

Autism Spectrum Disorder and the Implications For Higher Education: A Literature Review

TC WAISMAN
MARLON SIMMONS
University of Calgary

ABSTRACT: This literature review focuses on the experiences of Autism Spectrum Disorder (ASD) students in higher education. We pay particular attention to how ASD students transition from high school into post-secondary education and what supports are beneficial to their educational careers. Our purpose is to understand how autistic students can experience greater success in higher education. Guiding questions for our review are: 1) What factors might contribute to how autistic students learn in the context of higher education? 2) How do autistic students experience post-secondary education? The literature was selected through various sources, including Proquest, Google Scholar, ERIC, eduCAT, and CLIO. Search terms guiding the review included: autistic, autism, high-functioning, student, higher education, college, policies, and leadership. Findings of the literature review point to transition plans; person-centred supports; and innovative leadership, policies, and actions as factors that contribute to ASD students' learning in higher education.

Keywords: Autism and learning, higher education, person-centered support, innovative leadership, transition plans

RESUMÉ: Cette revue de littérature met l'accent sur les expériences des étudiants souffrant de troubles du spectre autistique (TSA) dans l'enseignement supérieur. Nous portons une attention particulière à la façon dont les étudiants avec TSA passent de l'école secondaire à l'éducation postsecondaire et quels soutiens sont bénéfiques à leur carrière éducative. Notre but est de comprendre comment les étudiants autistiques peuvent connaître un plus grand succès dans l'enseignement supérieur. Les questions qui nous ont guidé étaient: 1) Quels facteurs pourraient contribuer à la façon dont les étudiants autistiques apprennent dans le contexte de l'enseignement supérieur? 2) Comment les étudiants autistiques

vivent-ils leurs études postsecondaires? La littérature a été choisie à travers diverses sources, dont ProQuest, Google Scholar, ERIC, Education et CLIO. Les termes utilisés pour la recension étaient: autistique, autisme, haut-fonctionnement, étudiant, enseignement supérieur, collège, politique et leadership. Les résultats de l'examen de la documentation indiquent que les plans de transition, les soutiens axés sur la personne, le leadership, les politiques et les actions innovateurs sont des facteurs qui contribuent à soutenir l'apprentissage des étudiants TSA dans l'enseignement supérieur.

Mots clés : autisme et apprentissage, enseignement supérieur, soutien axé sur la personne, leadership innovateur, plans de transition

Autism spectrum disorder (ASD) or autism spectrum condition (ASC) occurs in about one out of 66 children (Public Health Agency of Canada, 2018). ASC is normally diagnosed in childhood although more adults are now being identified as autistic later in life. ASC is one of the fastest growing developmental disabilities being diagnosed in the US (Autism Society, 2016; Block, Block & Halliday, 2006). Due to a surge of diagnosis in the 1990s (Chown & Beavan, 2012), a considerable number of autistic individuals are reaching college age with a drive to attend a post-secondary institute. Despite having appropriate cognitive ability for academic endeavours, autistic students find it difficult to succeed in higher education. The recent surge of diagnosis has created a strong activated community of autistic students, parents, and supporters who are determined to campaign for ASC individuals to have access and success in higher learning. In the United States, only 0.7 % - 1.9 % of post-secondary students are autistic and of those an estimated 80% do not complete their program (George Washington University, 2017). Statistics based in Canada are not readily available as “currently, there is no comprehensive, comparable, national-level data available on ASD in Canada” (Government of Canada, 2017). Factors attributed to low post-secondary enrollment, retention, and completion include: lack of awareness of autism and related needs; lack of transition support and ongoing support; lack of innovative accommodations, and the lack of education of staff, administration, teachers and peers.

ASD is a neurodiverse condition that is often categorized as a co-occurring disorder (Celani, 2004) and as such autistic individuals may also be affected by other conditions such as: autoimmune issues, gastritis, eczema, asthma, allergies, ear infections, respiratory infections, migraine headaches, ADHD, seizure disorders etc. It is important to foreground the prevalence of co-occurring medical instances in autism because of the totality of its effects on ASD students' health, behaviour, performance in higher learning, and the quality of their lives. Desire for higher learning is not the sole motivation ASC students have for wanting to attend college or university. Employability in an age where the knowledge economy has replaced physical assets, such as buildings, machinery, or land in the development of economies and wealth (Harloe & Perry, 2005), means that higher education is the strongest option an autistic person has of being able to provide for themselves and remain marketable throughout their lives. Autism financially affects the autistic individual, their family, and society. To help offset the growing economic implications and improve the quality of life for autistic individuals, it is incumbent upon higher education institutes, who contribute greatly to the knowledge economy by generating graduates (Delaney & Farren, 2016), to embrace autistic students into their learning communities and assist them to be fully contributing members of society.

