Barriers and Facilitators to Access to Post-secondary Education for Students with Learning Disabilities: A Narrative Literature Review

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Abstract
Our narrative literature review sought to identify potential barriers and facilitators to access to academic participation for post-secondary students with learning disabilities. A search of eight databases yielded over 1600 possible articles, reduced to 107 after applying selection criteria. We identified three themes: accommodations, self-advocacy, and supports. We found that current efforts are focused primarily on the provision of individualized accommodations to help students adapt to an inaccessible academic environment, despite a scarcity of evidence confirming their efficacy. Students must submit a psychoeducational assessment report to be eligible for accommodations, even though there is no clear relationship between the information they contain and the specific accommodations approved. The likelihood that students receive accommodations further depends on personal factors, including self-advocacy. Skills-based supports, mental health and wellbeing supports, and inclusive pedagogical methods act as facilitators to equity. Persistent barriers associated with retroactive accommodations could be substantially reduced if more resources were directed to proactive efforts to increase academic accessibility of post-secondary education.

Key Words: Accessibility, Barriers, Education, Learning Disabilities, Post-secondary**,** Students

According to the 2017 Canadian Survey on Disability, approximately 20% of Canadians aged 15 and older have a disability that affects them daily (Choi, 2021). Among this disabled subgroup, approximately four percent report having a Learning Disability (LD) (Morris et al., 2018). Thanks in part to an increase in awareness and corresponding legislation, there has been a steady and significant increase in the number of students with LD accepted into post-secondary programs over recent decades. On a 2019 survey, 6.6% of a large sample of Canadian post-secondary students reported having an LD (American College Health Association National College Health Assessment, 2019).

Several definitions of LD exist (e.g., Diagnostic and Statistical Manual-5, International Classification of Diseases-11) (Vidyadharan & Tharayil, 2019). All are based in the medical model of disability, and all include the criteria of at least average overall cognitive ability in the context of an impairment in neurologically-based information processing. A widely-used Canadian definition of LD states that they are due to a specific impairment in one or more cognitive processes that "…include, but are not limited to: language processing; phonological processing; visual spatial processing; processing speed; memory and attention; and executive functions (e.g., planning and decision-making)" (Learning Disabilities Association of Ontario; LDAO, 2015, par. 2). By nature, LDs are non-visible disabilities that for most individuals are not noticed until early elementary school, as the child is developing basic academic skills in reading, writing, and math. While traditionally associated with childhood, the impact of an LD continues throughout adulthood (LDAO, 2015), though it may manifest differently in different environments over time.

In every jurisdiction in Canada, access to education is ensured in human rights legislation. In Ontario, academic accommodations, which are individualized changes to the pre-

existing method of course delivery or evaluation, "are a fundamental aspect of ensuring equal access to education for students with disabilities. Education providers have a duty to accommodate students with disabilities up to the point of undue hardship" (Ontario Human Rights Commission, 2023, para. 2). Given the invisible nature of LD, significant barriers for students lie not in the physical environment, but rather in the traditional methods of instruction (i.e., lectures) and evaluation (most commonly, timed exams).

Every publicly funded post-secondary institution (in Ontario) has a Disability Services Office mandated to identify and support "appropriate" accommodations for students with documented disabilities, including LD. As mentioned above, LD is an invisible disability. Access to the Disability Services Office (and further, access to academic accommodations) requires that students prove they have an LD. Across post-secondary institutions, this typically requires an up-to date, comprehensive psychoeducational assessment completed by a registered, licensed psychologist.

The Learning Opportunities Task Force conducted an Ontario-wide study from 1997 to 2002 to establish best practices to "enhance the services and supports for students with LD in the post-secondary educational sector" (Tiffin et al., 2002, p.1). Among their recommendations was that students with LD entering post-secondary have access to "a comprehensive, up-to-date diagnostic assessment" (p. 3). Another was that once in post-secondary, they are provided with training to develop self-advocacy and individualized compensatory strategies, through access to professional learning strategists and assistive technologists knowledgeable in the impact of LD in the post-secondary environment (Tiffin et al., 2002).

