stakeholders during the course of the PSE programme. **This partnership needs to start from the planning of students' individual goals through Individual Education Plans (IEP), where the young adults with ID and his/her parents have the right to suggest, edit and discuss each goal in the plan with other IEP members** (Sitlington, 2003). Youth with ID and their parents need to feel their views are valued

and they have an equal say in educational decisions. Finally, the infrastructure in terms of university buildings, doors, cafeteria, library, campus etc., must be suitable for people with disabilities. This will make them more independent and their experiences more positive (Moriña & Morgado, 2018; Moswela & Mukhopadhyay, 2011; Wessel, Jones, Blanch, & Markle, 2015).

### **3.1 Strengths and limitations of the review**

The present study is the first systematic review to bring together the experiences of different stakeholders. As most of the studies included in the review presented a low or moderate level of bias, conclusions from this review could be considered relatively robust, although it is important to point out that the included studies tended to focus least on the views of students with ID, suggesting that their views might be under-represented in the findings

This uneven stakeholder representation is a limitation in the present review. This was also the case for parents of students with ID with only 22 participants included in the studies identified. Furthermore, most of the studies identified took place in the USA (12 out of 22 studies). This may reflect the higher number of PSE options in this country, or the higher number of PSE research studies available. In either case, this pattern of geographical representation restricts the extent to which findings can be generalised to other countries, where the context of educational policy and practice may be different.

### **3.2 Future directions**

Based on the results and limitations of the present review, further research is needed to fill gaps in our knowledge of PSE. **It remains unclear whether or not PSE options are available in countries in areas such as the Middle East and in Africa.** It

remains unclear whether or not PSE options are available in these countries. Comparative studies are required to investigate which of the three models of PSE is the most effective with respect to academic outcomes. The present study did not examine which model of PSE might be associated with improved outcomes for students with ID. Longitudinal research is needed to explore whether different models of PSE might be associated with better employment opportunities, especially paid employment.

### **3.3 Implications for practice**

The findings of the current study suggest that, while PSE is mostly a positive experience for students with ID, their parents and teaching staff, not all types of PSE models examined appeared to be equally well received; the separate model was the PSE programme perceived as least useful for most of the participants (Jahoda et al., 1988; Li, 1998), whereas more inclusive models were perceived as more beneficial in terms of the opportunities they provided to students with ID. Although most studies do not specify the students' level of ID (see Table 3), it is likely that separate PSE programmes included students with more severe ID where gains in social skills or independence require more time to become evident. Moreover, increased communication and collaboration through partnership working appear to be crucial factors for a positive PSE experience (Causton-Theoharis et al., 2009), along with appropriate staff training that enables staff to feel confident they can support students with ID in an inclusive environment (Ryan et al., 2017). Importantly, the findings highlighted the positive experience of students without disabilities, who feel that they benefit from the contact with peers with ID. Taken together, the findings seem to support inclusive PSE models.

### **3.4 Conclusions**

Findings from the present systematic review suggest that participants had positive views about their experiences of PSE, although these views were marginally more negative when participants took part in separate PSE programmes. In addition to academic support, it was also important to address non-academic issues, such as inclusive activities or making new friends. Positive experiences were enhanced in PSE programmes where staff believed in the right of students with ID to receive higher education, where staff had been appropriately trained and supported to include students with ID in their classroom, where there was support to individualise programmes, and where ongoing communication between parents, PSE staff and students enabled a shared understanding of goals and processes. It will be important for future research to examine the impact of PSE programmes for students with ID on academic and vocational outcomes, as well as paid employment.

## **References**

- Andrews, A., & Rose, J. L. (2010). A preliminary investigation of factors affecting employment motivation in people with intellectual disabilities. *Journal of Policy and Practice in Intellectual Disabilities*, 7(4), 239-244.
- Arvidsson, J., Widén, S., & Tideman, M. (2015). Post-school options for young adults with intellectual disabilities in Sweden. *Research and practice in intellectual and developmental disabilities*, 2(2), 180-193.
- Baer, R. M., Daviso, A. W., Flexer, R. W., McMahan Queen, R., & Meindl, R. S. (2011). Students with intellectual disabilities: Predictors of transition outcomes. *Career Development for Exceptional Individuals*, 34(3), 132-141.
- Barnes, C. (2010) 'A brief history of discrimination and disabled people.' In L. J. Davis (ed.), *The Disability Studies Reader*, pp. 20–32. New York, London: Routledge
- Benz, M. R., Lindstrom, L., & Latta, T. (1999). Improving collaboration between schools and vocational rehabilitation: The youth transition program model. *Journal of Vocational Rehabilitation*, 13(1), 55-63.
- Björnsdóttir, K. (2017). Belonging to higher education: Inclusive education for students with intellectual disabilities. *European Journal of Special Needs Education*, 32(1), 125-136.
- Black, L.-A., & Roberts, P. (2009). People with a learning disability as trainers: Evaluation of a values based pilot training programme. *British Journal of Learning Disabilities*, 37(2), 129-137.
- Butler, L. N., Sheppard-Jones, K., Whaley, B., Harrison, B., & Osness, M. (2016). Does participation in higher education make a difference in life outcomes for students with intellectual disability? *Journal of Vocational Rehabilitation*, 44(3), 295-298.



- Camacho, B. M., Lopez-Gavira, R., & Díez, A. M. (2017). The ideal university classroom: Stories by students with disabilities. *International Journal of Educational Research*, 85, 148-156.
- Carroll, S. Z., Petroff, J. G., & Blumberg, R. (2009). The impact of a college course where pre-service teachers and peers with intellectual disabilities study together. *Teacher Education and Special Education*, 32(4), 351-364.
- Causton-Theoharis, J., Ashby, C., & DeClouette, N. (2009). Relentless optimism: Inclusive postsecondary opportunities for students with significant disabilities. *Journal of Postsecondary Education and Disability*, 22(2), 88-105.
- Cobb, B., Lehmann, J., Newman-Gonchar, R., & Alwell, M. (2009). Self-determination for students with disabilities: A narrative metasynthesis. *Career Development for Exceptional Individuals*, 32(2), 108-114.
- Crabtree, S. A. (2007). Family responses to the social inclusion of children with developmental disabilities in the United Arab Emirates. *Disability & Society*, 22(1), 49-62.
- Cranston-Gingras, A., Davis, D., Gonzalez, G., Knollman, G., Thomas, D., & Wissner, A. (2015). Going to college: A campus-based partnership for students with intellectual disabilities. *School-University Partnerships*, 8(2), 62-71.
- Davies, M. D., & Beamish, W. (2009). Transitions from school for young adults with intellectual disability: Parental perspectives on 'life as an adjustment'. *Journal of Intellectual and Developmental Disability*, 34(3), 248-257.
- Doyle, A., Mc Guckin, C., & Shevlin, M. (2017). 'Close the door on your way out': Parent perspectives on supported transition planning for young people with Special Educational Needs and Disabilities in Ireland. *Journal of Research in Special Educational Needs*, 17(4), 274-281.