Our purpose in this literature review is to understand how autistic students can experience greater success in higher learning institutions. Guiding questions for our review are: 1) What factors might contribute to how autistic students learn in the context of higher education? 2) How do ASC students experience post-secondary education? A review of the literature could provide some context for recognizing autistic students as having positive attributes that contribute to the post-secondary learning environment and the college or university community. The literature was selected through various sources, such as, Proquest, Google Scholar, ERIC, eduCAT, and CLIO. Search terms guiding the review included: autistic, autism, high-functioning, student, higher education, college, policies, and leadership. Integrated search terms included autism AND college, autism AND higher education, autism AND higher education AND policies. Due to the relatively limited research on autistic students in post-secondary education, the review will not be delimited to

search dates or geographical areas. We will also discuss the key issues as identified by way of topic in the literature. Our literature review is organized into the following seven sections: 1) Experiences of autistic students transitioning to post-secondary education, 2) Barriers for ASD students in higher learning, 3) Leadership, policies, and actions, 4) How higher learning institutes benefit from having autistic students, 5) Debates and questions, 6) Discussion, and 7) Conclusion.

In section one, we give voice to the difficult experiences autistic students encounter as they transition into higher education. Further, we discuss the need for support and advocacy prior to the transition and well into the integration process into tertiary education. In section two, we assess the barriers that ASC students experience as they move into higher learning. We focus on accommodations and supports for autistic students and emphasize the need for post-secondary institutions to be well-versed in autism and aware of person-centred approaches that support autistic individuals. In section three, we examine leadership, policies, and actions that can contribute to a more successful outcome for autistic students in higher education. Innovative leadership, strategic partnerships that inform effective policies, and person-centred actions are key to this success. In section four, we make salient how higher learning institutes can benefit from having autistic students in their community. This seldom discussed topic moves from the traditional pathological perspective of autistic students being a deficit in the classroom to the view that there are inherent advantages in having neurodiversity in the post-secondary community. Moving into section five on the debates and questions, we introduce some of the challenges that researchers are currently discussing in the burgeoning field of autism. In section six of the literature review we provide a discussion piece, where we highlight the important points made in each previous section. Lastly, in section seven, we conclude the literature review by making apparent some of the implications concerning ASD in higher education, how the review has informed our understanding of ASC in the context of higher learning, as well as providing variant possibilities for the ways in which the discussion could contribute to ASD student success in the context of tertiary education.

Experiences of Autistic Students Transitioning to Post-secondary Education

Reviewing the literature concerning the experiences of autistic students transitioning into post-secondary education, we found that autistic youth look forward to the opportunity to live full and successful lives. Sometimes success for an autistic and neurotypical (non-autistic) adolescent means being able to go to university and attain a degree. Given the diverse challenges autistic people are living with however, higher education can seem like an impossible milestone. Myriad numbers of autistic students report graduating high school without being prepared for further education or employment. They are not experiencing the same opportunities to be independent that others their age experience as they transition into adulthood (Hendricks & Wehman, 2009). According to recent international data, young people with disabilities were less likely to continue into higher learning than their non-disabled equivalents (Bell, Devecchi, McGuckin, & Shevlin, 2017). “While several factors might explain the limited participation of individuals with disabilities in higher education, it is clear that secondary schools play a critical role in enabling young people with disabilities...to access appropriate pathways to higher education” (Bell et al, 2017, p.56).

Though many Canadian high schools now have programs geared towards those with varying degrees of mental, neurological, and physical abilities, few have dedicated programs for autistic students who have higher learning aspirations. As a result, many high school counsellors are not able to fully understand the challenges ASC students will have in post-secondary learning, and therefore cannot adequately prepare them for success (Graetz & Spampinato, 2008). Active support from parents or other family members becomes key to autistic students who want to go to college or university as these students often need focused advocacy to reach their goals. Ideally, parents or other family members will have already been working in conjunction with the autistic student’s guidance counsellor to interpret the student’s goals and assist them in creating a workable transition plan. Such a transition plan needs to be started in middle school or between 11-14 years old in order to be most effective (Freedman, 2010).

