

Perspectives of North American Postsecondary Students with Learning Disabilities: A Scoping Review

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Abstract

Despite the existence of policies aimed at ensuring equitable opportunities for individuals with disabilities, at the postsecondary level, students with learning disabilities and/or attention deficit/hyperactivity disorder have lower enrollment and completion rates than those without disabilities. To optimize policies and practices to support students with learning disabilities, it is crucial to incorporate the perspectives and experiences of such students. This paper presents the results of a scoping review of research based in the United States and Canada that addressed the perspectives and experiences of students with learning disabilities and/or attention deficit/hyperactivity disorder regarding postsecondary education. The five-step process for scoping reviews outlined by Arksey and O'Malley (2005) was used. A search of 10 databases resulted in 44 articles meeting the inclusion criteria, with most studies conducted in the United States ($n=35$) and using qualitative designs ($n=37$). Six themes were identified using an inductive analysis process: (1) supportive and non-supportive experiences with professors, faculty and counselors; (2) experiences of negotiating and receiving formal accommodations; (3) intrinsic factors affecting success; (4) influence of variability in timing and understanding of diagnosis; (5) stigmatization of disability status; and (6) social factors affecting success. Findings support the need for inclusive learning environments, better access to accommodations, collaboration between all stakeholders, and educational initiatives to combat negative attitudes and beliefs regarding students with learning disabilities among peers and faculty. Future research directions are also identified.

Keywords: learning disability, attention deficit/hyperactivity disorder, accommodations, stigma, social factors, self-knowledge

Education is a determinant of health, well-being, and community engagement (Canadian Council on Learning, 2010), and in North America, postsecondary education has become increasingly important. A United States (U.S.) Bureau of Labour Statistics (2014) survey indicated that individuals who attained postsecondary education had, on average, a lower unemployment rate and higher earnings than those who did not. As well, the U.S. Bureau of Labor Statistics' report (2015) on Employment Projections for 2014-2024 indicated that postsecondary education is required for entry into 11 of the 15 fastest growing occupations. Similar findings have been reported by Canadian organizations; for example, a Canadian Standing Senate Committee (2011) reported a doubling of jobs for postsecondary graduates to 4.4 million between 1990 and 2010, whereas the number of

jobs for individuals with a high school diploma or less declined by 1.2 million.

However, despite increasing numbers of individuals with disabilities entering postsecondary education and enhanced legislative frameworks to support the right to education (Katsiyannis, Zhang, Landmark & Reber, 2009; Ontario Ministry of Economic Development, Employment and Infrastructure, 2014), individuals with disabilities have lower enrollment and completion rates than those without disabilities (National Center for Special Education Research, 2009). In particular, students with learning disabilities and/or attention deficit/hyperactivity disorder (ADHD) have lower rates of postsecondary completion (Statistics Canada, 2013). As one example, the U.S.-based National Center for Learning Disabilities (2014) indicated that the rate of college completion for students

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with learning disabilities was 41%, compared to 52% of the general student population.

A significant number of persons in the United States and Canada have been identified as having a learning disability or ADHD, with respective estimates of 4.6 million and 622,300 adults (National Center for Learning Disabilities, 2014; Statistics Canada, 2013). In the U.S., learning disabilities represent the largest category of school-aged students receiving special education services. As well, students with learning disabilities are now enrolling in postsecondary education at approximately the same rate as their peers without learning disabilities (National Center for Learning Disabilities, 2014). Therefore, with increasing numbers of students with learning disabilities attending postsecondary education, it is imperative to provide appropriate services and accommodations to support learning and degree completion. Although they are separate disabilities, each with their own unique challenges that impact on learning needs (American Psychiatric Association, 2013); learning disabilities and ADHD were grouped together for the purpose of this review. This was done because these two disabilities are frequently grouped together in the literature, and because they are often comorbid (American Psychiatric Association, 2013; National Center for Learning Disabilities, 2014; Statistics Canada, 2013). Additionally, while individuals with learning disabilities and ADHD may experience different challenges, the functional consequences for academic performance often overlap (American Psychiatric Association, 2013).

Challenges in postsecondary contexts encountered by students with learning disabilities and ADHD extend beyond academic demands to encompass social, emotional, and behavioural aspects (Heiman & Kariv, 2004). For example, in the social realm, students with disabilities must create new friendships within an exceptionally diverse setting (Cunningham, 2001). As another example, in the emotional realm, students may question their own identity, including the nature and impact of their disability on their experiences and future prospects (May, 2001). Students with learning disabilities and ADHD may also experience additional challenges given the often “invisible” nature of their disabilities. According to Mullins and Preyde (2013), invisible disability can be defined as:

an umbrella term to refer to disabilities that interfere with day-to-day functioning but do not have a physical manifestation. Although some of the symptoms of the disabilities may be exhibited behaviourally, the cause of the disability cannot be seen. (p. 148)

As the number of students with learning disabilities and ADHD pursuing postsecondary education continues to increase, the diversity of professionals, such as professors, administrators, accessibility and academic advisors, and other support personnel, involved in supporting learning needs must ensure appropriate and effective programs and services for these students, particularly within legislative environments that support students’ rights to education, equity, and accommodations. In parallel, there is a recognition of the importance, aligned with adult learning principles and a human rights focus, of incorporating students in planning programs and services so that they optimally fit their needs and experiences (Mullins & Preyde, 2013). Furthermore, a review of literature published in the *Journal of Postsecondary Education and Disability* in the past thirty years found that the second most common, and most steadily increasing, type of study involved students with disabilities describing their experiences, perceptions, and attitudes (Madaus, Lalor, Gelbar & Kowitt, 2014). Thus, this scoping review summarizes the evidence generated thus far regarding the perspectives and experiences of students with learning disabilities and/or ADHD regarding postsecondary education, to inform future programs and services. It also points to future directions for expanding this body of research.

Research Objective

This scoping review aimed to provide an overview of existing research addressing the following question: how do students with learning disabilities and/or attention deficit/hyperactivity disorder perceive, experience, and negotiate postsecondary education in North America?

Study Design and Procedure

A scoping review was conducted to outline key concepts addressed in this area of research, summarize the evidence available, and identify directions for future research. Given the focus of the study on perspectives and experiences of students, a scoping review was an optimal approach as it allows inclusion of a variety of research designs (Levac, Colquhoun & O’Brien, 2010). The reviewers used Arksey and O’Malley’s (2005) steps, including: (1) identifying the research question; (2) identifying relevant studies; (3) study selection; (4) charting the data; and (5) collating, summarizing and reporting the results. These steps were carried out by the first two authors, who were occupational therapy students at the time of study completion, as well as two additional occu-

pational therapy students, with supervision from the third author, an occupational therapy faculty member.

