ACADEMIC ACCESS AND PROGRESS FOR STUDENTS WITH INTELLECTUAL DISABILITY IN INCLUSIVE POSTSECONDARY EDUCATION: A SYSTEMATIC REVIEW OF RESEARCH

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ABSTRACT

The passage of the Higher Education Opportunity Act (2008) extended the expectation of previous legislation (EHA, 1975; IDEA, 2004) regarding general education academic access for students with intellectual disability, from elementary to secondary and now through to postsecondary education. In light of this extension of academic access, the authors conducted a systematic research review of the studies that explored access to and progress in college academics for students with intellectual disability (ID) enrolled in inclusive postsecondary education (PSE) programs. Of the 43 studies that met criteria, between 1987 and 2017, less than half provided sufficient contextual information to confirm academically inclusive course attendance or participation. A summary of findings and implications, regarding the lack of research exploring access to and progress in academically inclusive college course content for students with ID are discussed. Authors also discuss the need for consensus on academic expectations of students with ID enrolled in college courses and the timely use of compensatory technologies and strategies.

Keywords: inclusive postsecondary education, intellectual disability, academic access, academic progress, developmental disability

Academic Access and Progress for Students with Intellectual Disability in Inclusive Postsecondary Education: A Systematic Review of Research

Youth with disabilities constitute 12% of all youth in the United States and, for more than 40 years, policymakers have endeavored to identify and support their educational needs. In 1975, the U.S. Congress passed the Education for All Handicapped Children Act (EHA: P.L. 94-142), which assured students with disabilities a free and appropriate public education. In 2004, policymakers expanded that educational support through the Individuals with Disabilities Education Act (IDEA), to include postsecondary goals through postsecondary education (PSE), employment, and life skills for students with disabilities (Liu et al., 2018; Newman, 2005). Finally, in 2008, legislators passed the Higher Education Opportunity Act (HEOA), which, for the first time in the history of higher education, contained provisions to support students with intellectual disability (ID) to access institutions of higher education including technical and state colleges and universities (Grigal, Hart, Smith, Domin, & Weir, 2015).

Such legislation requires research to continue to support, clarify and guide the direction of inclusive PSE for students with ID. Further, the need for research to illuminate the benefits of PSE and the rigorous documentation of progress, for this population, is required to encourage more students and families to seek PSE. The National Longitudinal Transition Study, in 2012 (NLTS2), reported 93% of youth without disabilities expected to obtain a PSE, while only 76.1% of youth with an individualized education program had the same expectations (Lipscomb et al., 2017). Similarly, data from the Bureau of Labor Statistics (2017) reflected 73% of adults without disabilities attended some college compared to only 24% of adults with disabilities.

While youth with ID face more challenges in postsecondary education (Berg, Jirikowic, Haerling, & MacDonald, 2017; Papay and Bambara, 2011) and employment compared to other disability groups (Bouck, 2012; Neubert, Moon, Grigal & Redd, 2001), the available

opportunities and the increase in employment outcomes are growing (Smith, Grigal, & Papay, 2018). Currently, only 50% of youth with ID consider a PSE, often citing low expectations for performance and productivity (Lipscomb et al., 2017). Of those 50%, only 23% eventually enroll in a 2-year or 4-year college: the lowest postsecondary enrollment rates among all disability groups. This may be due in part to the far fewer PSE programs for students with ID to attend. The *Students with Disabilities at Degree-Granting Postsecondary Institutions* report identified 88% of PSE institutions in 2010 enrolled students with disabilities, while only 44% of the same institutions enrolled students with cognitive or intellectual disability (Raue & Lewis, 2011). In spite of these statistics, the field of inclusive PSE is growing (Grigal, Hart, & Weir, 2012a). Think College, a national organization dedicated to developing and promoting inclusive PSE for students with ID, identified 149 PSE programs across the country in 2009 and 270 in 2018 (Institute for Community Inclusion & University of Massachusetts, Boston, 2018). In addition to the increase in programs, Cimera, Thoma, Whittenburg, and Ruhl (2018) recently identified a strong correlation between the attainment of PSE and rate of employment for students with ID. Though continued growth in programs across the country and increasingly positive outcomes, there appears to be much less accounting of how students are accessing, being supported, and progressing in the college level academic content.

Over the past two decades, continued efforts have been made to track development and progress of inclusive PSE programs, student experiences, and outcomes for individuals with ID. However, the wide range of programs, services, and intended primary focus of the PSE programs, indicates a lack of inclusive PSE program consistency and more academically segregated settings than inclusive opportunities (Grigal et al., 2012a; Neubert et al., 2001; Papay & Bambara, 2011). This reticence to enroll students with ID in typical college courses, is affecting researchers' ability to understand and compare academic access, progress, and outcomes.