Parents and university personnel identified a variety of activities they believed facilitated a successful transition. Activities most commonly mentioned included (a) development of an intentional and well thought out transition plan that was put in place at the beginning of high school. (Dymond, Meadan & Pickens (2017)

Transition plans should include ongoing skill building in the following areas: social skills, executive functioning, goal setting, anxiety management, self-advocacy, time management, financial skills, health management, self-care, and life skills. Due to the fact that each autistic person has an individual neurological nature, different skills may be needed for each ASC individual. Once a transition plan has been created by the student and their support team, the autistic student can move confidently through their skill learning and reflection process and make changes to the plan as the need arises.

In summarizing section one, we are suggesting that when the time comes to apply to higher education institutes (HEIs), the support team, comprised of the autistic student's family and the ASD student's secondary school, will need to help the student determine the most appropriate fit for a university or college. The autistic student will need to decide the size of the college or university they want to attend, whether they have the ability to live independently on campus, or if they need to be at home, what academic supports they will need, whether to disclose their diagnosis, and what strategies would help them to adapt to the new learning environment (Adreon & Durocher, 2007). If an ASC student is successful in their bid for higher education, they and their advocates ought to consider the potential barriers that might restrict them from completing their program.

Barriers for ASD Students in Higher Education

Regarding the conversation about potential barriers and implications for autistic students in higher education, one article by Cox, Thompson, Anderson, Mintz, Locks, Morgan, Edlestein, and Wolz (2017) noted that autistic students interviewed in a research setting revealed that they were not eager to disclose their ASD diagnosis to their schools, instructors, or fellow students and they would only do so on an as needed basis. This makes it difficult for autistic students transitioning into higher learning to set up successful relationships within their institution and to access

accommodations and supports. Students tended to wait until a high stress event before revealing their autism, which sometimes caused challenges to the perception that others had of the student and the self-identity that the student had of themselves. “The student’s own sense of identity had been shaped by the perceptions of others. The students in this study regularly used language (e.g., “cross-wired” or “something wrong with me” or “abnormal”)” (Cox et al, 2017, p. 81).

Another barrier for autistic students transitioning into tertiary education is the perception that faculty holds of ASC students. Often, students feel belittled, judged, embarrassed, and humiliated both in front of their classmates and in private. Students disclosed that they were not comfortable approaching instructors with any kind of request for support or accommodations because of their fear of retaliation (Hong, 2015). MacLeod, Lewis, and Robertson (2013), discuss Goffman’s (1963) “spoiled identity” theory by stating that “any outward stigma (such as disability) leads to a discrepancy between an individual’s personal and social identity, with negative consequences for that individual” (p. 41). Given the choice between not disclosing their diagnosis and disclosing it with the potential of suffering as a result of prejudices, it is easy to see why ASD students might feel anxious about their ability to be accepted within post-secondary communities.

One way of minimizing issues through the transition period is to ensure that there is a strong relationship between the autistic student, the high school guidance counsellor, and the family support network. If the autistic student is having reservations about self-disclosure, pros and cons should be discussed by the individual and all support parties prior to going to college or university. Ultimately it is the student’s decision to disclose their diagnosis, however, once the support group has their action plan, approaching a university as a team to advocate for the student or empowering the student to self-advocate will help the student to feel confident in their transition to higher learning.

Accommodations and supports for autistic students vary greatly institution by institution. Some colleges or universities offer very little in the way of support systems, while others offer disability accommodations such as: extra time in exams, note-takers in the classroom, rest breaks, and the ability to write exams in a different room. More thorough accommodations might include peer mentoring, referrals to

other services, breaking tests into small blocks to be done over a period of time, and allowing more breaks in the day. While these accommodations may be helpful to some on the autism spectrum, what has proven to be most effective to all ASC students is entering into a post-secondary institution that is well versed in autism, well-trained and grounded in a person-centred autism approach, and innovative in their technique for developing meaningful and successful outcomes for autistic students (Breakey, 2006). Breakey (2006), goes on to explain that:

person-centred means that the autistic person is not slotted into a ready-made provision, where they may be a 'square peg in a round hole'. Instead they become the focus of all planning for a provision which is developed around them. (p. 54)

To summarize the conversation concerning barriers and implications for ASC students in higher education, more research is needed regarding young adults transitioning into post-secondary education especially given that post-secondary school outcomes for autistic individuals are dismal. Yet most research is aimed at autistic children or those autistic individuals who experience severe difficulty in life. (Gelbar, Smith, & Reichow, 2014). Along with more research, consideration needs to be given to factors such as innovative leadership, policies, and actions in the movement towards successful autistic student outcomes in higher education.