Purpose

Despite significant gains, post-secondary students with LD continue to face potential barriers to access. The intention of this review was to identify such barriers, and facilitators, based on research published between 2010 and 2022 in North America.
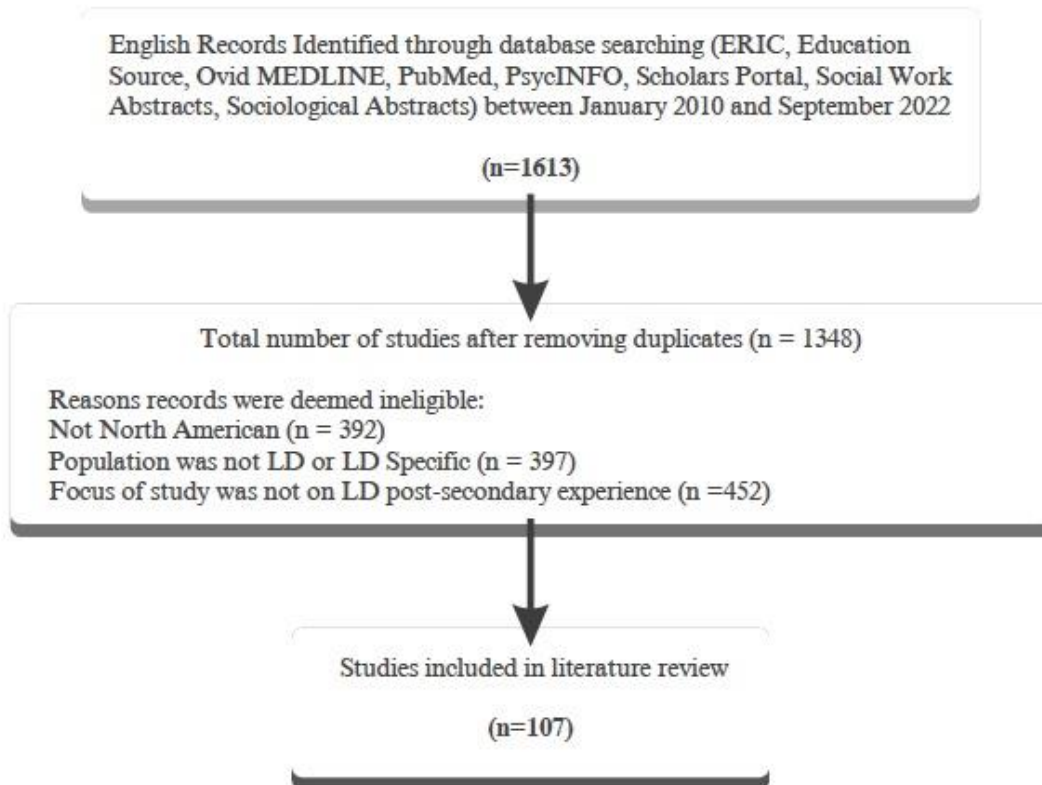
Methods

In our narrative literature review, we sought the answer to the following question: What are current barriers and facilitators to access for post-secondary students with LD? We conducted a systematic and robust search of the literature using a narrative review process (Campbell, Taylor, & McGlade, 2017) with the support of a research librarian in June 2022 across eight databases: Psych Info, Education Resources Information Centre, Education Source, Social Work Abstracts, Scholars Portal, Sociological Abstracts, Medline, and PubMed. During the initial screen of titles and abstracts, the following search terms were used: "learning disabilit*" OR "learning disord*" AND "post-secondary" OR "higher education" OR university* OR college*.