In an extensive research review of PSE programs and supports for students with ID and significant disabilities, Neubert et al., (2001) summarized findings by decade, for the 1970's, 1980's and 1990's. Results from the 1970's reflected that most programs and classes were not academically inclusive. Programs from the 1980's reflected growth in Canada toward more integrated programs for adults with disabilities, while community colleges in the United States were more hesitant in their support of inclusion for students with ID. Minimal information was available in this decade on program development, and other program details necessary to replicate programs. Though researchers reported curriculum adaptations, they related to academically specialized courses rather than college coursework adaptations (Goldstein, 1993). In general, Neubert and colleagues (2001) reported a lack of improvement in reporting of program evaluation, effectiveness, and student outcomes throughout the three decades.

Thoma et al., (2011) extended Neubert and colleagues' (2001) work to the next decade, spanning 2001 to 2010. Many of the 24 articles examined, continued to be program descriptions (42%), with some additional detail in respect to program design, and student progress. Fifty-eight percent were interview, survey and case studies. Two of the case studies mentioned challenges by faculty associated with identifying expectations and assessing student progress in their college classes (Casale-Giannola & Kamens, 2006; Li & Hamel, 2003). Lastly, in a survey of 246 college faculty from 11 states in the southern U.S., Fisher (2008) reported that faculty were supportive of integrated classrooms and cognizant of the need for student access to suitable course content. Faculty were also concerned about accommodations for students with disabilities and the possible reduction of content rigor. Overall, Thoma and colleagues (2011) found increased detail in program descriptions (Blumberg, Carroll, & Petroff, 2008; Carroll, Blumberg, & Petroff, 2008), but great variability in program design and supports, and insufficient evidence

of empirically-effective strategies to support students in academically inclusive college courses or to identify the impact of PSE programs on student outcomes.

In an effort to identify actual student access to academically inclusive college courses, Papay and Bambara (2011) surveyed 52 PSE programs, in the United States, that served students with intellectual and developmental disabilities. They found wide variability in the characteristics, purpose, and inclusivity of student participation in college courses. Most programs defined themselves as *mixed* (77%), where students with intellectual and developmental disabilities participated in inclusive activities with typical college students and instruction in separate settings. An equal percentage (11.5% each) of programs characterized themselves as *individualized* or *separate*. The six individualized programs focused on a completely inclusive college experience where activities met the needs of the individual student, while none of the six separate programs offered any inclusive activities with typical college students. It is interesting to note that the majority of courses students with ID took for credit were vocational and remedial courses, while the majority taken informally or audited were academic, health, and arts classes. College classes were modified for students with ID in just over half of the 52 programs, with assignment modifications occurring most often. Additionally, when asked about the purpose of their PSE programs for students with ID, participation in college classes was cited the least frequently. This lack of academic college coursework is confirmed by the authors' finding that only 25% of the PSE students from all 52 programs were taking college courses.

The Comprehensive Transition and Postsecondary program (CTP) approval, and funding of the National Coordination Center (NCC) initiatives in the HEOA (Section 760[1], 2008), provided essential direction and focus in two vital areas: (1) defining core parameters of access to college courses for students with ID, alongside their peers without disabilities, and (2) providing guidance and accountability for those parameters. The creation of the CTP programs and

approval process established a pathway for students with ID to enroll in and attend defined and accountable programs. Essentially, students with ID, who attend a CTP approved program, are required to attend typical college classes with their peers without disabilities which:

a) Are credit-bearing, audited, or non-credit-bearing;
b) Focus on academics;
c) Reflect at least half-time student status; and
d) Participate in internships or work-based training, with peers without ID.

The CTP approval, of an institution's program by the federal government, effectively opens the door for students with ID and their families to access the Federal Pell Grant, Federal Supplemental Educational Opportunity Grant, and Federal Work-Study programs.

The NCC has provided direction and accountability through their research and guidance in the inclusive PSE arena for students with ID. In this manuscript, the authors focus on the NCC's guidance regarding college course access and progress. In their 2013-2014 Annual Report (Grigal et al., 2015), the NCC provided data from 50 federally funded, inclusive PSE programs for students with ID. Researchers found that 52% of the courses students with ID were enrolled in academically specialized courses. Grigal and colleagues (2015) define *academically specialized* as "courses designed for and delivered to only students with ID" (p. 2). The remaining 48% were identified as *academically inclusive courses,* "typical college courses attended by students with ID and other college students" (p. 2). Similar findings were reported for year 2 (2016-2017) of the Transition Postsecondary Programs for Students with Intellectual Disability (TPSID) model demonstration projects, in which 37% of the TPSID programs enrolled students in specialized courses for more than 50% of their course hours, and 45% of enrollments were in academically inclusive courses (Grigal, Hart, Papay, & Smith, 2018). The NCC described these

findings as concerning, given that these programs were federally funded to "create or expand high-quality, inclusive programs for students with intellectual [disability]" (p. 16).