Identifying Relevant Studies

Health sciences and education databases were searched, including: CINAHL, EMBASE, MEDLINE, PsycINFO, PubMed, Scopus, CBCA Education, ERIC, JSTOR, and ProQuest Education Journals. As recommended by Arksey and O'Malley (2005), an inductive approach was used in the study identification and selection phase, to enable search terms to be revised based on on-going results. Three categories of search terms were used, and included the synonyms of each term, along with a building block strategy in which the search terms were searched individually and then combined systematically using Boolean operators. The building block strategy used was (invisible disability OR disabilities OR non-visible disability OR learning disability OR dyslexia OR dyscalculia OR dysgraphia OR dyspraxia OR non-verbal learning disability OR attention deficit disorder OR attention deficit/hyperactivity disorder) AND (experience OR experiences OR perspective OR perspectives OR negotiate) AND (postsecondary education OR postsecondary institution OR tertiary education OR higher education OR university OR college OR postsecondary).

Searches were limited to peer-reviewed literature published in English from 1994 to 2014 conducted in the Canadian and/or U.S. context. Additional inclusion criteria were that an article addressed a research study (qualitative, quantitative, or mixed methods); focused solely on the perspectives and experiences of students with learning disabilities and/or ADHD, or included a section in which such perspectives and experiences were presented separately; and, focused on postsecondary education, or included a section in which results pertaining to postsecondary education were presented separately. The time frame of 1994 to 2014 was selected given that significant policy changes occurred in the United States and Canada related to disability and inclusion in the early 1990s. For example, both the 1990 Americans with Disabilities Act (Department of Justice, 1990) and Canada's five-year National Strategy for the Integration of Persons with Disabilities (1991-1996) aimed to promote inclusion of individuals with disabilities (Prince, 2004; United States Department of Justice Civil Rights Division, 2015). We focused on Canada and the U.S. only, given the diversity of policies across national contexts.

Study Selection

The list of 10 databases was split in half, with two reviewers searching each database. A title and abstract screen was first conducted on the resulting 31,935 arti-

cles in relation to the inclusion criteria. To increase inter-rater reliability, as suggested by Levac et al. (2010), two reviewers applied the inclusion criteria to each title and abstract independently to determine fit. When fit was difficult to determine, or the two reviewers disagreed on inclusion, the article was included for full-text screen. At this point, all duplicate articles were also removed, resulting in 242 articles.

The 242 articles were divided evenly between the four reviewers for a full-text screen in relation to the inclusion criteria. Each article was read and independently assessed for relevance by one reviewer. Where there was uncertainty about the relevance of an article ($n=55$), as is suggested by Levac et al. (2010), the other three reviewers were consulted, and the inclusion decision was reached by consensus. The research supervisor was consulted for the few discrepancies that could not be resolved. Overall, 44 articles were ultimately included in the review.

Charting the Data

A data extraction table was constructed to extract relevant information regarding methodology, methods, and findings, including: study purpose; research question; theoretical perspectives; disciplinary location; rationale for study; methodological approach; study design; location; type of postsecondary institution; number of participants; participant characteristics; type of disability; sampling methods; data collection methods; data analysis methods; main findings: supports; main findings: barriers; main findings: student's strategies; other important findings; author's conclusions; limitations; implications for future research/practice/policy; and, other implications presented. The process began with all reviewers and the research supervisor extracting data for three randomly selected articles, as a way of ensuring the table was comprehensive and being used in a reliable manner across reviewers. Through this iterative process, as was suggested by Levac et al. (2010), alterations were made to ensure the table captured all information and findings relevant to our question. Once the table was finalized, each reviewer was randomly assigned 10 or 11 articles and independently completed the data extraction tables for these.

Collating, Reporting, and Summarizing the Results

Using an inductive process, each reviewer examined their completed data extraction tables to determine categories across the findings and implications of the studies. Next, the reviewers came together to identify categories that crossed all studies. The reviewers collaboratively condensed findings into themes by looking for patterns in findings across categories.

Findings

Of the 44 articles included (see Table 1), the majority were conducted in the United States ($n=35$). Qualitative studies were most common ($n=37$), encompassing the use of qualitative interviews ($n=20$), focus groups ($n=8$), phenomenology ($n=6$), ethnography ($n=4$), case study design ($n=3$), reflexive case study ($n=2$), and grounded theory ($n=2$). Three articles reported on quantitative web-based surveys. The remaining four articles used a mixed methods design, consisting of surveys and qualitative interviews or focus groups. The findings are organized into six themes: (1) Supportive and Non-Supportive Experiences with Professors, Faculty and Counselors; (2) Experiences of Negotiating and Receiving Formal Accommodations; (3) Intrinsic Factors Affecting Success; (4) The Influence of Variability in Timing and Understanding of Diagnosis; (5) Stigmatization of Disability Status; and (6) Social Factors Affecting Success.

Supportive and Non-Supportive Experiences with Professors, Faculty, and Counselors

Supportive and non-supportive experiences with professors, faculty, and counselors were discussed in 25 articles. In several studies, students indicated that support from professors or personnel from university counselling services was the most important factor in their academic performance (Banks, 2014; Bolt, Decker, Lloyd & Morlock, 2011; Cornett-Devito & Worley, 2005; Denhart, 2008; Duquette, 2000; Erten, 2011; Greenbaum, Graham & Scales, 1995; Hadley, 2006; Hinckley & Alden, 2005; Koch, 2006; Litner, Mann-Feder & Guerard, 2005; Mytkowicz & Goss, 2012; Quinlan, Bates & Angell, 2012; Stage & Milne, 1996). One-on-one interaction with professors and opportunities to build relationships were seen as key, particularly when students experienced instances of helpfulness, concern, and accommodation for their disabilities (Cornett-Devito & Worley, 2005; Denhart, 2008; Duquette, 2000; Erten, 2011; Greenbaum et al., 1995; Hadley, 2006; Hadley & Satterfield, 2013; Hutcheon & Wolbring, 2012; McCleary-Jones, 2008; Koch, 2006; Mytkowicz & Goss, 2012; Nielson, 2001; Perry & Franklin, 2006; Quinlan et al., 2012).

Supportive instructors provided individualized instruction to meet student learning needs (Greenbaum et al., 1995; Mytkowicz & Goss, 2012; Quinlan et al., 2012), built rapport, and listened attentively to concerns (Cornett-Devito & Worley, 2005; Hadley & Satterfield, 2013; Koch, 2006), demonstrated knowledge about learning disabilities and accommodations (Bolt et al., 2011; Cornett-Devito & Worley, 2005),

and were available outside the classroom to support learning needs (Cornett-Devito & Worley, 2005; Hadley & Satterfield, 2013). Such professors took the time to work with students and focussed on their strengths to foster self-confidence and ability (Cornett-Devito & Worley, 2005; Hadley, 2006; Koch, 2006; Quinlan et al., 2012). The students also reported that an effective and informed instructor did not simply have a positive, non-judgmental view of disability, but also was aware of difficulties students face in developing strategies to address unique learning needs. Supportive educators were able to challenge and engage students in exploring ways to overcome barriers to learning (Cornett-Devito, & Worley, 2005; Denhart, 2008; Erten, 2011; Koch, 2006; Mytkowicz & Goss, 2012; Quinlan et al., 2012; Velde, Chapin & Wittman, 2005).