- Field, S., Sarver, M. D., & Shaw, S. F. (2003). Self-determination: A key to success in postsecondary education for students with learning disabilities. *Remedial and Special Education, 24*(6), 339-349.
- Finn, D., Evans Getzel, E., & McManus, S. (2008). Adapting the self-determined learning model for instruction of college students with disabilities. *Career Development for Exceptional Individuals, 31*(2), 85-93.
- Folk, E. D. R., Yamamoto, K. K., & Stodden, R. A. (2012). Implementing inclusion and collaborative teaming in a model program of postsecondary education for young adults with intellectual disabilities. *Journal of Policy and Practice in Intellectual Disabilities, 9*(4), 257-269.
- Fullana, J., Pallisera, M., Catala, E., & Puyalto, C. (2016). Evaluating a research training programme for people with intellectual disabilities participating in inclusive research: The views of participants. *Journal of Applied Research in Intellectual Disabilities, 30*(4), 684-695.
- Gallinger, K. R. (2013). Inclusive post-secondary education: Stories of seven students with intellectual disabilities attending college in Ontario, Canada. *University, Ontario, Canada*.
- Giust, A. M., & Valle-Riestra, D. M. (2017). Supporting mentors working with students with intellectual disabilities in higher education. *Journal of Intellectual Disabilities, 21*(2), 144-157.
- Griffin, M. M., Summer, A. H., McMillan, E. D., Day, T. L., & Hodapp, R. M. (2012). Attitudes toward including students with intellectual disabilities at college. *Journal of Policy and Practice in Intellectual Disabilities, 9*(4), 234-239.
- Grigal M.,Hart,D.,& Migliore,A. (2011). Comparing the transition planning, postsecondary education, and employment outcomes of students with

- intellectual and other disabilities. *Career Development for Exceptional Individuals*, 34(1), 4–17.
- Grigal, M., & Hart, D. (2010). Think college: Postsecondary education options for students with intellectual disabilities. *Baltimore, MD: Paul H. Brookes*.
- Grigal, M., Migliore, A., & Hart, D. (2014). A state comparison of vocational rehabilitation support of youth with intellectual disabilities' participation in postsecondary education. *Journal of Vocational Rehabilitation*, 40(3), 185-194.
- Hadjikakou, K., & Hartas, D. (2008). Higher education provision for students with disabilities in Cyprus. *Higher Education*, 55(1), 103-119. doi:10.1007/s10734-007-9070-8
- Hart, D. (2006). Postsecondary education options for students with intellectual disabilities (Research to Practice Brief No. 45). *Boston: Institute for Community Inclusion University of Massachusetts Boston*.
- Hart, D., Grigal, M., & Weir, C. (2010). Expanding the paradigm: Postsecondary education options for individuals with autism spectrum disorder and intellectual disabilities. *Focus on Autism and Other Developmental Disabilities*, 25(3), 134-150.
- Hong, Q. N., Gonzalez-Reyes, A., & Pluye, P. (2018). Improving the usefulness of a tool for appraising the quality of qualitative, quantitative and mixed methods studies, the Mixed Methods Appraisal Tool (MMAT). *Journal of Evaluation in Clinical Practice*, 24(3):459-67.
- Hong, Q. N., Pluye, P., Fabregues, S., BAartlett, G., Boardman, F., Cargo, M., . . . Nicolau, B. (2018). Mixed Methods Appraisal Tool (MMAT) Version 2018. *Canadian Intellectual Property Office, Canada*.

- Izzo, M. V., & Shuman, A. (2013). Impact of inclusive college programs serving students with intellectual disabilities on disability studies interns and typically enrolled students. *Journal of Postsecondary Education and Disability*, 26(4), 321-335.
- Jahoda, A., Markova, I., & Cattermole, M. (1988). Stigma and the self-concept of people with a mild mental handicap. *Journal of Mental Deficiency Research*, 32, 103-115.
- Jones, L. A., & Moe, R. (1980). College education for mentally retarded adults. *Mental Retardation*, 18(2), 59.
- Ju, S., Zeng, W., & Landmark, L. J. (2017). Self-determination and academic success of students with disabilities in postsecondary education: A review. *Journal of Disability Policy Studies*, 28(3), 180-189.
- Li, E. P. Y. (1998). Vocational aspirations of sheltered workshop workers with intellectual disability in Hong Kong. *Journal of Intellectual Disability Research*, 42, 208-217.
- Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P., . . . Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration. *PLoS medicine*, 6(7), e1000100.
- Lindstrom, L., Paskey, J., Dickinson, J., Doren, B., Zane, C., & Johnson, P. (2007). Voices from the field: Recommended transition strategies for students and school staff. *Journal for Vocational Special Needs Education*, 29(2), 4-15.
- May, C. (2012). An investigation of attitude change in inclusive college classes including young adults with an intellectual disability. *Journal of Policy and Practice in Intellectual Disabilities*, 9(4), 240-246.

- Meyers, S., & Lester, D. (2016). An attempt to change college students' attitudes toward individuals with disabilities. *Comprehensive Psychology, 5*, 2165222816648076. doi:10.1177/2165222816648076
- Migliore, A., Butterworth, J., & Hart, D. (2009). Postsecondary education and employment outcomes for youth with intellectual disabilities. *Think College! Fast Facts, 1*(1).
- Mirza, I., Tareen, A., Davidson, L., & Rahman, A. (2009). Community management of intellectual disabilities in Pakistan: A mixed methods study. *Journal of Intellectual Disability Research, 53*(6), 559-570.
- Mock, M., & Love, K. (2012). One state's initiative to increase access to higher education for people with intellectual disabilities. *Journal of Policy and Practice in Intellectual Disabilities, 9*(4), 289-297.
- Moriña, A., & Morgado, B. (2018). University surroundings and infrastructures that are accessible and inclusive for all: listening to students with disabilities. *Journal of Further and Higher Education, 42*(1), 13-23.
- Moriña, A., Cortés-Vega, M. D., & Molina, V. M. (2015). Faculty training: An unavoidable requirement for approaching more inclusive university classrooms. *Teaching in Higher Education, 20*(8), 795-806.
- Moswela, E., & Mukhopadhyay, S. (2011). Asking for too much? The voices of students with disabilities in Botswana. *Disability & Society, 26*(3), 307-319.
- Murphy, E., & McTaggart, M. (2014). Post-secondary support for people with learning disabilities in Great Britain. *Northern Ireland Assembly*.
- Neubert, D. A., & Moon, M. S. (2006). Postsecondary settings and transition services for students with intellectual disabilities: Models and research. *Focus on Exceptional Children, 39*(4).