The NCC developed a set of eight standards for inclusive higher education programs, aligned to HEOA's CTP programs, and universal design for learning framework requirements (Grigal, Hart, & Weir, 2012b; Weir, Grigal, Hart, & Boyle, 2013). While the eight standards include 18 quality indicators and 87 benchmarks, only three benchmarks refer specifically to student access or progress. Standard One, Academic Access, includes two benchmarks specific to access and progress. One benchmark refers to the existing course enrollment standard as an academically inclusive course, rather than an academically specialized course. A second benchmark refers to objective evaluation data on college course participation, but is not clear whether the reference is to program or student evaluation data. The third is in Standard Five, Alignment to College Systems and Practices, and identifies the need to align the students' satisfactory academic progress (SAP) with institutional policy. Each institution defines their policy for satisfactory academic progress (for students who receive Federal Student Aid), generally measured by grade-point average (GPA) and number of credits earned in a given timeframe. For students with intellectual disability who are often auditing college courses and may receive only a pass or fail grade rather than a GPA, this standard provides limited guidance and is essentially left to each inclusive PSE program's interpretation.

Challenges in Practice

Recognizing the broad nature of PSE programs for students with ID, Thoma (2013) recently conducted a qualitative study of nine postsecondary programs to examine characteristics associated with this phrase. Programs continued to differ, as noted previously, in aspects of program components such as length of program, eligibility criteria, and mission and priorities. Examination of program activities, such as lesson plans, instructional materials and portfolios of

student work, offered a glimpse into how students accessed course content and potentially how their progress was measured. Programs designed to meet and align with individual student goals however, were found to face additional challenges in measuring student progress towards program completion. Grigal and colleagues (2012a) found a similar level of variability in their survey of 149 PSE programs, including alignment to "practices for students without ID, level of inclusion of students with an ID in typical college classes, types of academic opportunities provided, focus of the program, and funding approaches" (p. 229).

Thoma (2013) also identified challenges faced by program directors, which emerged as a theme of "complex layers" (p. 295). Examples of such challenges included investment of considerable time in navigating university administration/systems, working with school districts and/or other community partners, and ongoing program improvements. Programs continue to face challenges in making impactful programmatic improvements without the availability of consistent program details to inform evidence-based practices. This hinders the intended purpose of postsecondary programs: to offer instruction in inclusive settings and enhance employment outcomes for students with ID (Thoma et al., 2011).

Ten years since passage of the HEOA, higher education continues to grapple with the inclusive PSE initiative. Over the past few decades, researchers have worked to track progress and development of inclusive PSE program components. Thoma and colleagues suggest the need for continued research, on the "nature, goals, and objectives of individual [PSE] programs" (p. 187, 2011). Despite the increasing number of inclusive PSE programs available to students with ID, research continues to be sparse on program details specific to aspects of students' access to and progress in college courses (Neubert, Moon, & Grigal, 2004). Think College's most recent annual report identified that 31 percent of the courses in which students with ID were enrolled, were for standard IHE credit, while the balance of course participation reflected audit, unofficial

attendance, or non-standard IHE credit (available only to the students in the inclusive PSE program) (Grigal, Hart, Smith, Papay, Domin 2018). What are the coursework expectations of the students who do not receive standard credit for the college courses they attend? How is student learning measured in these circumstances (Papay, Grigal, Hart, Kwan, & Smith, 2018)? How are students graded? These program details are critical to improve success in college and employment for students with ID. In an effort to address this gap, a systematic review of the research was conducted. In this study, the authors sought to answer the following questions:

1. How are students with ID, who attend academically inclusive college courses, accessing course content?
2. How is the academic progress of students with ID, who are enrolled in academically inclusive college courses, measured?

Method

Selection Criteria and Coding

The authors conducted a review of the extant peer-reviewed research of inclusive PSE programs from 1987 through 2017. Keywords used in the search included *intellectual disabilities, postsecondary education,* and *academic access*. As a result of Neubert and colleagues' findings (2001), that PSE programs located on college campuses remained segregated rather than academically inclusive, the authors chose a 30-year period that bypassed the 1970s and much of the 1980s. Additionally, though laws and definitions vary significantly outside of the U.S., this area is sufficiently new as to necessitate the inclusion of all ideas and initiatives. Four inclusion criteria were employed in a two tiered review process. A PRISMA flow chart is provided, in Figure 1, to delineate the review process (Moher, Liberati, Tetzlaff, & Altman, 2009).

Tier one included a review of abstracts filtered through the initial three criteria: 1) the article involved a PSE program for students with ID on a college campus; 2) the article described a qualitative, quantitative, or mixed methods study; and 3) students with ID represented at least one participant in the study. Neubert and colleagues' (2001) definition for PSE for persons with ID was used:

> a program that provided education or vocational training to individuals with [intellectual disability] or other [severe disabilities] within two-or four-year colleges or universities, or adult education programs. Programs for adults who had exited the public schools were included, as well as for those students who were 18 to 22 years old, enrolled in public schools and receiving services or instruction within a post-secondary setting (p. 156).