Leadership, Policies, and Actions

On the matter of innovative leadership, policies, and action and the relationship with success as an outcome for ASC students in higher education, innovative leadership ought not to be underestimated in the struggle for acceptance, integration, and success of autistic individuals into higher education. Institutional leaders and their boards are crucial in the creation and continued guidance of ASD friendly policies, yet post-secondary leaders are already being stretched due to the many challenges that they are faced with today. Higher learning institutions are dealing with globalization, changes in funding models, increased pressure from students as consumers, increased competition, and a movement towards a business model. (Denman, 2005; Drew 2010, Scott & Dixon, 2008). With all of the added pressure, academic leaders are being called to act in a distinctly entrepreneurial manner.

Entrepreneurial leadership includes taking innovative action, building capacity within the institute, and building strategic partnerships with local and global stakeholders (Drew, 2010; Kitagawa, 2005).

Strategic partnerships within the autistic community are central to the success of ASD students in higher learning. These partnerships are key to attracting ASC students. Autistic students come with a built in community of stakeholders as they are often working in collaboration with the medical system, education system, support groups, disability services, and their own families from the moment they are diagnosed. Building strategic partnerships with those who work with autistic individuals and the autistic student's support network allows post-secondary institutions and academic leaders the ability to build upon these alliances. Developing trusting relationships within the autistic community gives compelling reasons for autistic students to choose these entrepreneurial higher learning institutes.

Along with strategic partnerships, strong person-centred policies for autistic students are critical for the success of ASD individuals in higher education. Policies should reflect the willingness of the institution to be inclusive, flexible, and open to working with autistic students and their stakeholder groups. These policies should be designed for adaptation (Parsons, 2016) and written with ASD students in mind. As well, they should ensure compatibility between the policy and practical application (Callan, Ewell, Finney, & Jones, 2007).

After a thorough evaluation of current and best practices, evidence-based policies (Scott & Dixon, 2008) should be developed to reflect inclusivity of autistic students in all aspects of college and university life. In order for these policies to be practical, the writing of these evidence-based policies need to include members of the autistic student-body past or present. Autistic individuals are on a spectrum and each are unique in their condition (American Autism Association, 2017); therefore, ASC students require tailored accommodations for individual students. It is imperative, therefore, that innovative, person-centred policies (Breakey, 2006; Chown & Beaven, 2012) reflect the need for flexibility and adaptability on a student-by-student basis. At the time of writing this literature review, we the authors were unable to find any research documents focusing on the importance of collaboration between autistic and neurotypical (non-autistic) individuals in the writing of policies in the tertiary learning

environment. This is a typical example encountered in autism advocacy where the voices speaking for autistic individuals are not the voices of the autistic individuals themselves. Those outside of the autism community and outside of the specific higher learning institute, cannot fully grasp the challenges that ASD students have in each particular setting: “Ignoring the voices of ASC students also risks simply reflecting dominant messages based on stereotypes” (Walters, 2015, p.341)

Innovative actions in higher learning span from person-centred accommodations for individual ASD students to post-secondary education programs that are completely dedicated to autistic students. Schools such as Simon Fraser University in British Columbia, Canada; York University in Ontario, Canada, and the University of British Columbia, Canada have developed mentorship programs specifically geared towards autistic students (Roberts & Birmingham, 2017). These programs vary in their detail but they all seek to assist autistic individuals by pairing them up with a peer student who has been educated about autism and vetted to ensure they are likely to be a good fit for an ASD student. Universities in America such as Drexel and Mercyhurst offer pioneering person-centred programs that “support the successful adjustment and progression of college students on the autism spectrum in all domains of college life, thereby broadening their vocational opportunities, and enhancing social and community engagement” (Mercyhurst University, n.d.). These programs offer support such as peer mentoring, priority for specialized housing arrangements, individualized social skills training, a personalized student success plan that is adaptive over time, experiential adventures, vocational skill development, job shadowing, and more. They showcase how innovative leadership, policies, and actions can support autistic students to be successful in higher education.