Students described the nature of relationships with learning disability support personnel in a variety of ways, often combining the concepts of friend, mentor, and guide. Students felt appreciated and understood when disability support personnel ensured they were able to obtain appropriate accommodations, and helped them learn how to prioritize and study (Hadley, 2006; Koch, 2006; Perry & Franklin, 2006). Furthermore, guidance counselors and learning disability specialists were seen to play a crucial role in the self-development of students, providing social support and enhancing academic performance (Denhart, 2008; Hinckley & Alden, 2005; Koch, 2006; Mytkowicz & Goss, 2012).

In a smaller number of studies, students reported negative experiences with faculty members (Duquette, 2000; Hadley & Satterfield, 2013; McCleary-Jones, 2008; Nielsen, 2001; Troiano, 2003). A general lack of cooperation from instructors, faculty, and administrators was reported in three studies (Cawthon & Cole, 2010; Denhart, 2008; Greenbaum et al., 1995), and their negative attitudes were a barrier for students who required additional support for learning needs (Denhart, 2008; Erten, 2011; Hadley, 2006, 2007; Hadley & Satterfield, 2013; Lightner, Kipps-Vaughan, Schulte & Trice, 2012; Quinlan et al., 2012). Non-supportive instructors demonstrated a lack of knowledge and awareness about disabilities (Cawthon & Cole, 2010; Cornett-Devito & Worley, 2005; Erten, 2011; Greenbaum et al., 1995; Hadley, 2006; Nielsen, 2001) and were not flexible in providing accommodations (Cornett-Devito & Worley, 2005; Duquette, 2000; Ginsberg, 2008; Hadley & Satterfield, 2013). They refused to work individually with students to address learning needs, maintained rigid policy and teaching style, and questioned students' ability to succeed (Cornett-Devito & Worley,

2005; McCleary-Jones, 2008, Perry & Franklin, 2006; Stage & Milne, 1996).

Erten (2011) found that there was a gap in the understanding of learning disabilities, where students' academic success is taken as proof that their disability is not a problem of relevance to their academics. Students attributed their academic performance issues to this lack of understanding and course instructors' negative attitudes towards their disability (Denhart, 2008; McCleary-Jones, 2008; Nielsen, 2001; Perry & Franklin, 2006; Stage & Milne, 1996). Students reported anxiety when meeting with professors, attributing this to the assumption that professors were uninformed and unconcerned about students with disabilities (Hadley, 2006; Litner et al., 2005). In the classroom setting, students reported non-supportive aspects of instructional methods such as professors moving through class material very quickly (Erten, 2011; Hadley, 2006, 2007), and not providing adequate time (Hadley & Satterfield, 2013; Lightner et al., 2012; Troiano, 2003). As an alternative, students sought help from peers or campus support services (Cawthon & Cole, 2010; Erten, 2011; Hadley, 2006; Koch, 2006; Lightner et al., 2012; Perry & Franklin, 2006).

Experiences of Negotiating and Receiving Formal Accommodations

Within 23 articles, formal accommodations were addressed as an important aspect of postsecondary education experiences. In the context of these findings, accommodations refer to needs-based requests required in the classroom for students to successfully meet course expectations, such as extra time to complete exams, note-takers, and assistive technology. Supports and services are used to refer to the overarching framework of accessibility centres in postsecondary settings. In 11 studies, participants expressed that accommodations or supports and services were necessary for postsecondary success (Bolt et al., 2001; Csoli & Gallagher, 2012; Denhart, 2008; Erten, 2011; Ginsberg, 2008; Greenbaum et al., 1995; Hadley, 2006, 2007; McCleary-Jones, 2008; Quinlan et al., 2012; Velde et al., 2005). See Table 2 for a list of specific accommodations reported by students.

However, in several studies ($n=10$), students expressed challenges in obtaining accommodations, supports, or services (Cawthon & Cole, 2010; Denhart, 2008; Greenbaum et al., 1995; Hadley, 2006, 2007; Hadley & Satterfield, 2013; Lightner et al., 2012; McCleary-Jones, 2008; Quinlan et al., 2012; Stage & Milne, 1996). Greenbaum and colleagues (1995) found that institutional barriers, such as rigid program requirements, made securing accommodations difficult, and in three studies participants report-

ed being unaware of services and accommodations available to them (Cawthon & Cole, 2010; Dwyer, 2000; Lightner et al., 2012).

Lightner and colleagues (2012) found that students reported many reasons for delaying acquisition of services, including a lack of time; the cost of psychological testing; the perceived hassle of accessing accommodations; and a lack of knowledge about one's disability, services available, or how to access services. Requirements to disclose disability (Quinlan et al., 2012) and fears of others' negative attitudes toward disability and being singled out or socially excluded for obtaining accommodations (Denhart, 2008; Erten, 2001; Quinlan et al., 2012) were cited as reasons students decided not to access accommodations. Three studies found that students experienced frustration across different contexts, including the process for receiving accommodations or extended time, and inadequate support from proctors (Hadley, 2006, 2007; Hadley & Satterfield, 2013).

Students in three studies expressed a necessity for a better network of supports and services to meet their needs (Dowrick, Anderson, Heyer & Acosta, 2005; Hadley, 2006, 2007), and one study highlighted the need for services to educate peers and faculty (Dowrick et al., 2005). Students felt professors' lack of knowledge did not excuse not making accommodations, rather that instructors should perceive the experience as an opportunity to learn (Quinlan et al., 2012). Despite the challenges of time and institutional barriers, students reported that offices for students with disabilities could be mediators that helped them manage their lives more effectively (Erten, 2011) and learn compensatory strategies (Getzel & Thoma, 2006). Students also reported that disability campus services and instructors assisted them with organization, and with understanding their strengths and weaknesses (Erten, 2011; Hinckley & Alden, 2005; Lightner et al., 2012).

Three studies explored the experience of postsecondary students with disabilities on clinical placements (Csoli & Gallagher, 2012; Kolanko, 2003; Velde et al., 2005). Kolanko (2003) found that some participants viewed using accommodations on placement as a last resort, as they did not want to disclose their disability to clinical supervisors. In a study by Csoli and Gallagher (2012), some students would only choose to disclose their disability after determining the perceptions of supervisors regarding learning disabilities and gauging their receptivity to disclosure. These studies identified a number of clinical challenges, such as a lack of time, difficulty attending to detail (Kolanko, 2003), and organizing placement responsibilities (Velde et al., 2005).