Descriptive, opinion, and non-peer-reviewed literature were excluded from this review as were studies not occurring on a college campus or in which no student with ID was a participant. The term *intellectual disability* is defined as limitations in intellectual functioning, represented by an IQ of ≤70, and in adaptive behavior (i.e., conceptual, social, and practical skills; American Psychiatric Association, 2013). Studies were included if at least one student participant was reported with ID or a measured IQ of 70 or less.

Tier two of the process included full article review to identify whether students with ID, as study participants, were enrolled or attended academically inclusive courses on the college campus. Grigal and colleagues' (2015) definition of an academically inclusive course was used: "... college classes that are a part of the typical college course catalog and are available to all students in the college" (p. 18). In this definition, then, students with and without ID took the same courses and navigated the same content and materials. Students with ID could have taken the course for credit, audit, or attended informally.

To answer the study questions, the authors next explored how students with ID accessed academically inclusive course content in the eligible studies, and how progress was measured in the academically inclusive course content in the eligible studies. Academically inclusive course content access was defined as methods by which students engaged in course readings, activities, lectures, and assignment or assessment completion. Examples included, but were not limited to tutoring, accommodations, modifications, technology, and mentoring. Finally, a study was identified as measuring student progress in the academically inclusive course if it measured change in, or scores for, course activity or learning through, but not limited to tests, assignments, attendance, participation, or studying.

Results

Article Coding

The initial keyword and abstract search yielded 2,926 articles. The first and second authors conducted an abstract review and recorded articles which appeared to meet the tier one criteria. A total of 132 articles, from 61 journals, were identified for a subsequent in-depth review and coding of the tier one criteria. From the full examination of the 132 articles, two authors identified 43 studies that met the tier one criteria and were subsequently coded for tier two criteria. Each article was coded independently. The first author reviewed and coded 132 articles and the third author, 130. Areas of disagreement were discussed and reconciled establishing a 95% inter-rater agreement. The excluded articles either did not include students with ID as study participants, were not located on a college campus, or were other than studies, such as program descriptions, position papers, or literature reviews. Of the 43 studies that met the tier one criteria, 29 (67%) were quantitative, 12 (28%) were qualitative, and 2 (5%) were mixed methods. Twenty-eight journals published the 43 studies; five journals specific to developmental or

intellectual disability and autism published 13 of the articles (30%; *Education and Training in Autism and Developmental Disabilities, Focus on Autism and other Developmental Disabilities, Journal of Autism and Developmental Disabilities, Journal of Intellectual Disabilities, and Journal of Policy and Practice in Intellectual Disabilities),* two technology journals published seven of the articles, (16%; *Journal of Special Education Technology* and *Journal of Research on Technology in Education*), and three journals from the field of higher education published four of the studies (9%; *Journal of Postsecondary Education and Disability*, *Journal of Student Affairs Research and Practice*, *International Journal of Research & Method in Education*, and *Journal of College and University Student Housing*).

Academically inclusive courses. In coding the second tier criteria, specific to attendance or enrollment in academically inclusive courses by students with ID, the authors coded 23 of the 43 eligible studies (53%) as unidentifiable. There was simply not enough information provided about the PSE context to make the determination. In three of the studies (7%), students with ID were identified as attending academically specialized courses. Finally, in 17 of the studies (40%), the authors were able to determine that students with ID were enrolled in academically inclusive courses with their peers without ID. In a number of these studies, scholars described the inclusive PSE programs by referencing CTP requirements: students attending credited, non-credited, or audited courses with their peers without disabilities or 50% of students' courses were with students without disabilities (Hendrickson, Woods-Groves, Rodgers, & Datchuk, 2017; Reed, Hallett, & Rimel, 2016; Stefansdottir & Bjornsdottir, 2016). In two of the studies, where the PSE context was described as "*integrated collegiate experience including academic coursework"* (Hua, Morgan, Kaldenberg, & Goo, 2012, p. 347; Hua, Woods-Groves, Kaldenberg, Lucas, & Therrien, 2015, p. 33), the authors interpreted the context as inclusive course enrollment.

Though 53% of the studies referenced students with ID attending a PSE program on a college campus, 79% of those had little if anything to do with the students' inclusive college coursework. They focused instead, on areas such as job internships and employment (Gilson & Carter, 2016; Green, Hughes, & Ryan, 2011; Ross, Marcell, Williams, & Carlson, 2013); unrelated academics (e.g., social writing), video comprehension, and learning (Evmenova & Behrmann, 2014; Evmenova, Behrmann, Mastropieri, Baker, & Graff, 2011; Hua, Ford, Yuan, Monroe, & Therrien, 2014; Kubiak, 2017; Wang, Eberhard, Voron, & Bernas, 2016); independence skills including travel (McMahon, Smith, Cihak, Wright, & Gibbons, 2015; Price, Marsh, & Fisher, 2017); life outcomes following college (Butler, Sheppard-Jones, Whaley, Harrison, & Osness, 2016); social relationships and well-being (Hendrickson, Vander Busard, Rodgers, & Scheidecker, 2013; Saarinen, Jahnukainen, & Pirttimaa, 2016); and vocational rehabilitation support of PSE programs (Grigal, Migliore, & Hart, 2014).