Through searching these key terms in these databases, we yielded over 1600 results. We omitted 265 duplicates, and remaining titles and abstracts were reviewed to determine inclusion based on the following criteria:

- North American

- English Language

- Peer-reviewed

- Published between January 2010 and September 2022

- Focused on Learning Disability or Learning Disorder

- Focused on post-secondary student experiences

While there are no explicitly-acknowledged guidelines for narrative reviews (Ferrari, 2015), the authors made notes during the review process to ensure ongoing evaluation, consistency, and objectivity (Pautasso, 2016). The remaining 190 articles were strategically reviewed in full text independently by two of the authors who met later to ensure consensus and consistency. A third reviewer was consulted for articles for which agreement could not be reached. We excluded 83 more texts for which the study population was not post-secondary students with LD, that did not differentiate between students with LD and those with other disabilities, if the focus was not exclusively on North American participants, or because the focus was not on post-secondary experiences. Therefore, 107 studies were included in the literature review. The full screening process is outlined in Fig 1.

Fig.1 Methodological Screening Process

English Records Identified through database searching (ERIC, Education Source, Ovid MEDLINE, PubMed, PsycINFO, Scholars Portal, Social Work Abstracts, Sociological Abstracts) between January 2010 and September 2022

(n=1613)

Total number of studies after removing duplicates (n = 1348)

Reasons records were deemed ineligible:
Not North American (n = 392)
Population was not LD or LD Specific (n = 397)
Focus of study was not on LD post-secondary experience (n =452)

Studies included in literature review

(n=107)

Findings

Our narrative literature review revealed barriers and facilitators to access for post-secondary students with LD in three main areas: accommodations, self-advocacy, and supports. The extent of access to accommodations also depends in part on personal factors of individual students, including the documentation that they have to prove their diagnosis, and their ability to self-advocate. Skills-based supports, mental health and wellbeing supports, as well as certain pedagogical methods act as facilitators to successful participation.

Accommodations

Accommodation Efficacy

Despite the widespread practice of providing accommodations to students with LD, there appears to be an unclear relationship between the information provided by psychoeducational assessment reports and the accommodations recommended on their basis. To illustrate, based on an examination of the formal documentation of a large sample of college students with LD, it was reported that many of the accommodation recommendations were unrelated to individual assessment results (Weis et al., 2016). In addition, research evidence does not necessarily justify the most common accommodations. While 50% extra time for exams is the most common, based on a comparison of the actual time college students with LD used to complete a reading comprehension test (compared to their non-LD peers) it was reported that on average they used just 14% more time (Spenceley et al., 2020). In a recent study by Gelbar and Madaus (2021) it was found that of 596 post-secondary students with disabilities, there was an even split between those who used less than 50% additional time, and those who used more. In addition, students with LD were significantly more likely to use extra time on exams compared to those with all

other disability types (with the exception of ADHD). Finally, a major predictor of the use of extra time was not related to disability at all, but rather, to the type of exam. Regardless of disability type, all participants used more extra time for exams in science, technology, engineering, or mathematics courses (Gelbar and Madaus, 2021). Another common accommodation for post-secondary students with LD is an alternate, distraction- reduced location for exams. However, recent evidence calls the efficacy of this accommodation into question. Based on a comparison of performance on a language placement exam, "students with and without disabilities performed equally well in the group setting" (Weis & Beauchemin, 2020, p. 803). More surprisingly, students with LD (along with their peers with ADHD) did not perform as well on the tests compared to classmates without disabilities (Weis & Beauchemin, 2020).

Obtaining Access to Accommodations

To obtain access to accommodations, post-secondary students with LD must self-identify as disabled and register with the Disability Services Office (Lindstrom & Lindstrom, 2010). Based on our review, there are a variety of barriers associated with registration, depending on the individual student. Lightner et al. (2012) noted that some students with LD delay formally accessing accommodations due to lack of time and/awareness that accommodations are available to them. Others may avoid seeking them out because they underestimate the demands of their courses and/or do not identify as "disabled" and in need of accommodations (Lightner et al., 2012). They may fear stigma through exposing their need for accommodations: a participant stated "[p]eople told me to go to [the Disability Services Office] to get accommodations. I didn't want any accommodations" (p. 150). Other individual factors that appear to affect the likelihood

of navigating initial barriers to accessing academic accommodations include the presence of

supportive parents or peers, having had individualised education programs in the past, and a

desire for strategies to promote personal success (Cawthorn et al., 2010; Horne, 2019). Finally,

transitional supports from secondary to post-secondary studies appear to be facilitators, by

increasing the likelihood that students with LD will formally access the Disability Services

Office to access accommodations (Newman et al., 2019).