With respect to evaluating specific accommodations, supports and services, the reviewed studies discussed both coaching and the use of technology. Coaching programs for students with ADHD were investigated in five studies, which revealed positive outcomes in relation to time management skills (Parker & Boutelle, 2009; Parker, Hoffman, Sawilowsky & Rolands, 2011, 2013), organizational skills (Ginsberg, 2008; Hinckley & Alden, 2005; Parker & Boutelle, 2009; Parker et al., 2011, 2013), goal-setting and attainment skills (Parker & Boutelle, 2009; Parker et al., 2011, 2013), coping skills (Ginsberg, 2008; Parker et al., 2013), and self-regulation skills (Parker & Boutelle, 2009; Parker et al., 2011, 2013), as well as enhanced grades (Parker et al., 2011, 2013), self-efficacy (Parker & Boutelle, 2009; Parker et al., 2011, 2013), self-confidence (Parker & Boutelle, 2009; Parker et al., 2011), motivation (Parker & Boutelle, 2009; Parker et al., 2011, 2013), and self-awareness (Parker & Boutelle, 2009; Parker et al., 2011). Aspects of the coaching relationship found to contribute to positive outcomes included a caring (Parker et al., 2011; Parker, 2013) and collaborative (Parker & Boutelle, 2009) relationship where coaches engaged in ways that accommodated students' thinking styles and personalities (Parker et al., 2011). Students appreciated coaches who held them accountable for their learning (Parker et al., 2011, 2013), which enhanced their sense of autonomy and self-directed behaviour (Parker & Boutelle, 2009).

Four studies addressed the impact of technology on student learning, specifically related to supports and barriers, communication tools, and online courses (Hollins & Foley, 2013; Koch, 2006; Madaus, Bannerjee, McKeown & Gelbar, 2011, McCleary-Jones, 2008). For example, Madaus and colleagues (2011) discussed how course communication tools, such as email, chat rooms, and discussion boards, can facilitate learning for students with learning disabilities. Students reported positive aspects of online courses to include flexibility in scheduling and easy access to information in one location. Barriers to online courses included not having enough direction; delays in response, support, or feedback from professors; sole reliance on written communication; poorly organized websites; lack of knowledge on use of the course management system; and a lack of face-to-face interaction with professors. Additionally, it was found that online software did not allow extra time for assignments or tests, making it difficult to access accommodations (McCleary-Jones, 2008).

The transition from high school to postsecondary education in relation to accommodations was discussed in seven studies (Bolt et al., 2011; Cawthon

& Cole, 2010; Hadley, 2006, 2007; Hadley & Satterfield, 2013; Lightner et al., 2012; Stage & Milne, 1996). Students expressed increased expectations to seek out their accommodations in postsecondary settings (Lightner et al., 2012). Hadley (2007) found that students were critical of the amount of accommodations available in college compared to those available in high school, and reported feeling challenged to meet academic expectations with the limited services available to them. In two studies, students found writing services and peer tutors in postsecondary institutions to provide minimal assistance (Hadley, 2006; Stage & Milne, 1996). Finally, four studies noted the importance of effective transition planning (Cawthon & Cole, 2010; Hadley, 2006, 2007; Hadley & Satterfield, 2013).

Intrinsic Factors Affecting Success

Students perceived that particular attitudes ($n=9$) were crucial factors in postsecondary academic success, such as having a strong drive to succeed (Ekelman, Bazyk & Bazyk, 2013; Greenbaum et al., 1995; Perry & Franklin, 2006; Stage & Milne, 1996), a positive attitude toward themselves and learning (Duquette, 2000; Hinckley & Alden, 2005), and a belief in their ability to overcome adversity (Greenbaum et al., 1995; Hadley, 2006; Hinckley & Alden, 2005; Velde et al., 2005). These students also viewed themselves as being equal to the challenge offered by postsecondary studies (Duquette, 2000), and as being tenacious (Ginsberg, 2008; Greenbaum et al., 1995), and motivated to succeed (Greenbaum et al., 1995; Hinckley & Alden, 2005; Stage & Milne, 1996).

However, students connected having a disability, and the associated academic challenges, with poor self-confidence (Kolanko, 2003; Nielsen, 2001), poor self-esteem (Nielsen, 2001; Orr & Goodman, 2010), feeling self-conscious (Orr & Goodman, 2010; Stage & Milne, 1996), and self-blame (Duquette, 2000). Students also compared themselves to peers (Duquette, 2000; Erten, 2011; Hadley, 2006), which sometimes led to feelings of stupidity, inadequacy, and embarrassment (Kolanko, 2003; Orr & Goodman, 2010). However, many students with disabilities were able to develop self-efficacy (Cornett-Devito & Worley, 2005; Hadley & Satterfield, 2013; Hinckley & Alden, 2005), self-confidence (Ekelman et al., 2013; Hinckley & Alden, 2005; Kolanko, 2003), self-knowledge (Hinckley & Alden, 2005), self-reflection (Hinckley & Alden, 2005), self-understanding (Denhart, 2008; Litner et al., 2005; Stage & Milne, 1996), and self-acceptance (Kolanko, 2003). Acknowledgement and belief in their potential increased students' ability to persist and be successful academically (Hinckley & Alden, 2005).

The various skills that students found beneficial in negotiating postsecondary education ($n=10$) included conflict resolution (Anctil, Ishikawa & Scott, 2008), persistence and perseverance (Anctil et al., 2008; Duquette, 2000; Greenbaum et al., 1995; Litner et al., 2005), patience (Litner et al., 2005), self-determination (Cornett-Devito & Worley, 2005; Getzel & Thoma, 2006), self-advocacy (Anctil et al., 2008; Banks, 2014; Connor, 2009; Getzel & Thoma, 2006; Hadley, 2006; Troiano, 2003), problem-solving (Getzel & Thoma, 2006), goal setting (Duquette, 2000; Getzel & Thoma, 2006), self-management (Getzel & Thoma, 2006), negotiation (Troiano, 2003), assertiveness (Troiano, 2003), resourcefulness, and creativity (Duquette, 2000). Having knowledge about oneself and one's disability was also important (Anctil et al., 2008; Getzel & Thoma, 2006; Troiano, 2003), as well as knowledge about one's rights (Getzel & Thoma, 2006) and the legal and ethical responsibilities of postsecondary institutions (Troiano, 2003).