Academic access and progress. Table 1 provides a list of the 17 studies that met criteria for the final review: studies which included at least one PSE student with ID as a participant, on a college campus, and attending inclusive college courses. Of the 17 studies, only four (21 %), two single subject, one mixed methods, and one qualitative, provided any description or identification of how students with ID accessed academically inclusive course content (Casale-Giannola & Kamens, 2006; Cazzell et al., 2016; Reed, et al., 2016; Stefansdottir & Bjornsdottir, 2016) and only two of those, discussed measuring student progress (Casale-Giannola & Kamens, 2006; Stefansdottir & Bjornsdottir, 2016). Two single subject studies provided access to academic content through sight-word acquisition (Cazzell et al., 2016), and split page notetaking (Reed, et al., 2016). The two qualitative studies (one a mixed methods) focused on an exploration of the phenomenon of inclusive PSE through the eyes of the students with ID (Stefansdottir &

Bjornsdottir, 2016) and an exploration of the impact of the college experience on a student with ID, her classmates, and the peer mentor (Casale-Giannola & Kamens, 2006).

In the first single subject investigation, a multiple-baseline across participants study, Cazzell and colleagues (2016) evaluated the use of a PowerPoint flashcard reading intervention with three college students with ID (IQ range 53-65). Researchers identified health-related words, using a common text from the students' academically inclusive nutrition courses, for a word acquisition intervention. The students were assessed with second to third-grade reading comprehension levels prior to the study. Each three-minute intervention was comprised of three trials of 15 words each. Single-word PowerPoint slides were presented for four seconds each. After two seconds, a recording of the word was played. Each student evidenced increased sight-word recognition of the college-text words, though lacked within-subject consistency of the word acquisition rates. Researchers posited that this lack of within-subject consistency may have been reflective of novelty effects, fatigue, boredom, or dissatisfaction. Treatment integrity and interobserver agreement both reflected acceptable measures at 100% and 93%, respectively. Cazzell and colleagues' research evidenced students' access of postsecondary content, through the recognition of the skill discrepancy and the intervention necessary for comprehension of the college level vocabulary. However, the lack of a measure of effect on the understanding of the college text sight-words in the students' coursework or assessments is a critical missing component for social validity.

In the second single subject investigation, Reed and colleagues (2016) conducted a multiple baseline across participants study with three college students with autism, one of whom scored below a 70 IQ. Students, enrolled in the community college program, were able to audit one introductory college course per semester (e.g., speech, American history, geology, college success, computer literacy, or graphic design) in addition to their specialized curriculum.

Researchers explored the students' ability to learn and employ a split-page notetaking format during two academically inclusive courses (American history and computer literacy) through a problem-solving intervention approach. Each student received the instructional note-taking intervention, including topics, subtopics, details, paraphrasing, abbreviations, and symbols. A video lecture was included in the instruction for note-taking practice and discussion. The interventionist then attended the college course with the students, each taking their own notes. For 14 weeks, student notes were compared to the interventionist's notes for match and scoring data points for topics, subtopics, detail, abbreviations, and relevant content. While researchers reported improved access to course content, student note-taking, and class behavior, they did not measure progress in content learning or social validity.

In the mixed methods study, Casale-Giannola and Kamens (2006) employed case study inquiry and survey analysis to explore the impact of a college course experience on a student with developmental disability, her classmates, and her mentor. The focus of the case study was a young woman identified with Down syndrome and developmental disability. Researchers did not provide any further information about the participant's level of support needs. For the purpose of this review, it was posited that the young women had an intellectual disability due to the identification of both Down syndrome and developmental disability. The introductory public speaking course in which the participant and 28 peers without ID were enrolled was clearly academically inclusive. Information regarding access to academic content was summarized through the mentor's perspective. The mentor reported revising quizzes, paraphrasing lectures, taking notes, adapting assignments, and organizing ideas for and assisting in practice of speeches. Discussion of progress in the course content reflected challenges and inconsistencies in various stakeholder expectations, including those of student, mentor, and instructor. The use of the student's college speech course to fulfill high school transition goals led to conflict about how she

should be graded: based on her high school goals or on the level of her work compared to that of her college peers without ID. Researchers also reported significant challenges in stakeholders' identification of, and agreement on the purpose, goals, and expectations of the student and her experience in the college course. The student's course grade was based on "performance of typical course objectives and standards, which were met through adaptations and modifications" (p. 349). While researchers report that the student completed the course, with a C, it is unclear if this was an audited or credited course. The student also evidenced conflict regarding the importance of her grade in her own comments, "I want an A or an A+, but it doesn't matter" (p. 349).