- Neubert, D. A., Moon, M. S., Grigal, M., & Redd, V. (2001). Post-secondary educational practices for individuals with mental retardation and other significant disabilities: A review of the literature. *Journal of Vocational Rehabilitation, 16*(3, 4), 155-168.
- Newman L, Wagner M, Cameto, R. (2009) *The Post-High School Outcomes of Youth with Disabilities up to 4 Years after High School: A Report from the National Longitudinal Transition Study-2 (NLTS2)*. NCSEER 2009-3017. Washington, DC: National Center for Special Education Research.
- Newman, L. (2005). Changes in postsecondary education participation of youth with disabilities. *Journal for Vocational Special Needs Education, 27*(2), 30-38.
- O'Brien, P., Shevlin, M., O'Keefe, M., Fitzgerald, S., Curtis, S., & Kenny, M. (2009). Opening up a whole new world for students with intellectual disabilities within a third level setting. *British Journal of Learning Disabilities, 37*(4), 285-292.
- O'Connor, B., Kubiak, J., Espiner, D., & O'Brien, P. (2012). Lecturer responses to the inclusion of students with intellectual disabilities auditing undergraduate classes. *Journal of Policy and Practice in Intellectual Disabilities, 9*(4), 247-256.
- Ouzzani, M., Hammady, H., Fedorowicz, Z., & Elmagarmid, A. (2016). Rayyan - a web and mobile app for systematic reviews. *Systematic reviews, 5*(1), 210.
- Owen, F., Li, J. Y., Whittingham, L., Hope, J., Bishop, C., Readhead, A., & Mook, L. (2015). Social return on investment of an innovative employment option for persons with developmental disabilities Common Ground Co-operative. *Nonprofit Management & Leadership, 26*(2), 209-228.
- Pace, R., Pluye, P., Bartlett, G., Macaulay, A. C., Salsberg, J., Jagosh, J., & Seller, R. (2012). Testing the reliability and efficiency of the pilot Mixed Methods

- Appraisal Tool (MMAT) for systematic mixed studies review. *International journal of nursing studies*, 49(1), 47-53.
- Papay, C. K., & Bambara, L. M. (2011). Postsecondary education for transition-age students with intellectual and other developmental disabilities: A national survey. *Education and Training in Autism and Developmental Disabilities*, 78-93.
- Pearman, E., Elliott, T., & Aborn, L. (2004). Transition services model: Partnership for student success. *Education and Training in Developmental Disabilities*, 39(1), 26-34.
- Plotner, & Marshall, K. J. (2015). Postsecondary education programs for students with an intellectual disability: Facilitators and barriers to implementation. *Intellectual and Developmental Disabilities*, 53(1), 58-69.
- Plotner, & May, C. (2017). A comparison of the college experience for students with and without disabilities. *Journal of Intellectual Disability*, 1744629517719346.
- Plotner, A. J., & Marshall, K. J. (2014). Navigating university policies to support postsecondary education programs for students with intellectual disabilities. *Journal of Disability Policy Studies*, 25(1), 48-58.  
doi:10.1177/1044207313514609
- Prendergast, M., Spassiani, N. A., & Roche, J. (2017). Developing a mathematics module for students with intellectual disability in higher education. *International Journal of Higher Education*, 6(3), 169-177.
- Price, R., Marsh, A. J., & Fisher, M. H. (2017). Teaching young adults with intellectual and developmental disabilities community-based navigation skills to take public transportation. *Behavior Analysis in Practice*, 11(1), 46-50.

- PRISMA; Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *Annals of Internal Medicine*, *151*(4), 264-269.
- Remis, K., Moore, C. D., Pichardo, J., Rosario, Z., & Moore, J. P. (2017). Teaching note-description and preliminary evaluation of a modified college experience for adults with intellectual and developmental disabilities. *Journal of Social Work Education*, *53*(2), 354-360.
- Ryan, S. M., Nauheimer, J. M., George, C. L., & Dague, E. B. (2017). "The most defining experience": Undergraduate university students' experiences mentoring students with intellectual and developmental disabilities. *Journal of Postsecondary Education and Disability*, *30*(3), 283-298.
- Schultz, J. L., & Higbee, J. L. (2007). Reasons for attending college: The student point of view. *Research and Teaching in Developmental Education*, 69-76.
- Seale, J. (2017). From the voice of a 'socratic gadfly': A call for more academic activism in the researching of disability in postsecondary education. *European Journal of Special Needs Education*, *32*(1), 153-169.
- Sheppard-Jones, K., Kleinert, H. L., Druckemiller, W., & Ray, M. K. (2015). Students with intellectual disability in higher education: Adult service provider perspectives. *Intellectual and Developmental Disabilities*, *53*(2), 120-128.
- Sitlington, P. L. (2003). Postsecondary education: The other transition. *Exceptionality*, *11*(2), 103-113.
- Spassiani, N. A., Ó Murchadha, N., Cline, M., Biddulph, K., Conradie, P., Costello, F., Tully, K. (2017). Likes, dislikes, supports and barriers: the experience of students with disabilities in university in Ireland. *Disability & Society*, *32*(6), 892-912.



- Stefánsdóttir, G. V., & Björnsdóttir, K. (2016). 'I am a college student': Postsecondary education for students with intellectual disabilities. *Scandinavian Journal of Disability Research*, 18(4), 328-342.
- Stodden, R. A., & Whelley, T. (2004). Postsecondary education and persons with intellectual disabilities: An introduction. *Education and Training in Developmental Disabilities*, 6-15.
- Think-College. (2018). Find the college that's right for you! Retrieved from <https://thinkcollege.net/college-search>
- Thoma, C. A. (2013). Postsecondary education for students with intellectual disability (ID): Complex layers. *Journal of Postsecondary Education and Disability*, 26(4), 285-302.
- Thoma, C., Lakin, K. C., Carlson, D., Domzal, C., Austin, K., & Boyd, K. (2011). Participation in postsecondary education for students with intellectual disabilities: A review of the literature 2001-2010. *Journal of Postsecondary Education and Disability*, 24(3), 175-191.
- U.S. Bureau of Labor Statistics. (2011). College enrollment and work activity of 2011 high school graduates. Retrieved September 1, 2019, from [https://www.bls.gov/news.release/archives/hsgec\\_04192012.pdf](https://www.bls.gov/news.release/archives/hsgec_04192012.pdf)
- Unesco. (1994). *The Salamanca Statement and Framework for action on special needs education: adopted by the World Conference on Special Needs Education; Access and Quality. Salamanca, Spain, 7-10 June 1994*: Unesco.
- Wagner, M., Newman, L., Cameto, R., Garza, N., & Levine, P. (2005). After high school: A first look at the postschool experiences of youth with disabilities. A report from the National Longitudinal Transition Study-2 (NLTS2). Online submission.