Post-secondary institutions, through their Disability Services Offices, typically rely on

up-to-date psychoeducational assessments that are applicable to the post-secondary environment,

both to justify and inform accommodations (Wolforth, 2012). However, based on our findings, it

appears that many students lack such documentation. In a 2014 study conducted by Sparks and

Lovett, just 72% of 210 participants provided a psychoeducational assessment report to formally

access accommodations. While assessment requirements may vary among institutions, for

example, which and how many standardized tests must be included (Wolforth, 2012), in general,

they are expensive and typically not covered (or only partially covered) by insurance (Lightner et

al., 2012). While there are government programs to help pay for them, students may be ineligible

or, if eligible, may be unaware of the existence of such funding (Liebel & Nelson, 2017;

Harrison et al., 2022).

Once a student with LD has self-identified, registered with the Disability Services Office

and submitted required documentation, they consult with a disability services professional to

identify what accommodations they need, and what the disability service professional will

approve (Wolforth, 2012). The next step is to inform their instructors they need accommodations

for their courses. In most circumstances, students must repeat the process each term and with

each instructor (Brown et al., 2020; Harrison & Holmes, 2012). Cole & Cawthon (2015)

recommend that faculty be provided with more information about disabilities, available services, and their roles and responsibilities in the accommodations process. It is also helpful when there is an integrated system within the institution to facilitate and implement accommodations (Gallego & Busch, 2015; Quinlan et al., 2012), taking the pressure off individual faculty.

Self-Advocacy

Students with well-developed self-advocacy skills are more likely to access accommodations, services and supports that they need for academic success (Jacques & Abel, 2020; Kreider et al., 2020; May & Stone, 2010; Willoughby & Evans, 2019). Based in a student's acceptance that they are disabled, self-advocacy also includes an awareness of their right to accommodations, the academic impact of their LD, and the accommodations they need for success, combined with the confidence to ask for them (Kreider et al., 2020; Willoughby & Evans, 2019). Studies have reported gaps in critical aspects of self-advocacy. Some students with LD know they have a right to accommodations but do not know what accommodations are available, or what accommodations they need (Kreider et al., 2020; Pfeifer et al., 2020). Several mitigating factors have been identified, including the provision of clarity and consistency around how to access accommodations at post-secondary institutions (Pfeifer et al., 2021), and interventions based in positive psychology (Costello & Stone, 2010; Goegan & Daniels, 2020).

Supports

Skills-Based Supports

A range of specific skill development supports for post-secondary students with LD have been examined. Some studies focus on supports designed to help students address the impact of

their LD by improving executive functioning skills (e.g. Kreider et al., 2019; Rivera et al., 2019). For example, based on an investigation of one such support program, researchers identified the following executive functioning skills as essential: (1) developing and maintaining a structured and productive morning routine, (2) using a planning system, (3) prioritization strategies, and (4) reminder systems (Kreider et al., 2019). Rivera et al. (2019) describe the use of other executive functioning skills, such as task analysis and goal setting, for improving study skills and overall task completion. Studies of strength-based interventions for students with LD have reported that some of the best supports are connected closely with confidence and competencies – that is, on developing existing strengths instead of correcting deficits (Richardson, 2021). Another model combines skills-based and other supports (Demetriou et al., 2019). This program includes tutoring, support with education technology, psychological services, and academic skills workshops for students with LD (Demetriou et al., 2019).

Other effective skills-based supports for students with LD have been identified in the literature, such as technology (Armstrong & Gutica, 2020) and writing skills (Kallestinova, 2017). Students with LD also benefit from using a variety of general student supports (Newman et al., 2019) such as mentorship (Kreider et al., 2018; Kreider et al., 2021), coaching, tutoring, and advising (DuPaul et al., 2017), and career counselling (Chen, 2021).