In the final study, Stefansdottir and Bjornsdottir (2016) conducted interviews and focus groups with 14 university lecturers and 39 students with ID. The goal of the University of Iceland's 2-year part-time inclusive PSE program was to prepare students for employment in the education field, with an emphasis "placed on providing students with practical knowledge and skills in inclusive education settings in order to promote their participation in society" (p. 333). While all participants were identified as individuals with ID, researchers did not define ID nor provide additional defining details beyond students' age range of 23-44 and a nearly 2:3 ratio of men to women. Each of the participants attended and graduated from the University of Iceland during the five-year study period.

The researchers sought to identify the students' experiences and perspectives on, and level of support for, the academics and social life of an inclusive postsecondary vocational certificate program. In their interviews, most students reported primarily positive attitudes from the instructors, while one felt they were spoken to as little children. Students criticized, however, the limited courses and program of study available, citing the field of education as their only option. Others wanted to continue their coursework, beyond the two-year program. Some suggested the

need for a higher level of support with assignments, campus navigation, and daily life skills. The lecturers selected for an interview were those from the inclusive PSE program who had taught an inclusive college course. The researchers employed unstructured interviews to explore the impact of the diploma program on their teaching and the school environment. Analysis of the data reflected individualization of the level of adaptations and supports, but that "practical courses were commonly more accessible than theoretical courses" (Stefansdottir & Bjornsdottir, p. 336). The full-time program staff member was reported to coordinate student mentors and facilitate course instructors' planning, adaptations, and evaluations. In some cases, instructors reported not making any adaptations and that the students with ID did the same work as the degree-seeking students. However, researchers also reported that the lecturers faced a number of instructional challenges including the increased level of preparation required, adaptation of assignments, evaluations and study outcomes. The measurement of student progress in the course evaluations, was a frequently mentioned concern. Some lecturers provided only extra time and the same exams as their peers without ID, while others adapted or created completely different exams. Additionally, some questioned the fairness of the evaluation, while others felt that students earned the PSE credits even with adapted evaluations.

Limitations

The conclusions of this research review should be read with care, as with any study, each decision requires a balance of the possible limitations and benefits each subsequently presents. The review was designed as one of peer-reviewed research rather than of the extant literature. This decision, while made to focus the review, may also have introduced publication bias by omitting dissertations and non-peer reviewed articles, as well as narrowed the results, by omitting program descriptive articles (e.g., Blumberg et al., 2008; Carroll et al., 2008). Second, the focus on studies in which students with ID represented at least one participant, may have limited the

inclusion of studies that focused on students with autism as participants but may very well have included students with a comorbidity of autism and ID/IDD, as well as older studies in which the term mental retardation was still used. Additionally, as a result of the minimal studies identified that met the criteria, the authors chose to include studies which may have barely met the IQ requirements, did not definatively identify ID as the disability, or may not have followed the same classification system as in the U.S. Finally, the sole use of the terms postsecondary education and intellectual disability, while current, may have limited the number of studies found. Expanding the keywords to include such terms as college, technical school, mental retardation, and developmental disability may have increased the number of studies reviewed.

Discussion

In this systematic review of research, three factors essential to the inclusive PSE initiative, were considered: 1) students' enrollment or participation in academically inclusive college courses, 2) students' access to college course content, and 3) measurement of students' progress in the course content. As a fairly new initiative in higher education, students with ID accessing and learning college content, the practitioners' understanding of effective tools for the PSE setting, content, and assessment of academic learning for these students, is an instrumental factor in the continuing development of successful inclusive PSE programs, successful students, and overall development of a diverse academia (Kleinert, Jones, Sheppard-Jones, Harp, & Harrison, 2012). This review illuminates the significant gap in our field of the lack of knowledge and understanding of such access to and progress in postsecondary academic course content for students with ID.

Forty-three studies published between 1997 and 2017 were identified, with an inclusive PSE program, on a college campus, and with at least one student participant with ID. However,

in just over half of the studies, there was insufficient context description to confirm attendance in academically inclusive college courses. To enable comparison and progress in the field, it is critical that researchers provide clear contextual information as to the types of courses (academically inclusive or academically specialized) in which students with ID are enrolled or participating. Further, of the studies in which attendance in academically inclusive courses could be confirmed, 91% focused on areas of employment, social writing, video comprehension, travel, life outcomes after college, social relationships, well-being, and Vocational Rehabilitation's support of PSE programs. Only four (9%) studies between 1997 and 2017 had any direct relationship to the students' inclusive college coursework. This paucity of research in college coursework relevant to progress in the academic content for students with ID, though not surprising, should be a call to action.