Fifteen studies addressed how students with disabilities became increasingly proficient in self-accommodation strategies while completing postsecondary education and connected these to their overall postsecondary success. These students were able to examine their own learning style and create learning strategies specific to their strengths and weaknesses (Dwyer, 2000; Hinckley & Alden, 2005; Hollins & Foley, 2013; Litner et al., 2005; Nielsen, 2001; Perry & Franklin, 2006; Stage & Milne, 1996; Troiano, 2003; Velde et al., 2005). A number of these strategies are common to many postsecondary students, including using a calendar or planner (Ginsberg, 2008; Hinckley & Alden, 2005; Perry & Franklin, 2006), making lists (Denhart, 2008; Ginsberg, 2008; Hollins & Foley, 2013; Perry & Franklin, 2006; Stage & Milne, 1996), studying in a quiet and distraction-free area (Ginsberg, 2008; Koch, 2006; Stage & Milne, 1996), using earplugs for concentration (Perry & Franklin, 2006), highlighting and underlining important text (Denhart, 2008; Hollins & Foley, 2013; Stage & Milne, 1996), constantly reviewing the material (Stage & Milne, 1996), sitting at the front of the class (Velde et al., 2005), asking for help from classmates and friends (Stage & Milne, 1996; Velde et al., 2005), and studying using practice tests (Greenbaum et al., 1995). Other strategies that students with disabilities reported using included setting short- and long-term goals (Hinckley & Alden, 2005; Stage & Milne, 1996), creating daily routines and organizing their time (Hadley & Satterfield, 2013; Stage & Milne, 1996), setting a timer while studying (Koch, 2006), using technology such as electronic books and tape recorders (Denhart, 2008; Litner et al., 2005; Stage

& Milne, 1996), allowing extra time to accomplish a task (Denhart, 2008; Koch, 2006; Stage & Milne, 1996), using positive self-talk (Hinckley & Alden, 2005; Hollins & Foley, 2013; Perry & Franklin, 2006), and taking fewer classes or studying part-time (Duquette, 2000; Perry & Franklin, 2006).

The Influence of Variability in Timing and Understanding of Diagnosis

Emerging in 13 studies, this thematic area addressed how the timing of the diagnosis of a learning disability or ADHD, as well as students' understandings of the diagnosis, were influential to postsecondary education experiences and success (Cawthon & Cole, 2010; Denhart, 2008; Dwyer, 2000; Erten, 2011; Getzel & Thoma, 2006; Ginsberg, 2008; Greenbaum et al., 1995; Lightner et al., 2012; Litner et al., 2005; Nielsen, 2001; Perry & Franklin, 2006; Troiano, 2003; Velde et al., 2005). A positive influence of receiving a diagnosis was reported in eight studies, which indicated that receipt of a diagnosis served to validate students' feelings regarding the symptoms and experiences of their disability (Denhart, 2008; Dwyer, 2000; Erten, 2011; Ginsberg, 2008; Nielsen, 2001; Perry & Franklin, 2006; Troiano, 2003; Velde et al., 2005). Two studies reported findings supporting early diagnosis (Nielsen, 2001; Troiano, 2003), which provided students with a greater amount of time to learn about, understand, and develop ways to manage their symptoms (Getzel & Thoma, 2006; Litner et al., 2005; Perry & Franklin, 2006; Troiano, 2003). While several studies noted the validating effect of receiving a diagnosis, some studies found negative impacts. For example, the diagnosis was viewed as a burden (Perry & Franklin, 2006), and students who were diagnosed later in life experienced greater challenges in understanding and accepting their disability (Troiano, 2003), as well as greater academic challenges (Nielsen, 2001).

Stigmatization of Disability Status

Twenty-five studies reported findings regarding stigmatization, defined in this review to encompass receiving differential, negative treatment based on the perceptions of others (Barga, 1996; Brown, 2009; Cawthon & Cole, 2010; Connor, 2012; Cornett-Devito & Wortley, 2005; Csoli & Gallagher, 2012; Denhart, 2008; Dowrick et al., 2005; Erten, 2011; Ginsberg, 2008; Greenbaum et al., 1995; Hadley, 2006; Hadley, 2007; Hutcheon & Wolbring, 2012; Koch, 2006; Kolanko, 2003; Lightner et al., 2012; Litner et al., 2005; Low, 1996; Orr & Goodman, 2010; Perry & Franklin, 2006; Quinlan et al., 2012; Stage & Milne, 1996; Troiano, 2003; Velde et al., 2005). Two recurrent

ideas were prominent in these studies. The first was the desire to have an identity beyond disability. Students discussed a fear that they would be “labeled,” and a desire for confidentiality was reported in ten studies (Hadley, 2006; Hutcheon, & Wolbring, 2012; Koch, 2006; Lightner et al., 2012; Litner et al., 2005; Orr & Goodman, 2010; Perry & Franklin, 2006; Quinlan et al., 2012; Velde et al., 2005). The second recurrent idea was the participants’ disclosure of their disability. Participants in these studies expressed fears of negative impacts of disclosing their disabilities or had a general reluctance to disclose. Although less common, some participants discussed how disclosure was helpful or required to receive supports or services (Cawthon & Cole, 2010; Csoli & Gallagher, 2012; Greenbaum et al., 1995; Hadley, 2007; Lightner et al., 2012; Litner et al., 2005; Low, 1996; Orr & Goodman, 2010; Perry & Franklin, 2006; Quinlan et al., 2012; Stage & Milne, 1996; Troiano, 2003).

Stigmatization regarding use and types of accommodations was also reported. Participants reported a reluctance to use accommodations due to the negative perceptions of their peers and others, as accommodations were viewed as a marker of weakness, as a privilege, or their disability was viewed as an excuse (Cornette-Devito & Wortley 2005; Denhart, 2008; Erten, 2011; Hadley, 2007; Lightner et al., 2012; Litner et al., 2005; Stage & Milne, 1996). Consequently, some students would rather receive a lower grade than request accommodations (Denhart, 2008). Finally, participants described feeling that their disability was a barrier or gatekeeper, that the label did not provide a solution, or that their disability caused them embarrassment (Barga, 1996; Brown, 2009; Cornett-Devito & Wortley 2005; Dowrick et al., 2005; Erten, 2011; Koch, 2006; Lightner et al., 2012; Stage & Milne, 1996; Troiano, 2003; Velde et al., 2005).

Social Factors Affecting Success

Social supports were reported as impacting students’ experiences in postsecondary education in 21 articles (Anctil et al., 2008; Banks, 2014; Cawthon & Cole, 2010; Connor, 2012; Duquette, 2000; Dwyer, 2000; Ekelman et al., 2013; Getzel & Thoma, 2006; Ginsberg, 2008; Greenbaum et al., 1995; Hinckley & Alden, 2005; Kolanko, 2003; Lightner et al., 2012; Litner et al., 2005; McCleary-Jones, 2008; Nielsen, 2001; Orr & Goodman, 2010; Perry & Franklin, 2006; Rabiner, Anastopoulos, Costello, Hoyle & Swartzwelder, 2008; Troiano, 2003; Velde et al., 2005). Most commonly reported ($n=13$) was the influence of family on a student’s success (Anctil et al., 2008; Duquette, 2000; Getzel & Thoma, 2006; Greenbaum et al., 1995; Hinckley & Alden, 2005; Lightner et

al., 2012; Litner et al., 2005; McCleary-Jones, 2008; Nielsen, 2001; Orr & Goodman, 2010; Perry & Franklin, 2006; Troiano, 2003; Velde et al., 2005). Of those studies, most regarded the family as having positive impacts. Friends and significant others were reported sources of support in eight studies (Duquette, 2000; Getzel & Thoma, 2006; Greenbaum et al., 1995; Hinckley & Alden, 2005; McCleary-Jones, 2008; Orr & Goodman, 2010; Troiano, 2003; Velde et al., 2005). In four studies, support was received from peers with learning disabilities or ADHD (Duquette, 2000; Getzel & Thoma, 2006; Ginsberg, 2008; Hinckley & Alden, 2005). Physicians were reported as a support in two studies and medication as a support in four studies (Cawthon & Cole, 2010; Duquette, 2000; Dwyer, 2000; Litner et al., 2005; Perry & Franklin, 2006; Rabiner et al., 2008).