- Wessel, R. D., Jones, D., Blanch, C. L., & Markle, L. (2015). Pre-enrollment considerations of undergraduate wheelchair users and their post-enrollment transitions. *Journal of Postsecondary Education and Disability*, 28(1), 57-72.
- Westling, D. L., Kelley, K. R., Cain, B., & Prohn, S. (2013). College students' attitudes about an inclusive postsecondary education program for individuals with intellectual disability. *Education and Training in Autism and Developmental Disabilities*, 48(3), 306-319.
- Yell, M. L. (1998). *The law and special education*: Upper Saddle River, NJ: Prentice Hall/Merrill.
- Zafft, C., Hart, D., & Zimbrich, K. (2004). College career connection: A study of youth with intellectual disabilities and the impact of postsecondary education. *Education and Training in Developmental Disabilities*, 45-53.

Table 1. A full English search string as used in MEDLINE

MEDLINE final search strategy	
S1	AB (Mental* disab* OR Mental* retard*OR Mental* impaired OR Mental* disab* OR Mental* handicap* Or Learning disab* OR Learning disorder* OR Developmental disab* OR Developmental disab* OR Developmentally impaired OR Developmentally disab* Or Down Syndrome)
S2	SU (Mental* disab* OR Mental* retard*OR Mental* impaired OR Mental* disab* OR Mental* handicap* Or Learning disab* OR Learning disorder* OR Developmental disab* OR Developmental disab* OR Developmentally impaired OR Developmentally disab* Or Down Syndrome)
S3	S1 OR S2
S4	AB (Post-secondary OR Postsecondary OR PSE OR Further education OR Further-Education OR FE OR University OR College OR 2-year college OR 4-year college OR Undergraduate course* OR Undergraduate class* OR higher education OR Post-16 OR Post- school OR Tertiary OR Up the Hill Project OR UTHP OR Training OR Vocational OR Life skills training)

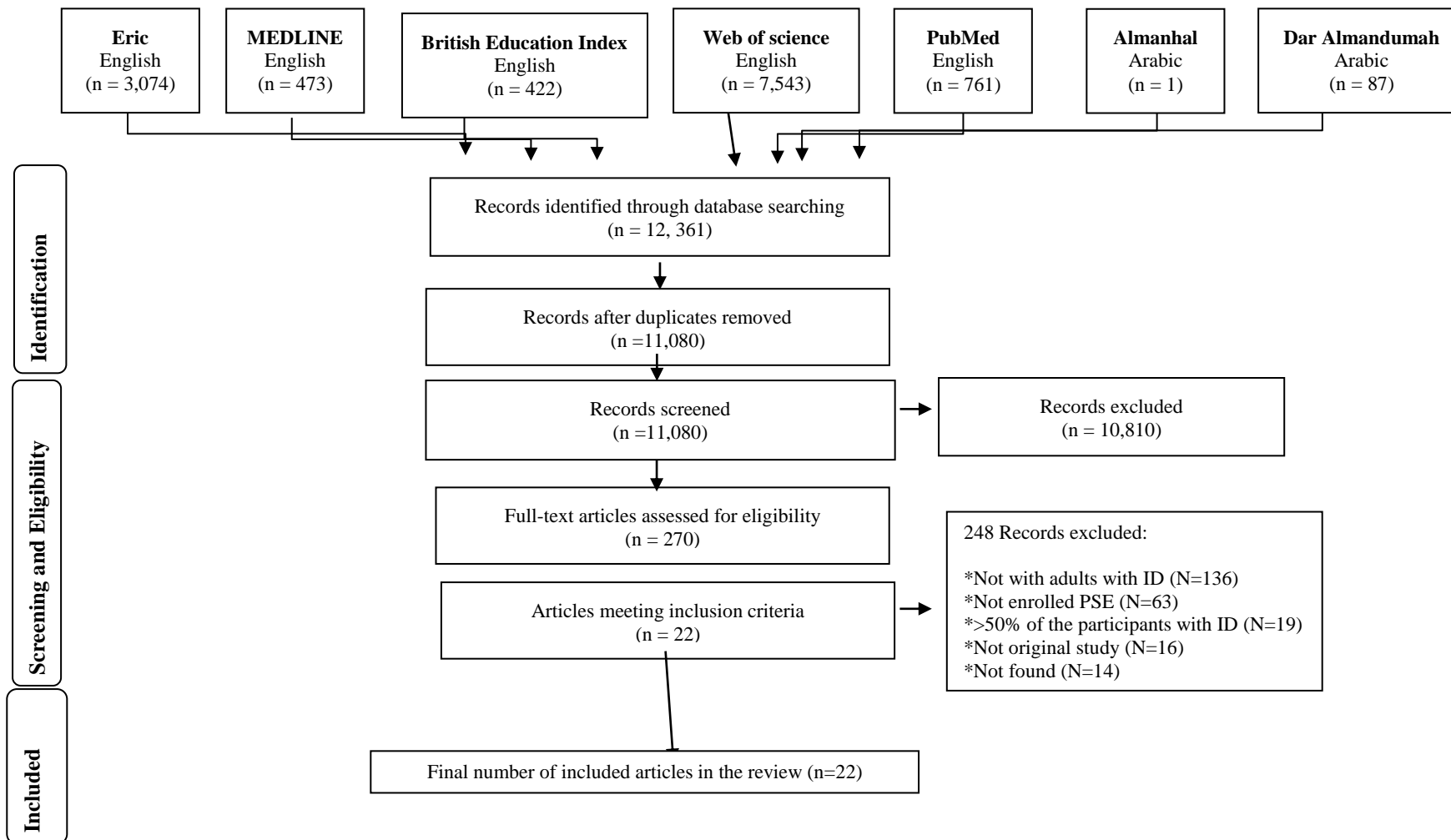
S5	SU (Post-secondary OR Postsecondary OR PSE OR Further education OR Further-Education OR FE OR University OR College OR 2-year college OR 4-year college OR Undergraduate course* OR Undergraduate class* OR higher education OR Post-16 OR Post-school OR Tertiary OR Up the Hill Project OR UTHP OR Training OR Vocational OR Life skills training)
S6	S4 OR S5
S7	AB (Experience* or Intervention or Benefits or Support or Attitude* or Perspective* or challenge* or Satis* or View)
S8	SU (Experience* or Intervention or Benefits or Support or Attitude* or Perspective* or challenge* or Satis* or View)
S9	S7 OR S8It
S10	S3 AND S6 AND S9

*Note: SU OR AB reiterates the search for text words within subjects OR abstract. This strategy is related to the MEDLINE search. Very similar versions were used to search ERIC, PubMed, Web of Science Core Collection and British Education Index but adapted for the specific search terms used in these databases.*

Table 2. A full Arabic search string in Almanhal.