Mental Health and Wellbeing Supports

We found relatively few articles related to mental health and wellbeing supports for post-secondary students with LD. That said, mental health and wellbeing concerns may need to be addressed before certain learning supports can be effective. Based on their study, Prevatt and colleagues (2010) concluded that for students with LD experiencing significant anxiety, anxiety reduction should be a first step prior to interventions aimed at memory strategies. Prevatt and

colleagues (2010) furthered this point, suggesting that efforts be made to reduce anxiety prior to addressing math memory skills for students with LD.

Additionally, in a study that examined five post-secondary students' narratives from a resiliency lens, it was found that awareness and acceptance of one's LD, alongside self-advocacy skills, goal setting abilities, perseverance and acceptance of supports and resources were essential for students to access the academic and mental health supports (Piers & Duquette, 2016).

Pedagogical Approaches

Besides supports for skill development and mental health and wellbeing, pedagogical approaches that include technology can benefit students with LD, for example, course materials such as video content, PowerPoint slides, and web-based discussion boards (Kumar & Wideman, 2014). However, depending on the technologies used, students may require basic ICT support to use it (Seale et al., 2019). Two studies found that support for technology was more effective for in-person compared to online classes (Fichten, et al., 2013; Malcolm, 2017).

In addition to the use of technology, inclusive pedagogical techniques appear to enhance the likelihood of success for post-secondary students with LD (Kumar & Wideman, 2014). These include a reduced reliance on timed exams, repeating material both visually and orally, creating accessible resources and uploading them to course web pages, clearly identifying testable material and providing a review sheet before exams, providing students with an outline of clearly labelled lecture objectives, and holding office hours (Kumar & Wideman, 2014). This is consistent with principles of Universal Design for Learning, a prominent model that uses

scientific understanding to optimize accessibility for diverse learners, including those with LDs

(Fovet, 2021).

Discussion

Our narrative literature review revealed barriers and facilitators to access for post-

secondary students with LD, in the areas of accommodations, self-advocacy, and supports.

Notably, research has demonstrated inconsistencies around the efficacy of the most common

accommodations: extra time and an alternate, distraction-reduced location for exams. Barriers

associated with providing documentation required to access accommodations is highly

concerning. Mental health concerns were present for many students with LD and identified as an

intersecting factor. Strong self-advocacy and accessible pedagogical practices were found to be

facilitators to post-secondary experiences for students with LD.

The purpose of academic accommodations is to ensure access for post-secondary students

with LD. The most common accommodations are extra time and a distraction-reduced location

for exams. Surprisingly, we found inconsistencies among research results as to how much extra

time is appropriate, and it appears that decisions in granting additional time are not directly

linked to content from psychoeducational assessments (Gelbar and Madaus, 2021; Weis &

Beauchemin, 2020). In interpreting these contradictory findings, it stands to reason there is no

"one-size-fits-all" formula for extra time (as a proportion of original exam duration), despite a

possible institutional desire for standardization. There is a great deal of variability in type,

severity, and impact of LD among individual students. Depending on the type and severity of the

specific processing impairment underlying their LD, a student may need more (or less) extra

time. For example, they may need more time, in general, if a great deal of writing is required, but

not as much for a multiple-choice format, which relies more on basic reading skills (or vice versa). Furthermore, like all students, students with LD are unique individuals. Just as we do not expect students without LD to always use exactly the regular allotted time to complete their exams, we should not expect students with LD to always require exactly the same amount of extra time. Not only is there no way to predict how much extra time a given student with LD will need in general (as a proportion of original exam duration), but such a goal is further complicated by the nature of exams. Post-secondary exams vary widely, not only in format (as mentioned above) but in terms of subject matter, content, and level of difficulty, and other extraneous factors such as time of day.

Upon reflection, extra time is intended to help the student with LD adapt to a largely arbitrary requirement (speed) so that, to the same extent as their nondisabled classmates, they have the opportunity to validly demonstrate what they have learned. Hence, a focus on controlling the amount of extra time may be seen as a product of ableist assumptions. In a truly equitable environment, all students would be able to take as much time as they needed for exams, at least in courses for which speed is not an essential requirement. For example, the ability to rapidly demonstrate knowledge and skill might be essential for a course in emergency medicine, but not for a course in social policy.