While each of the aforementioned areas of study is critical toward the development of self-determined lives for students with ID, the HEOA was clear; students with ID should be attending college courses, with their non-disabled peers, *focusing on academics* and culminating in employment. In order to maintain current legislative and fiscal support evidenced in the passage of HEOA in 2008, it is imperative that researchers begin to consistently address students' access to the college courses *and* coursework, as well as the measure of students' progress in that coursework. Intervention research is needed on the efficacy of the accommodations and modifications implemented for students in academically inclusive college courses, and the best methods of measuring college-level coursework progress by this new population of college student. This line of research requires clear identification of the types of courses students are attending (academically inclusive or academically specialized), the type of credit students are earning (standard or non-standard), how their progress is assessed, and an identification of the specific accommodations, individualized supports, and modifications students are utilizing.

Clear and consistent academic expectations must be provided for the students with ID and their professors in order to measure progress in the college content (Casale-Giannola & Kamens, 2006; Neubert et al., 2004; Thoma, 2013). Wehmeyer's (2006) description of the first phase of inclusion in the K-12 general education system, as the provision of resources and physical inclusion in the general education classrooms for students with significant disabilities appears to align with that of inclusive PSE today. Wehmeyer however, raised the concern then and it is relevant today, "Focusing on access instead of progress lowers the expectations for our efforts. Access to the content contained in the general education curriculum is a necessary but not sufficient prerequisite to student progress" (p. 323). Access to college campuses and indeed, the classrooms, is still not student progress and insufficient for 21st century knowledge and skills required of all students. In today's fast-paced climate of ever-new technologies, life-long-learning is the new normal. This is especially critical for individuals with intellectual disability. As postsecondary education continues to open its doors to students with ID, it is critical to be sure that these students are expected to learn, given the tools to access the content, and assessed on their learning.

Perhaps the learning of college-level content has not been tackled due to the complexity and challenges inherent in providing access to and measuring progress in college level content with the often considerable gap in the reading and writing levels of students with ID. It is time to enable students with ID to utilize technology in both accessing and responding to the academic content. Technology is ubiquitous and in many cases required in secondary schools, where every student is using a laptop, and postsecondary schools, where students either bring their own or use a desktop computer. For students in an inclusive PSE program, the cell phone and computer programs and apps have created a bridge to opportunity and mastery in the routines of daily college life (e.g., fitness budgeting, calendar, lists, notes, PDF readers, text to

speech, speech to text, and city bus schedulers; Nauheimer, Ryan, & Peebles, 2015). Through the introduction of universal design (UD) in postsecondary education (HEOA, 2008) and the increasingly compensatory technologies available for daily living, perhaps, as Edyburn (2007) suggests, it is time to "intervene with compensatory strategies, including assistive technology…[for students with ID]. in order to engage in the higher order processes of extracting meaning from text" (p. 146).

The stagnant nature of research regarding access to and progress in college courses by students with intellectual disability and the confusion on the definition and scope of academic inclusive programs is holding back the potential impact of these programs for all students. Without the expansion of intervention research, that details program characteristics and examines methods of access to and progress in the college content for all students, institutions of higher education will not possess the evidence-based tools necessary to ensure that all college courses are universally designed and allow all students the opportunities to succeed.

If we, as educators, are willing to move beyond access, toward the expectation of this student population's ability to learn the college content, we must be willing, like Mark Gold (1980) to bring our instructional technologies up to the task. If not, and inclusive PSE remains only a *collegiate experience* in which students with ID learn independent living, social, and employment skills in an age-appropriate environment, then we have squandered a viable resource of individuals, learning, and immense growth?

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Table 1. Studies of Students in Academically Inclusive Courses

Authors	Study Type	Study Topic	Access	Progress
Casale-Giannola & Kamens (2006)	Case study and survey analysis	Challenges, benefits and implications of inclusive transition opportunities	Assignments, adapted course objectives and standards	Quizzes, assignments
Cazzell et al., (2016)	Single subject	Flash-card reading intervention	PowerPoint flashcards of course text words	
Reed, Hallett & Rimel (2016)	Single subject	Note-taking intervention	Note-taking in AIC	
Stefansdottir, & Bjornsdottir (2016)	Program evaluation	Students' and lecturers' views and experiences	IEP, adapted assignments and student outcomes	Exams, adapted evaluations
Chezan, Drasgow & Marshall (2012)	Single subject	General-Case programming to teach collateral academic skills		
Eisenman, Farley-Ripple, Culnane, & Freedman (2013)	Social network analysis	Exploring the social networks of PSE students with ID		
Hendrickson, Therrien, Weeden, Pascarella, & Hosp (2015)	Program evaluation	Engagement of 1st year degree-seeking students with 1st year students with ID		
Hendrickson, Woods-Groves, Rodgers & Datchuk (2017)	College adjustment program evaluation scales	Student and parent perspectives and comparison of college experience on 5 dimensions		
Hosp, Hensley, Huddle, & Ford, (2014)	Single subject	Curriculum-based measurement as indicators of academic performance		