البحث بقاعدة بيانات المنهل	
جميع الحقول (إعاقة عقلية أو تخلف عقلي أو إعاقة فكرية أو متلازمة داون أو إعاقة النمو أو الإعاقات النمائية)	١
جميع الحقول (التعليم بعد الثانوي أو التعليم الإضافي أو جامعه أو كليه أو برنامج تدريب أو مهني أو ما بعد المدرسة)	٢
جميع الحقول (خبرات أو تجارب أو تدخل أو الفوائد أو الدعم أو الاتجاهات أو التصورات أو التحديات أو الرضاء أو وجهات النظر)	٣
	٤ ١ و ٢ و ٣

Figure 1. A flow diagram of study selection process (adapted from PRISMA ‘Preferred Reporting Items for Systematic Reviews and Meta-Analyses’ flow diagram)



**Table 3. A description of the included studies**

<b>Study</b>	<b>Reference and country</b>	<b>Aims, PSE model/s and settings, study design and methods</b>	<b>Stakeholder group\s</b>
1	(O'Connor et al., 2012)  Dublin	<p><b>Aims:</b> To explore lecturers' views on the value, successes, and challenges of the auditing arrangements for PSE students with ID</p> <p><b>PSE Model/s:</b> Mixed/hybrid model</p> <p><b>PSE Settings:</b> 2 years of college</p> <p><b>Students' IQ:</b> Not provided</p> <p><b>Content of the course:</b> academic</p> <p><b>Design:</b> Qualitative phenomenology study</p> <p><b>Methods:</b> Interviews</p>	<p>University lecturers from two faculties</p> <p>N= 11</p> <p>Age: Not provided</p>
2	(Black & Roberts, 2009)  Northern Ireland	<p><b>Aims:</b> To find out about the attitudes of staff working in a PSE by ID trainers who tried to train them how to deal with students with ID. They also wanted to find out about the training the students with ID had in order to become trainers.</p> <p><b>PSE Model/s:</b> Mixed/hybrid model</p> <p><b>PSE Settings:</b> 2 years of college</p> <p><b>Students' IQ:</b> Not provided</p> <p><b>Content of the course:</b> academic</p> <p><b>Design:</b> Mixed methods</p> <p><b>Methods:</b> Survey and Interviews</p>	<p>Students with ID</p> <p>N=7</p> <p>Age: 24 to 41</p> <p>Staff on the programme</p> <p>N=117</p> <p>Age: Not provided</p>

3	(Andrews & Rose, 2010)	<b>Aims:</b> To investigate the factors motivating people	Adults with ID
		with ID to attend PSE	N= 10
	England	<b>PSE Model/s:</b> Not provided	Age: 18-22
		<b>PSE Settings:</b> 4 years of college	
		<b>Students' IQ:</b> 52–69	
		<b>Content of the course:</b> Not provided	
		<b>Design:</b> Qualitative description	
		<b>Methods:</b> Focus groups	
4	(Folk et al., 2012)	<b>Aims:</b> To evaluate the programme levels, and	Students with ID
		investigate the attitudes of the students and staff	N= 4
		towards it.	Age: 18-19
	United States	<b>PSE Model/s:</b> Inclusive model	Lecturers
		<b>PSE Settings:</b> Honolulu Community College (HCC),	N=7
		4 or 2 years	Age: Not provided
		<b>Students' IQ:</b> 60-71	
		<b>Content of the course:</b> Academic	
		<b>Design:</b> Mixed methods	
		<b>Methods:</b> Observations, reviews of existing records,	
		structured interviews, focus groups, and surveys	
5	(Fullana et al., 2016)	<b>Aims:</b> To find how the programme progressed, the	Students with ID
		learning achieved and participants' satisfaction with	N= 12
	Spain	the programme.	Age: 24-53
		<b>PSE Model/s:</b> Substantially separate	
		<b>PSE Settings:</b> Vocational programme in a sheltered	Trainers and
		workshop	



		<b>Students' IQ:</b> Not provided	members of the
		<b>Content of the course:</b> Academic	research team
		<b>Design:</b> Mixed methods	N= 5
		<b>Methods:</b> Data observations, structured interviews, focus groups, and surveys	Age: Not provided
6	(Li, 1998)	<b>Aims:</b> To examine the vocational aspirations of sheltered workshop workers with ID.	Adults with ID N= 23
		<b>PSE Model/s:</b> Substantially separate	Age: 17-53
	Hong Kong	<b>PSE Settings:</b> Vocational programme in a sheltered workshop	Staff N= 4
		<b>Students' IQ:</b> 50-69	Age: Not provided
		<b>Content of the course:</b> Vocational	
		<b>Design:</b> Qualitative phenomenology study	
		<b>Methods:</b> Semi-structured interviews	
7	(O'Brien et al., 2009)	<b>Aims:</b> To explore the attitudes of students with ID towards the course taught at Trinity College Dublin.	Students with ID N=19
		<b>PSE Model/s:</b> Mixed/hybrid model	Age: 19-48
	Dublin	<b>PSE Settings:</b> 2 years of college	
		<b>Students' IQ:</b> Not provided	
		<b>Content of the course:</b> Academic	
		<b>Design:</b> Qualitative description study	
		<b>Methods:</b> Focus group, diary entry, photo-voice, interview	