The single study that we reviewed (Weis & Beauchemin, 2020) investigating the benefit of an alternate location for exams (in this case, an "alone" location for a language placement test) revealed that it did not benefit students with LD compared to their nondisabled peers. This finding is difficult to interpret, in part because there was no separate group of students with just LD.

It is generally accepted that academic accommodations are necessary to foster access to post-secondary education for students with LD. Based on our review, multiple potential barriers may interact with individual factors and limit access to accommodation. In other words, some students who need accommodations because of their LD do not get them. Such factors include transition support, access to documentation, and importantly, self-advocacy.

Support during the transition from secondary to post-secondary education emerged from the literature as an important factor in increasing the likelihood that students would connect with their Disability Services Office (Newman et al., 2019)**.** Hence, absence of transitional supports represents a potential barrier to accommodation. Echoing advocacy from the Higher Education Quality Council of Ontario, transitional supports for incoming post-secondary students with LD should be made widely available (Tsagris & Muirhead, 2012). It is interesting to note that despite this report being over ten years old, more recent data suggests that a lack of transitional supports continues to be a barrier for post-secondary students with LD. In addition, transitional support that includes connection with the Disability Services Office before beginning post-secondary studies can eliminate the next major barrier to accessing academic accommodations.

Students with LD that self-identify with the Disability Services Office may be denied access to accommodations. The next major potential barrier is tied to documentation requirements to qualify for accommodations; in particular, an up-to-date psychoeducational assessment completed by a registered, licensed psychologist. In other words, students must prove that they have a disability-related "impairment" that requires accommodations. While this would appear justified to confirm legitimate need, some students may lack the resources to obtain such documentation. Even students with the means to pay for an assessment may not know how to find a psychologist qualified to conduct one, particularly one that incorporates knowledge of

Disability Services Office (institutional) criteria. To reduce this potential barrier, students (and/or their guardians) could be made aware of potentially available government funding and directed to appropriate psychologists in the community in advance of attending post-secondary (Tiffin et al., 2002). Alternately, the sector could reconsider the need for formal proof of impairment. Indeed, a recent report from the Post-secondary Education Standards Development under the Accessibility for Ontarians with Disabilities Act recommended such a move, away from a deficit-based disability model (Government of Ontario, 2022).

Based in structural ableism that champion "resilience", self-advocacy is idealized as a virtue for all post-secondary students. Indeed, self-advocacy appears to be strongly related to successful access to accommodations for post-secondary students with LD. Well-developed self-advocacy provides a significant advantage as students without it may be unable to negotiate accommodations at the Disability Services Office. Self-advocacy develops over time and benefits from early support from others, at home and at school as the student develops over time.

The onus is on the student to be confident and able to clearly articulate their disability-related needs, and to repeatedly confront and overcome ongoing barriers to participation. However, some students do not self-advocate in fear of experiencing stigma (Tsagris & Muirhead, 2012). As an interim solution, institutions should provide accessible, specialized services from knowledgeable support providers to help students understand and articulate their disability-related needs and develop other self-advocacy skills. For many students with LD, potential barriers to accommodation may be compounded by other aspects of their identity and social location such as race, class, and gender identity. It is important to understand how to better engage students of diverse intersectional backgrounds, including socioeconomic status, in accessing institutional supports and services.

Besides accommodations and self-advocacy, a variety of skills-based supports have been described in the literature as contributors to access for students with LD. It is important for post-secondary institutions to provide opportunities for students to advance these skills by offering LD-specific training (e.g., through the Disability Services Office in collaboration with learning and study skills services available to all students). Mental health and wellbeing supports also appear to be critical, as post-secondary students with LD are more likely to experience challenges compared to their nodisabled peers. It stands to reason that navigating barriers to accommodations would likely have a negative impact on mental health and wellbeing, thereby reducing the ability to continue to navigate barriers, potentially leading to a snowball effect. Further research to better understand the relationship between mental health and access to academic accommodations is needed.