In summary, the literature leaves us thinking about the myriad ways in which innovative person-centred and adaptable programs for ASC students are a great benefit to autistic student’s in higher education.

How Higher Learning Institutes Benefit from Autistic Students: Diversity and Learning

In the limited field of research regarding autistic students in a post-secondary context, there is a dearth of research on the ways higher learning institutes benefit from

having autistic students in the college or university setting. This in itself could be a sign of the way we as a society view autism as a pathological issue rather than a particular part of the human variation.

If we listen to what autistic people tell us, we begin to realize that our progress in terms of knowledge and understanding has been slow, because we have started from the wrong position. We have started from the outside of the condition and focused on the symptoms. (Breakey, 2006, p.13)

Though there are valid advantages of having autistic students in every learning community, a pervasive deficit-model view of autism has caused us to continue to see autistic students in the classroom as a problem to be fixed (Walters, 2015). This perspective can be extremely harmful to autistic students and it is unhelpful to fellow students who come to understand autism through the language and actions of educational institutions. It should be noted that a burgeoning neurodiversity movement is attempting to change perceptions of neurodiversity in the classrooms, workplace, and the world by bringing attention to the need for social justice and rights for those who are neurodiverse, which includes individuals with autism, ADHD, Tourette's syndrome, bi-polar disorder, dyslexia, dyspraxia, and dyscalculia to name a few (Fenton & Krahn, 2009).

One benefit in having autistic individuals in the classroom setting is that it creates a diverse learning environment that allows neurotypical students to learn how to work with diverse individuals (Walters, 2015), whom they will undoubtedly encounter in their future work environment. For example, autistic students tend to excel in fields such as IT, video game designing, computer programming, research, animation, computer repair, accounting, and engineering. They also excel in professional positions as physicists, mathematicians, data entry personnel, librarians, online course instructors, lab technicians, software testers, and cybersecurity and web designers to name a few. Learning how to communicate with ASC students early in their educational careers will be of great assistance in helping neurotypical students learn to work successfully with neurodiverse individuals in these and other fields.

Exposure to people with mixed abilities also allows post-secondary course designers and instructors to innovate and explore different ways of applying pedagogical methods. In this way, higher learning institutions may strategically

develop the capacity of their people while strengthening the institution's global appeal in meeting the needs of different types of learners. For example, using a diverse pedagogy in a mixed-ability environment can help students to succeed by allowing different learners to choose the specific learning tools that are geared towards their individual learning style (Cox et al., 2017) while also helping instructional designers and instructors to become more global-ready in their experience.

Diverse thinking is a strength in every classroom and interacting with those who think differently allows neurotypical students to see the world through a different lens. Because autism is a neurological condition, it has an impact on many brain functions (Casanova & Pickett, 2013) therefore, autistic individuals may problem-solve in sometimes unexpected ways. Moving into the workplace setting, diverse thinking in the workplace is an important element to a company's success and more companies are seeking out neurodiversity "because neurodiverse people are wired differently from "neurotypical" people, they may bring new perspectives to a company's efforts to create or recognize value" (Austin & Pisano, 2017, p. 3).

In summary, we make salient the concern that autistic students bring many benefits to the educational community where they belong. As we foreground the positive aspects of ASC students in higher education, it is equally important that we also examine the perceived challenges of having autistic students in higher learning.

Debates and Questions

There are many debates in autism research. This section briefly introduces the reader to some of the challenges that researchers are currently foregrounding. One debate regarding disability access in higher learning asks whether accommodation in the classroom is appropriate in every circumstance. An argument against accommodation for students was made in the *Canadian Journal of School Psychology* in 2012. Barbara Roberts (2012) stated that the most convincing reason not to accommodate a student is when professional practice requirements are clearly defined to ensure that graduates of particular certification courses are able to carry out the tasks explicitly stated without compromise. For example, college certifications for positions such as heavy machinery operators, outdoor power equipment

technicians, and paramedics require specific levels of abilities. These jobs may include risks to the safety of the student or others. Roberts (2012) goes on to say that some accommodations may be helpful in various areas of study, however if these hinder the person in real life situations, then accommodations are not the solution but a danger. Roberts (2012) theorizes that students with specific disabilities may not be suited for some educational pathways and occupations.