8	(Owen et al., 2015)	<b>Aims:</b> To examine the impact of the training received in the Foundations Program.	Adults with ID N=9
		<b>PSE Model/s:</b> Substantially separate	Age: Not provided
Canada		<b>PSE Settings:</b> 10 months	
		<b>Students' IQ:</b> Not provided	Parents
		<b>Content of the course:</b> Vocational	N=5
		<b>Design:</b> Qualitative descriptive study	Age: Not provided
		<b>Methods:</b> Interviews and focus group	
9	(Plotner & May, 2017)	<b>Aims:</b> To examine the similarities and differences in the college experience for students with ID, students with mild learning disabilities (MLD), and students without disabilities.	Students with ID N=28
United States			Age: Not provided
		<b>PSE Model/s:</b> Mixed/hybrid model	MLD
		<b>PSE Settings:</b> 4 years of college	N = 21
		<b>Students' IQ:</b> Not provided	Age: Not provided
		<b>Content of the course:</b> Academic	Students without
		<b>Design:</b> Cross-sectional questionnaire	disability
		<b>Methods:</b> Questionnaire	N= 148
			Age: Not provided
10	(Price et al., 2017)	<b>Aims:</b> To assess whether young adults with IDD could be taught to use Google Maps to navigate the public transportation system.	Students with ID N= 4
United States		<b>PSE Model/s:</b> Substantially separate	Age: 17-25

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**PSE Settings:** Michigan State University

**Students' IQ:** 50-70

**Content of the course:** Vocational

**Design:** Qualitative phenomenology study

**Methods:** Observation

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11 (Ryan et al., 2017)

**Aims:** To investigate the experiences and perspectives of university undergraduate students who were peer mentors for students with ID in a post-secondary education

United States

**PSE Model/s:** Inclusive Individual Support model

**PSE Settings:** 3 years of college

**Students' IQ:** Not provided

**Content of the course:** Not provided

**Design:** Qualitative descriptive study

**Methods:** Interviews, reactive logs, observations, document analysis, and focus group

Undergraduate students without disabilities who served as peer mentors for students with ID  
N=18

Age: 19-22

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12 (Westling et al., 2013)

**Aims:** To explore the attitudes of undergraduate students without disabilities towards many aspects of the post-secondary education programme, the programme's participants, inclusion, and the impact of the programme and its participants on college life.

United States

**PSE Model/s:** Inclusive Individual Support model

**PSE Settings:** 2 years of college at Western Carolina University

**Students' IQ:** Not provided

Undergraduate students without disabilities  
N=572  
Age: Not provided

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**Content of the course:** Academic and Vocational

**Design:** Quantitative descriptive study

**Methods:** Survey

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13	(Carroll et al., 2009)	<b>Aims:</b> Understand participants' sense of their own experience, by listening to and understand the voices of the pre-service teachers who were involved in the course.	Pre-service teachers N=12 Age: Not provided
	United States	<b>PSE Model/s:</b> mixed/hybrid model <b>PSE Settings:</b> 4 years of college <b>Students' IQ:</b> Not provided <b>Content of the course:</b> Academic <b>Design:</b> Qualitative phenomenological study <b>Methods:</b> Interviews	
14	(Izzo & Shuman, 2013)	<b>Aims:</b> To explore: (1) factors that enable traditional students enrolled in a Disability Studies Internship class to gain more from their experiences with individuals with ID, (2) how extended engagement with individuals with ID benefits regularly enrolled students, and (3) how educational coaches and mentors articulate the challenges they face in promoting self-determination of individuals with ID.	Students without disabilities N=8 Age: 20-21
	United States	<b>PSE Model/s:</b> Mixed/hybrid model	

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**PSE Settings:** Not provided

**Students' IQ:** Not provided

**Content of the course:** Academic

**Design:** Mixed methods

**Methods:** Survey and focus group

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15 (Plotner & Marshall, 2015)  
United States

**Aims:** To find out how administrators of PSE programmes for students with ID perceived the supports and barriers encountered during programme development.

**PSE Model/s:** Inclusive Individual Support, Mixed and Substantially separate models

**PSE Settings:** Not provided

**Students' IQ:** Not provided

**Content of the course:** Not provided

**Design:** Quantitative

**Methods:** Survey

PSE directors  
N=79  
representing 30  
states from across  
the United States  
Age: Not provided

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16 (Causton-Theoharis et al., 2009)  
United States

**Aims:** To question a variety of stakeholders in two existing post-secondary programs at the same University in Central New York, in order to gain multiple perspectives on these services.

**PSE Model/s:** Inclusive Individual Support model

**PSE Settings:** Programme 1: College  
Programme 2: College

**Students' IQ:** Not provided

Parents of  
programme  
participants  
N= 1  
Age: Not provided  
Programme staff  
N=1  
Age: Not provided

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**Content of the course:** Not provided

**Design:** Qualitative phenomenological study

Programme

**Methods:** Interviews

developers

N= 4

Age: Not provided

University faculty

N= 2

Age: Not provided

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17 (Prendergast et al., 2017) **Aims:** To highlight the design, piloting and evaluation of a mathematics module for students with ID as part of a higher education programme **PSE Model/s:** Mixed/hybrid model **PSE Settings:** Not provided **Students' IQ:** Mild to moderate **Content of the course:** Academic **Design:** Qualitative descriptive study **Methods:** Focus groups

Ireland

Students with ID

N=8

Age: Not provided

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18 (Remis et al., 2017) **Aims:** To explore undergraduate social workers' experience of a PSE programme, and what they learned from it. **PSE Model/s:** Mixed/hybrid model

United States

Undergraduate social workers

N=14

Age: Not provided

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**PSE Settings:** Skidmore college

**Students' IQ:** Not provided

**Content of the course:** Academic

**Design:** Qualitative phenomenological study

**Methods:** Written reflections

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19 (Sheppard-Jones et al., 2015)  
United States

**Aims:** To assess the current knowledge and attitudes about higher education and people with ID held by agencies providing ID services and support in one Midwestern state.

**PSE Model/s:** Not-provided

**PSE Settings:** Agencies providing ID services and support in one Midwestern state.

**Students' IQ:** Not provided

**Content of the course:** Not provided

**Design:** Quantitative descriptive study

**Methods:** Survey

Directors of agencies that provide services to adults with ID  
N=87  
M = 14  
F = 73  
Age: Not provided

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20 (Spassiani et al., 2017)  
Ireland

**Aims:** To investigate what the students with ID like and dislike about going to college, as well as the support students with disabilities receive and the barriers they encounter when they participate in college.