Other supports included support groups, roommates, churches, internet forums, and pets (Duquette, 2000; Getzel & Thoma, 2006; Ginsberg, 2008; Greenbaum et al., 1995; Hinckley & Alden, 2005; McCleary-Jones, 2008; Troiano, 2003; Velde et al., 2005). Factors contributing to supports included an early diagnosis, participation in extracurricular activities, and an ability to make friends and interpret social interactions, whereas a lack of time to make or maintain friendships as a result of the demands of course work negatively impacted students. The reported impacts of having support included increased confidence, maintenance of personal worth, encouragement to attend postsecondary education and be successful, assistance with navigating systems, understanding disability needs, and seeking services. Alternatively, a lack of support for some participants resulted in development of increased independence and greater personal strength (Banks, 2014; Connor, 2012; Ekelman et al., 2013; Getzel & Thoma, 2006; Ginsberg, 2008; Greenbaum et al., 1995; Hinckley & Alden, 2005; Kolanko, 2003; Lightner et al., 2012; Litner et al., 2005; Orr & Goodman, 2010; Perry & Franklin, 2006; Troiano, 2003).

Discussion

Based on the assumption that it is crucial to draw upon students’ voices to inform practices and policy (Dwyer, 2000; Erten, 2011), this scoping review provides an amalgamation of what has thus far been learned from U.S. and Canadian students with learning disabilities and ADHD within research examining their lived experiences in postsecondary education. A comprehensive search of 10 databases found 44 studies published between 1994 and 2014 to answer our research question: “How do students with learning

disabilities and/or attention deficit/hyperactivity disorder perceive, experience, and negotiate postsecondary education in North America?” Six themes were generated: (1) Supportive and Non-Supportive Experiences with Professors, Faculty, and Counselors; (2) Experiences of Negotiating and Receiving Formal Accommodations; (3) Intrinsic Factors Affecting Success; (4) The Influence of Variability in Timing and Understanding of Diagnosis; (5) Stigmatization of Disability Status; and (6) Social Factors Affecting Success. Overall, the majority of the reviewed research focused on students’ experiences with faculty, accommodations, and intrinsic factors affecting success, while the remaining three themes were comparatively less prevalent.

Currently, students with disabilities are often required to navigate postsecondary environments that reinforce their “otherness” as they request accommodations and advocate for their rights (Green, 2007; Quinlan et al, 2012). The results of this review bring to light ways such a request-based system can be connected to delays and challenges in accessing accommodations, linked to issues such as faculty misunderstandings, complex processes for acquiring accommodations, and stigma. Thus, these findings further support consideration of changing from request-based systems of “special” accommodations towards the incorporation of universal design principles (Denhart, 2008; Hollins & Foley, 2013; Madaus et al., 2011).

Universal design is a method of creating products and environments that can be used by the greatest number of individuals without the need for adaptations or specialized designs (Ringaert, 2002). By considering a wider range of human abilities and functioning, a more accessible and inclusive environment can be created. In the realm of education, this encourages institutions to adopt instructional approaches that will benefit the greatest number of students possible. For example, the provision of lecture notes in alternate formats, such as audio recordings, can serve as a strategy for all students to review lecture content at their own pace and in a format consistent with individual learning needs. The wider availability of resources may also reduce the number of students who need to formally request accommodations for tasks such as note-taking. As summarized by the National Center on Universal Design for Learning in its UDL Guidelines – Version 2.0: Research Evidence (2011), extensive basic and applied research supports various universal design principles and strategies. As one specific example, in a pilot program aimed at training postsecondary faculty, it was found that faculty were largely unaware of the universal design for learning

principles and knew very little about the challenges faced by students with disabilities. After learning about, and implementing, universal design principles into the courses they taught, faculty found that there was an increase in student engagement and self-sufficiency, and overall positive effects on student learning outcomes (Langley-Turnbaugh, Blair & Whitney, 2013). This review reveals the attributes and behaviors of faculty whom students with learning disabilities and ADHD experienced as supportive, as well as those experienced as non-supportive. These findings can be drawn upon to inform educational programs and materials for faculty to assist them in optimizing learning environments for students with disabilities.

Critical disability scholars have argued that the notion that disability is something that needs to be “fixed” should be altered, and for a shift in focus from “disabilities” to “abilities” that places greater emphasis on student strengths and progress (Connor, 2012). Findings of this scoping review suggest that the stigma students with disabilities face can impact several aspects of postsecondary education experiences, including self-perceptions, experiences with faculty, staff and instructors, and their willingness to access accommodations. These findings point to the continued need to work with students with disabilities within educational and advocacy efforts aimed at dispelling myths and changing attitudes towards these students amongst their peers and faculty members. In relation to addressing students’ perceptions of themselves so as to diminish internalization of broader negative societal stereotypes regarding disability, several studies noted the importance of students perceiving that they understand their diagnosis and its implications for their learning. Such education has been identified as foundational for effective self-advocacy and should begin as early as possible in a student’s learning journey (Michaels & Orentlicher, 2004; Troiano, 2003).

In their roles as accessibility advisors, counselors, coaches, support personnel, and volunteers, disability service providers are uniquely positioned in the postsecondary environment to provide a variety of supports and services for students and faculty. For example, creating awareness of, and advocating for, disability rights on campus by educating faculty, staff, and the general student population about what it means to have an invisible disability and the predominant misconceptions related to these disabilities, can aid in decreasing stigma and enabling more inclusive learning environments. Disability service providers can also accomplish this by educating postsecondary faculty and staff on relevant accessibility legislation and standards, universal design principles and strategies, as well as providing recommendations for how

these standards, principles and strategies can be applied to lectures, course material, and online learning.

This review also supports the need for effective transition planning and provides support for a range of approaches used by disability service providers to support transitions (Bolt et al., 2011; Hadley, 2006; Hadley, 2007; Hadley & Satterfield, 2013). In addition to educating students on the services available to them, reviewing how to access accommodations, and linking students with various support personnel, disability service providers can facilitate workshops or coaching programs aimed at developing the skills necessary for postsecondary education success, such as self-advocacy and organizational and time management strategies. Finally, disability service providers can play an important role in helping students to gain a better understanding of their disability and its impact on their academic success, which in turn will assist students in identifying their strengths and accommodation needs.