Post-secondary instructors appear to play an important role in accommodation for students with LD. Consistent with literature that explores their perspectives of their own preparedness to support students with LD (Banks, 2019; Hansen & Dawson, 2020; Wolforth, 2012), instructors may feel unprepared (or in some cases, even reluctant) to provide accommodations. Institutions should offer education and training to help instructors understand the nature and impact of LD, and the role of accommodations in fostering equity. Institutional support and resources for instructors to implement academic accommodations (such as well-staffed exam rooms) could make instructors more likely to accommodate students with LD.

Inclusive pedagogical approaches have been found to facilitate participation for post-secondary students with LD. In particular, offering alternate means of evaluation beyond timed exams reduces the need for exam accommodations and hence eliminates potential barriers associated with obtaining access to them. Investment in and promotion of Universal Design for

Learning (as a prominent aspect of equity, diversity, and inclusion) would foster equity, not only for students with LD but for *all* students, regardless of disability status (Fovet, 2021; Kumar & Weiden, 2014). Universal Design for Learning "is a framework to improve and optimize teaching and learning for all people based on scientific insights into how humans learn" (CAST, 2018, para. 1). Unfortunately, while guidelines on incorporating Universal Design for Learning in the classroom are widely available, they have been minimally applied (Fuentes et al., 2021), and Canadian campuses are overly reliant on Disability Services Offices to implement them and offer related supports (Fovet, 2021). The responsibility to promote Universal Design for Learning should be widespread, within and across institutions. Furthermore, faculty training and support in Universal Design for Learning should include consideration of intersectional identities and their impact.

The very need for academic accommodations to help ensure access to post-secondary education is rooted in the inherent inaccessibility of the pre-existing post-secondary academic environment, itself rooted in structural ableism. In order to adapt, students must provide proof of their "impairment" and hence need for accommodations. In a truly inclusive (accessible) post-secondary environment, the onus on the student with LD to adapt would be greatly reduced, along with potential barriers associated with doing so. In other words, students with LD are obligated to seek accommodations because of the failure of the ableist post-secondary environment to include them in the first place. Inaccessibility also reduces the responsibility on post-secondary institutions to proactively address barriers to equity for students with LD (Brown et al., 2020).

Future Research

Clearly, further research is needed in many areas. Additional studies are needed to evaluate the efficacy of commonly-used accommodations. A broader perspective could be provided by examining the history of access to post-secondary education for students with LD, along with advances in areas such as legislation that includes access to education for persons with disabilities as a fundamental human right. Future research could also examine attitudinal change in the perception of disabilities, including LD, over time and the impact on accessibility and social inclusion at post-secondary institutions.

Finally, more research to understand the personal impact of persistent barriers under the current "deficit model" for post-secondary students with LD is essential. In particular, it is critical to investigate the lived experience of the students themselves, as well as of their Disability Services Office service providers. These voices are currently underrepresented, and could provide an ecologically valid understanding of barriers to equity, along with recommendations for improvement based in the subjective experience of post-secondary students with LD and their service providers.

Limitations

Despite knowledge that transitions are an important part of LD student experiences, due to the broad search terms in this review, a specific focus on transition to post-secondary education was not included. Although comprehensive, our review did not include literature from outside of North America or published in languages other than English. Finally, we included peer-reviewed publications but not grey literature.

Conclusion

We conclude that post-secondary students with LD face persistent barriers, with facilitators, to access in three main areas: accommodations, self-advocacy, and supports. Reliance on reactive accommodations is rooted in the traditional model of disability, which focuses on individual disability-related "deficits". In other words, because of their deficits, students must continually adapt (by using accommodations) to an academic environment designed for nondisabled students. The reactive approach to access for students with LD represents a persistent structural barrier, part of the ableist culture that champions resilience. Under the current system, post-secondary students with LD will never truly have equitable access. While institutions claim to be committed to accessibility, structurally-based inaccessibility remains.

Funding

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