**PSE Model/s:** Mixed/hybrid model

**PSE Settings:** Not provided

**Students' IQ:** Not provided

University students with ID  
N= 12  
Age: Not provided

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		<b>Content of the course:</b> Academic	
		<b>Design:</b> Qualitative	
		<b>Methods:</b> Nominal Group Technique and photo-voice	
21	(Thoma, 2013)	<b>Aims:</b> To investigate the similarities and differences between programme components, procedures, activities, and experiences in order to document this relatively new development in the field.	Staff from 9 universities N=32 Age: Not provided
	United States	<b>PSE Model/s:</b> 5 Hybrid, 2 Separate, 2 Inclusive <b>PSE Settings:</b> Not-provided <b>Students' IQ:</b> Not provided <b>Content of the course:</b> Not provided <b>Design:</b> Qualitative phenomenological study <b>Methods:</b> Semi-structured interviews, observations, and document analysis	
22	(Jahoda et al., 1988)	<b>Aims:</b> To gain as much understanding as possible into the experience of people with an ID and into the nature of their self-concept.	Students with ID N=12 Their mothers
	Scotland	<b>PSE Model/s:</b> Substantially separate <b>PSE Settings:</b> Adult training centres <b>Students' IQ:</b> 50-70 <b>Content of the course:</b> Not provided <b>Design:</b> Qualitative phenomenological study <b>Methods:</b> Semi-structured interviews	N=12 Staff N=2 Age: 21- 40



**Table 4: Summary of the findings**

Study reference and country	Attitudes	Motivations	Perceived barriers
1 (O'Connor et al., 2012)  Dublin	Generally, the staff hold positive views regarding the PSE programme and the value added by the students with ID in their classes		The main challenges facing the lecturers was “over explaining” some points and realising that students with ID need more time to do a project compared to students without ID.
2 (Black & Roberts, 2009)  Northern Ireland	The students on the PSE programme were generally happy with the experience of being trainers for staff without disabilities on the same programme. In addition, they felt confident and more independent		

**Table 4: Summary of the findings**

Study reference and country	Attitudes	Motivations	Perceived barriers
	<p>in terms of sharing their ideas with other people.</p> <p>98.3% of the course recipients' perceptions and positive views regarding the programme.</p> <p>Moreover, they would recommend this course for their colleagues to attend.</p>		
<p>3 (Andrews &amp; Rose, 2010)</p> <p>England</p>			<p>Three reasons encouraged the adults with ID to attend the PSE programme and go on to work afterwards: 1) monetary gain, 2) social</p>

**Table 4: Summary of the findings**

Study reference and country	Attitudes	Motivations	Perceived barriers
4 (Folk et al., 2012) United States	<p>Generally, the students with ID liked the experience of being a college student, and gained many benefits including social benefits and self-determination indicators</p> <p>The university lecturers had positive attitudes regarding PSE, were aware of the importance of inclusivity, and believed the</p>		<p>benefits for the adults with ID, and 3) to increase their feelings of competence.</p> <p>The challenges facing the students with ID were: being labelled, and suffering from prejudices and assumptions made about them.</p>

**Table 4: Summary of the findings**

<b>Study reference and country</b>	<b>Attitudes</b>	<b>Motivations</b>	<b>Perceived barriers</b>
	students with ID to have a right to study in an inclusive environment.		
5 (Fullana et al., 2016)  Spain	The students were happy with the programme and most of them said they were able to understand the sessions well.  The staff were happy and they held positive attitudes towards the experience of teaching students with ID some challenging skills, such as research methods.		Only one lecturer in the programme was not aware of the best way of teaching the students with ID. He/she did not achieve a balance between teaching students without ID and those with ID.

**Table 4: Summary of the findings**

Study reference and country	Attitudes	Motivations	Perceived barriers
6 (Li, 1998)  Hong Kong	<p>The students with ID had negative attitudes toward the programme because: a) they wanted to meet and train alongside adults without disabilities, b) the trainers were not pleasant in their dealings with the adults.</p> <p>The staff showed positive attitudes towards PSE and students with ID. Moreover, they were aware of the importance of</p>	<p>The adults' motivation to participate in this programme was to earn more money and meet new people.</p>	<p>The staff showed that the parents of the students with ID presented the greatest challenge during their work. They were not cooperative or aware of their children's need for inclusion.</p>

**Table 4: Summary of the findings**

Study reference and country	Attitudes	Motivations	Perceived barriers
	including adults with ID alongside other people without disabilities.		
7 (O'Brien et al., 2009)  Dublin	All of the students with ID had a positive attitude towards the programme and enjoyed making new friends.		The obstacles they faced were related to their academic courses, such as difficult homework and exams.
8 (Owen et al., 2015)  Canada	Generally, both the adults with ID and their parents had positive attitudes towards the programme.  The main benefits found by the		

**Table 4: Summary of the findings**

Study reference and country	Attitudes	Motivations	Perceived barriers
	<p>parents were the changes in their child’s lifestyle, such as having fun with new friends</p>		
<p>9 (Plotner &amp; May, 2017)  United States</p>	<p>Generally, there were no differences in terms of the factors motivating students with and without disabilities to attend college. These included:  learning new things, earning more money and finding a job. The two groups reported very similar academic experiences in college.</p>		

**Table 4: Summary of the findings**

Study reference and country	Attitudes	Motivations	Perceived barriers
	<p>For example, all of them showed the ability to keep up with the reading for their classes.</p> <p>There was no difference in family support and disability services for the SEN students.</p>		
<p>10 (Price et al., 2017)</p> <p>United States</p>	<p>The adults with ID held positive attitudes towards the PSE programme. They mentioned that during their experiences in PSE they learned many things, especially being independent.</p>		



**Table 4: Summary of the findings**

Study reference and country	Attitudes	Motivations	Perceived barriers
	<p>They reported that using public transportation is now easy and this will help them to get to their work in the future.</p>		
<p>11 (Ryan et al., 2017)  United States</p>	<p>Most of the pre-mentors were aware of the needs of the students with ID, their behaviour and the different ways in which they might react. Moreover, they helped them academically, for instance by taking notes.</p>		<p>Four challenges faced the pre-mentors. These challenges related to: (a) students with ID themselves; (b) parents of students with ID; (c) other undergraduate students or the university instructors and faculty members; and (d) systems, including the university and the high school which sent the students.</p>

**Table 4: Summary of the findings**

<b>Study reference and country</b>	<b>Attitudes</b>	<b>Motivations</b>	<b>Perceived barriers</b>
12 (Westling et al., 2013)  United States	Most of the undergraduate students in the study were aware of the PSE programme in their university and had positive attitudes towards it, and they believed students with ID would learn a lot in PSE. They also agreed that the students with ID did not have a negative impact on the quality of the class. In addition, nearly half of them knew		

**Table 4: Summary of the findings**

Study reference and country	Attitudes	Motivations	Perceived barriers
	<p>at least one student with ID in the PSE at their university.</p>		
<p>13 (Carroll et al., 2009)  United States</p>	<p>Generally, most of the pre-service teachers held positive attitudes towards teaching undergraduate students with ID. In addition, most of the participants believed that students with ID have a right to complete their education and attend PSE at their college. One of the main advantages was the inclusivity.</p>		<p>Several students pointed out the problem of role confusion during some lessons. They did not know how to deal with the adults with ID in their classes</p>