Future Research

Methodological suggestions made within this body of literature point to ways to enhance generalizability of findings and ascertain causal connections, such as larger samples, more diverse student participants, and longitudinal designs (Bolt et al., 2011; Denhart, 2008; Dwyer, 2000; Erten, 2011; Madaus et al., 2011; McCleary-Jones, 2008; Orr & Goodman, 2010; Parker et al., 2011, 2013; Velde et al., 2005). Although it was noted that studies focusing on the experiences and perspectives of students with disabilities are important, the need for a greater emphasis on evaluative studies has been identified (Denhart, 2008; Erten, 2011; McCleary-Jones, 2008; Bouteille, 2009; Parker et al., 2013; Madaus et al., 2014). Future evaluative studies addressing what practices, programs and techniques are effective, and with what students in what situations, should include students in the measurement of outcomes as a means to direct the development of effective programs and services for postsecondary students with learning disabilities and/or ADHD (Madaus et al., 2014).

Several studies called for further examination of accommodation needs and the process of receiving accommodations for students with learning disabilities and ADHD, including the factors impacting access to accommodations and success at the postsecondary level (Bolt et al., 2011; Denhart, 2008; Greenbaum et al., 1995; Hutcheon & Wolbring, 2012; Stage & Milne, 1996). Building on existing research showing positive effects of universal design principles (Hall, Strangman & Meyer, 2003; Langley-Turnbaugh et al., 2013; Orr & Bachman Hammig, 2009),

further research into the implementation and effectiveness of universal design principles in the classroom would also be beneficial to determine how the implementation of such principles impacts the experiences and success of students with learning disabilities and ADHD. Expanding on the knowledge regarding students' conceptualizations of supportive faculty as well as key student skills and attitudes, further research is required to determine the nature and effectiveness of educational and skill development programs aimed at faculty and students (Cornett-Devito & Worley, 2005). Moreover, researchers have indicated the need for further study of the amount and nature of discrimination that students with disabilities face, the impact of self-efficacy across disabilities and ethnic groups, and the impact of these factors on success in postsecondary education (Denhart, 2008; Dowrick et al., 2005). Lastly, of the 44 studies that were reviewed, only nine were conducted in Canada. Additional research in a Canadian context would be beneficial to conduct national comparisons that could provide greater insights into how differing policies and practices impact the experiences of students with learning disabilities and ADHD in navigating postsecondary education.

Limitations

This scoping review has several limitations. First, the review is limited to research that focussed on students with learning disabilities and ADHD, therefore excluding many other "invisible" disabilities such as mental health conditions or visual and hearing impairments. Included research was also limited to studies published in English and in two countries. In addition, although methodological limitations and recommendations made by authors were tracked, consistent with the methodology of scoping reviews, a quality assessment of the reviewed literature was not conducted.

Conclusion

This scoping review summarizes existing research addressing supports and barriers in postsecondary institutions for individuals with learning disabilities and/or ADHD, as perceived by the students themselves. Drawing on this existing evidence, learning support personnel can develop and expand their role in addressing disparities in postsecondary education for students with learning disabilities and ADHD. For example, as change agents, such personnel can take an active role in advocating to address misunderstandings and stigma. Success in this area requires collaboration amongst key stakeholders, in ways that acknowledge the voices and strengths of students with invisible disabilities.

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Table 1

Descriptive Characteristics of Included Articles

Article	Methodology & Design	Context	Sample Size	Gender	Ethnicity	Diagnoses
Anctil et al. (2008)	Mixed methods, on-line survey & interviews	Northwest USA	Survey, $n=104$; Interview, $n=19$	Survey: Male (M), ($n=52$) Female (F) ($n=52$) Interview, M ($n=10$) F ($n=9$)	Survey: Majority, Caucasian ($n=90$) Interview: Majority, Caucasian ($n=17$)	Learning disabilities, including ADHD
Banks (2014)	Qualitative (QUAL), case study	Mid-Atlantic USA	$n=3$	M ($n=3$)	African American ($n=3$)	Language-based learning disabilities
Barga (1996)	QUAL, interviews & classroom observation	USA	$n=9$	M ($n=5$) F ($n=4$)	Caucasian ($n=9$)	Learning disabilities
Bolt et al. (2011)	Quantitative (QUAN), on-line survey	Mid-western USA	$n=55$	M ($n=17$) F ($n=38$)	Not reported	Learning disabilities
Brown (2009)	QUAL, ethnography	B.C., Canada	$n=4$	M ($n=1$) F ($n=3$)	Caucasian ($n=3$)	Learning disabilities
Cawthon et al. (2010)	QUAN, online survey	USA	$n=110$	Not reported	Not reported	Learning disability, including ADHD
Connor (2009)	QUAL, interviews	USA	$n=3$	M ($n=1$) F ($n=2$)	Caucasian ($n=2$); Aboriginal ($n=1$)	Comorbid learning disability & ADHD
Connor (2012)	QUAL, interviews	Northeastern USA	$n=3$	M ($n=1$) F ($n=2$)	Caucasian ($n=2$); Aboriginal ($n=1$)	Comorbid learning disability & ADHD
Cornett-Devito et al. (2005)	QUAL, phenomenology	Midwest USA	$n=21$	M ($n=9$) F ($n=12$)	Majority, Caucasian ($n=18$)	Learning disabilities, including ADHD
Csoli et al. (2012)	QUAL, interviews	Ontario, Canada	$n=2$	F ($n=2$)	Not reported	Learning disabilities
Denhart (2008)	QUAL, phenomenology	USA	$n=11$	M ($n=3$) F ($n=8$)	Caucasian ($n=11$)	Learning disabilities, Comorbid ADHD
Dowrick et al. (2005)	QUAL, focus groups	USA, Multiple	Not reported	Not reported	Varied	Learning disabilities
Duquette (2000)	Mixed methods, questionnaire, interviews, & focus group	Ontario, Canada	Questionnaire ($n=36$), Interview ($n=17$), Focus group ($n=6$)	M ($n=9$) F ($n=27$)	Not reported	Learning disabilities