Hua, Morgan, Kaldenberg, & Goo (2012)	Single subject	Three-step TIP strategy
Hua, Woods-Groves, Kaldenberg, Lucas, & Therrien (2015)	Single subject	Three-step TIP strategy
Kelley, Rivera, & Kellems (2016)	Single subject	Google Glass orientation
Kubiak (2015)	Phenomen-ographic	Students' voice to describe prior to, during, and post learning
McMahon, Cihak, & Wright (2015)	Single subject	Augmented reality as a navigation tool
McMahon, Cihak, Wright, & Bell (2016)	Single subject	Augmented reality to teach science vocabulary
Schwantes & Rivera (2017)	Single subject	Impact of community music therapy on relation-ship building
Smith, Cihak, Kim, McMahon & Wright (2017)	Single subject	Augmented reality using app for wayfinding skills

PRISMA 2009 Flow Diagram

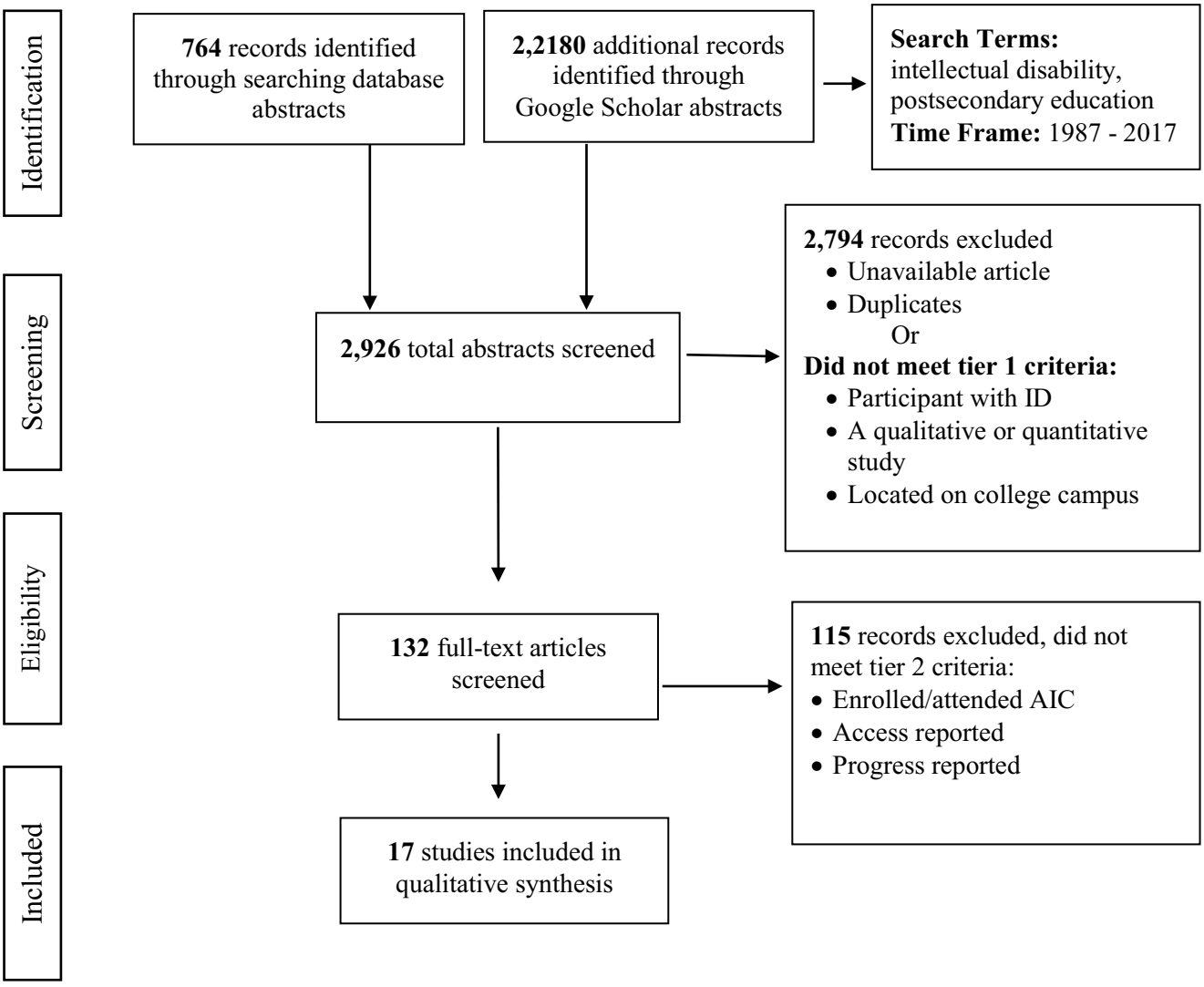

Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Flow Diagram