**Table 4: Summary of the findings**

Study reference and country	Attitudes	Motivations	Perceived barriers
14 (Izzo & Shuman, 2013)  United States	All participants showed positive attitudes towards the experience of working as pre-service teachers or mentors for the students with ID.	Students shared how participation in the programme enhanced their own career development.	The main challenge faced by participants was trying to encourage the students with ID to keep up with the students without disabilities.
15 (Plotner & Marshall, 2015)  United States	Generally, they held positive attitudes toward PSE programmes for the adults with ID. This was clear from the condition of acceptance onto their programmes. 92% of the participants showed that their PSE programme does		They barriers such as: liability issues, student safety concerns, funding issues, the burden on the faculty and the issue that it might compromise the rigour of the institution.  Most of these barriers presented major obstacles when they started their PSE

**Table 4: Summary of the findings**

Study reference and country	Attitudes	Motivations	Perceived barriers
16 (Causton-Theoharis et al., 2009)  United States	<p>not need the agreement of a guardian in order to accept students over the age of 18.</p> <p>Generally, all participants in both programmes were happy and held positive views about them. They liked the opportunities for student growth, the inclusive environment and the friendship.</p>		<p>programmes. However, at the present time, they did not see these barriers as being as challenging as they were at the programme implementation stage, except for funding issues.</p> <p>Three main challenges faced the staff and parents: a) institutional and logistical obstacles, b) the need for the lecturers' acceptance, c) paraprofessionals</p>

**Table 4: Summary of the findings**

<b>Study reference and country</b>	<b>Attitudes</b>	<b>Motivations</b>	<b>Perceived barriers</b>
17 (Prendergast et al., 2017)  Ireland	The students with ID were happy to study maths as a module in their PSE programme. They gained many benefits and it had a positive effect on their skills. They liked the support from their instructors during their course and their patience and helpfulness.		
18 (Remis et al., 2017)  United States	The pre-service social workers held positive views on the programme and on the students with ID. In addition, most of them		

**Table 4: Summary of the findings**

Study reference and country	Attitudes	Motivations	Perceived barriers
19 (Sheppard-Jones et al., 2015)  United States	<p data-bbox="544 395 987 576">built a friendship or partnership with one of the students on the programme.</p> <p data-bbox="544 619 987 1091">Most of the participants had positive views regarding PSE for students with ID. The agency staff found the PSE useful for adults with ID. In addition, most of them were aware of the PSE options for students with ID.</p>		<p data-bbox="1541 619 2107 799">Nearly half of the directors believe that the families of adults with ID do not understand that PSE is an option for individuals with ID.</p>

**Table 4: Summary of the findings**

<b>Study reference and country</b>	<b>Attitudes</b>	<b>Motivations</b>	<b>Perceived barriers</b>
20 (Spassiani et al., 2017)  Ireland	The majority of the participants, who were students with ID working as researchers, liked the fact that they had opportunities to be more sociable and had friends at the university.  They liked: a) learning new things, b) learning technology, c) sports activities.		Most of the barriers that students with ID faced at the college were non-academic. They agreed that they faced only physical barriers.
21 (Thoma, 2013)	Generally, the staff and directors of these programmes had positive		Three challenges faced the staff: a) university administration/systems, b) the



**Table 4: Summary of the findings**

Study reference and country	Attitudes	Motivations	Perceived barriers
United States	attitudes toward PSE, and they found that it brought many benefits, such as the students with ID learning more social skills and making friends with other students without disabilities. In addition, they participate in many social activities at the universities such as clubs, sport etc.		fact that there were no certificates for the students, c) the lack of a link between high schools and the programme. The challenge facing the students was that their universities did not give the students with ID accommodation.
22 (Jahoda et al., 1988)  Scotland	Most of the adults who participated in this programme considered themselves as		The adults with ID on this programme end up with poor social skills, due to the PSE model.

**Table 4: Summary of the findings**

<b>Study reference and country</b>	<b>Attitudes</b>	<b>Motivations</b>	<b>Perceived barriers</b>
	essentially the same as people without disabilities. However, their mothers did not see their sons or daughters essentially as people without disabilities.		

**Table 5. Quality assessment for the qualitative studies**

Author/s	Qualitative studies						Result
	Is the qualitative approach appropriate to answer the research question?	Are the qualitative data collection methods adequate to address the research question?	Are the findings adequately derived from the data?	Is the interpretation of results sufficiently substantiated by data?	Do the different components of the study adhere to the quality criteria of each tradition for the methods involved?	Level of bias	
(Andrews & Rose, 2010)	√	√	√		√	low	
(Carroll et al., 2009)	√	√	√			moderate	
(Causton-Theoharis et al., 2009)	√		√	√	√	low	
(Jahoda et al., 1988)	√			√		high	
(Li, 1998)	√		√	√	√	low	
(O'Brien et al., 2009)	√		√	√		moderate	
(O'Connor et al., 2012)	√	√	√	√	√	low	
(Owen et al., 2015)	√	√	√			moderate	
(Prendergast et al., 2017)	√		√	√	√	low	
(Price et al., 2017)	√		√	√	√	low	
(Remis et al., 2017)	√			√		high	
(Ryan et al., 2017)	√	√				high	
(Spassiani et al., 2017)	√	√	√			moderate	
(Thoma, 2013)	√		√	√		moderate	

**Table 6. Quality assessment for the quantitative studies**

Author	Quantitative descriptive studies					Level of bias	
		Is the sampling strategy relevant to address the research question	Is the sample representative of the target population?	Are the measurements appropriate?	Is the risk of non-response bias low?	Is the statistical analysis appropriate to answer the research question?	
(Plotner & Marshall, 2015)		√	√			√	Moderate
(Westling et al., 2013)		√	√	√		√	Low
(Plotner & May, 2017)				√		√	High
(Sheppard-Jones et al., 2015)		√	√			√	Moderate

**Table 7. Quality assessment for the mixed methods studies**

	Mixed methods					Level of bias
Author/s		Is there an adequate rationale for using a mixed methods design to address the research question?	Are the different components of the study effectively integrated to answer the research question?	Are the outputs of the integration of qualitative and quantitative components adequately interpreted?	Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?	Do the different components of the study adhere to the quality criteria of each tradition for the methods involved?
(Black & Roberts, 2009)			√	√	√	moderate
(Folk et al., 2012)			√	√		High
(Fullana et al., 2016)		√	√	√	√	Low
(Izzo & Shuman, 2013)				√	√	High