Article	Methodology & Design	Context	Sample Size	Gender	Ethnicity	Diagnoses
Dwyer (2000)	QUAL, phenomenology	Canada	<i>n</i> =8	F (<i>n</i> =8)	Not reported	ADHD, Comorbid dyslexia diagnosis (<i>n</i> =1)
Ekelman et al. (2013)	QUAL, semi-structured interviews	USA	<i>n</i> =10	M (<i>n</i> =6) F (<i>n</i> =4)	Caucasian (<i>n</i> =5); Other (5)	Learning disabilities, ADHD
Erten (2011)	QUAL, focus groups	Canada	<i>n</i> =7	F (<i>n</i> =7)	Not reported	Learning disability (<i>n</i> =5), Comorbid ADHD (<i>n</i> =1) or mobility (<i>n</i> =1)
Getzel et al. (2006)	QUAL, focus groups & semi-structured interviews	Virginia, USA	<i>n</i> =34	M (<i>n</i> =16) F (<i>n</i> =18)	Caucasian (62%)	Learning disabilities & ADHD
Ginsberg (2008)	QUAL, case study	USA	<i>n</i> =1	M	Not reported	Comorbid ADHD & Dysgraphia
Greenbaum et al. (1995)	QUAL, interviews	Mid-Atlantic, USA	<i>n</i> =49	M (<i>n</i> =30) F (<i>n</i> =19)	Caucasian (<i>n</i> =48)	Learning disabilities
Hadley (2006)	QUAL, focus groups	Midwest USA	<i>n</i> =26	Not reported	Not reported	Learning disabilities
Hadley (2007)	QUAL, focus groups & semi-structured interviews	Midwest USA	<i>n</i> =10	M (<i>n</i> =2) F (<i>n</i> =8)	Not reported	Learning disabilities
Hadley et al. (2013)	QUAL, focus groups & semi-structured interviews	Midwest USA	<i>n</i> =10	M (<i>n</i> =2) F (<i>n</i> =8)	Not reported	Learning disabilities
Hinckley et al. (2005)	QUAL, interviews	New England, USA	<i>n</i> =13	F (<i>n</i> =13)	Not reported	ADHD
Hollins et al. (2013)	Mixed Methods, interviews & on-line goal-based tasks	North-eastern USA	<i>n</i> =16	M (<i>n</i> =4) F (<i>n</i> =12)	Not reported	Learning disabilities
Hutcheon et al. (2012)	QUAL, semi-structured interviews	Alberta, Canada	<i>n</i> =8	M (<i>n</i> =7) F (<i>n</i> =1)	Not reported	ADHD
Koch (2006)	QUAL, case study	USA	<i>n</i> =1	M	Not reported	Comorbid learning disabilities & ADHD
Kolanko (2003)	QUAL, collective case study	USA	<i>n</i> =7	M (<i>n</i> =1) F (<i>n</i> =6)	Not reported	Learning disabilities, Comorbid ADHD (<i>n</i> =2)
Lightner et al. (2012)	QUAL, phenomenology	USA	<i>n</i> =42	M (<i>n</i> =23) F (<i>n</i> =19)	Not reported	Learning disabilities, Comorbid ADHD (<i>n</i> =6)
Litner et al. (2005)	QUAL, ethnography	Quebec, Canada	<i>n</i> =16	Not reported	Not reported	Learning disabilities, including ADHD
Low (1996)	QUAL, ethnography	Ontario, Canada	<i>n</i> =9	M (<i>n</i> =3) F (<i>n</i> =6)	Majority, Caucasian (<i>n</i> =7)	Learning disabilities

Article	Methodology & Design	Context	Sample Size	Gender	Ethnicity	Diagnoses
Madaus et al. (2011)	QUAL, interviews	USA	<i>n</i> =10	Not reported	Not reported	Learning disabilities & ADHD
McCleary-Jones (2008)	Mixed methods, surveys & focus groups	South Central USA	<i>n</i> =10	M (<i>n</i> =3) F (<i>n</i> =7)	Majority, Caucasian (<i>n</i> =8)	Learning disabilities
Mytkowicz et al. (2012)	QUAL, semi-structured interviews	USA	<i>n</i> =14	M (<i>n</i> =8) F (<i>n</i> =6)	Not reported	Learning disabilities and/or ADHD, Comorbid (<i>n</i> =5)
Nielsen (2001)	QUAL, interviews	Alberta, Canada	<i>n</i> =8	M (<i>n</i> =4) F (<i>n</i> =4)	Not reported	Learning disabilities
Orr et al. (2010)	QUAL, multiple case study	Midwestern USA	<i>n</i> =14	M (<i>n</i> =8) F (<i>n</i> =6)	Majority, Caucasian (<i>n</i> =12)	Learning disability, Comorbid ADHD (<i>n</i> =6)
Parker et al. (2009)	QUAL, phenomenology	Vermont USA	<i>n</i> =7	M (<i>n</i> =4) F (<i>n</i> =3)	Not reported	Learning disabilities & ADHD
Parker et al. (2011)	QUAL, interviews	Midwestern USA	<i>n</i> =7	M (<i>n</i> =6) F (<i>n</i> =1)	Not reported	ADHD
Parker et al. (2013)	QUAL, interviews	Multiple campuses, USA	<i>n</i> =19	M (<i>n</i> =9) F (<i>n</i> =10)	Not reported	ADHD
Perry et al. (2006)	QUAL, grounded theory	Arkansas, USA	<i>n</i> =10	M (<i>n</i> =7) F (<i>n</i> =3)	Caucasian (<i>n</i> =10)	ADHD
Quinlan et al. (2012)	QUAL, interviews	USA	<i>n</i> =10	M (<i>n</i> =6) F (<i>n</i> =4)	Caucasian (<i>n</i> =10)	Learning disabilities, including ADHD
Rabiner et al. (2008)	QUAL, web-based survey	Southeast USA	<i>n</i> =1648 total, <i>n</i> =68 reported ADHD	M (<i>n</i> =24) F (<i>n</i> =44)	Majority, Caucasian (<i>n</i> =62)	ADHD
Stage et al. (1996)	QUAL, ethnography	Midwest, USA	<i>n</i> =8	M (<i>n</i> =4) F (<i>n</i> =4)	Not reported	Learning Disabilities
Troiano (2003)	QUAL, grounded theory	East Coast, USA	<i>n</i> =9	Not reported	Not reported	Learning Disabilities
Velde et al. (2005)	QUAL, phenomenology	USA	<i>n</i> =5	M (<i>n</i> =1) F (<i>n</i> =4)	Not reported	Learning disability, Comorbid ADHD (<i>n</i> =1)

Table 2

Formal Accommodations

Source	Specific Accommodations Reported
Cawthon & Cole (2010)	High school: assistive technology, alternate test format, tutor Postsecondary: classroom assistant, counseling, separate test location, extra time, other (priority registration, reduced load)
Denhart (2008)	Self-understanding, traditional accommodations, writing assistance, organization strategies, and visual strategies
Duquette (2000)	Extra time, note-taker, quiet room for exams
Dwyer (2000)	Classroom accommodations via formal process
Ginsberg (2008)	Computer, word processor for tests, note-taker for lectures
Hadley (2006)	Books on tape, note-takers, quiet room for exams, and extra time on exams, tutors, test proctoring
Hadley (2007)	Tests in a private and quiet location in testing centre, student proctors, extra time on exams, writing assistance, note-takers
Hadley & Satterfield (2013)	Test proctoring, books on tape, extra time for exams, note-takers for lecture through the office for students with disabilities
Hinckley & Alden (2005)	ADHD coaching services
Lightner et al. (2012)	Tutoring
McCleary-Jones (2008)	Quiet testing location, extra time
Parker & Boutelle (2009)	Coaching
Parker et al. (2011)	Coaching
Parker et al. (2013)	Coaching
Perry & Franklin (2006)	Extra time, written assignments and exams, note-taker, tutor
Quinlan et al. (2012)	Extra time and note-takers
Stage & Milne (1996)	Tutors
Velde et al. (2005)	Untimed testing, reduced distractions, special adviser, note-takers, cognitive strategy training, tips for reading articles, extra time