Another current debate posits that an “over-accommodation” can occur if students with learning disabilities are both accommodated and able to take “deficit-correcting” mental stimulants (Hamlet, 2010). The question of over-accommodation is raised in light of the fact that education has a natural tendency to breed competition amongst students vying for high grades. Hamlet (2010) sees over-accommodation as an unfair advantage and a threat to those students who do not qualify for accommodations. This contradicts Breakey (2006) who presents ASD students as being marginalized, denied access, misunderstood, and misrepresented to the degree that they have been consistently held back from higher education and are therefore vastly underrepresented. Hamlet’s (2010) paper discounts the relatively small number of students with disabilities in higher learning and denies any struggles these students continue to have in ways that cannot be corrected with drugs. Instead the author focuses on the inequality that “normal” students are facing and assumes that any drugs taken by those with learning disabilities are enhancing in some way thus giving them an advantage. In a discussion about an ASD student, Breakey (2006) reveals that the student had trouble concentrating in classes due to the side effects of prescribed drugs, which included drowsiness and the inability to take in information. Rather than being an enhancement, this is an example of a hidden barrier that autistic students face in higher education that cannot be accommodated.

There are many important questions that arose in the writing of this literature review. The first question includes the issue of sustainability when it comes to the quality and reputation of a higher learning institute in an entrepreneurial educational environment (Webber & Scott, 2008). Will increased acceptance of autistic students result in a perceived devaluing of the reputation of higher learning institutes? If so, how do these institutes maintain their status while acting in a truly inclusive and entrepreneurial manner? This subject

needs to be addressed if we are to convince entrepreneurial universities to accept our challenge of welcoming more autistic students into their institutions.

Another significant question arising is whether autistic individuals have always had the capacity for higher education, and if so, has the education system failed them in the past by criticizing them for their own lack of success in a meritocratic framework? Have higher learning institutions helped to endorse an autistic-phobic society all along (Jaarsma & Welin 2012)?

Lastly, we make explicit a difficult question for consideration: Is there a particular articulation concerning autism advocacy that builds its identity on victimhood and a hostility towards those who do not agree with autistic theories based on neurodivergence as a natural human variation? This is a difficult question to ask given the history of abuse, prejudice, and victimization autistic individuals have faced and continue to face. These discussions will continue beyond the boundaries of our literature review. For now we will review our discourse in the hopes that it will serve to ignite further study of autistic students in higher education.

Discussion

We noted myriad forms of implications in thinking through our guiding research questions: 1) What factors might contribute to how autistic students learn in the context of higher education? 2) How do ASC students experience post-secondary education? Autistic individuals live with many challenges on a daily basis, and higher education may seem like an impossible goal for someone on the autism spectrum. Statistically, young people with disabilities are less likely to attend tertiary education than their non-disabled equivalents for many reasons including the fact that they are not championed and they are not well-prepared for the transition. Many high school counsellors who guide students towards a possible future in higher education are not able to fully understand the challenges autistic students will have in post-secondary learning and therefore cannot adequately prepare them for success. A transition plan needs to be started in middle school or between 11–14 years old in order to be most effective. Transition plans for autistic students should include ongoing skill building in the following areas: social skills, executive functioning, goal setting, anxiety

management, self-advocacy, time management, financial skills, health management, self-care, and life skills; although it is important to note that each autistic student will need to create their own bespoke plan that matches their learning needs.

ASD students transitioning into higher learning tend to steer away from revealing their autism diagnosis until a high stress event makes it apparent that they are different. Autistic students reported having negative experiences with instructors belittling them, judging them, or humiliating them in the presence of other classmates and therefore they were anxious about disclosing themselves to their educational community. MacLeod, et al., (2013) claimed that this fear of having a “spoiled identity” contributed to the lack of positive self-identity of autistic individuals and a lack of feeling accepted.

One way of supporting the autistic student in tertiary education is to ensure that there is a strong relationship between the student, high school guidance counsellor, and the family support member so they work as one advocating team for the student in relationship with the post-secondary institute. Choosing a post-secondary institution that is well versed in autism, well-trained, and grounded in a person-centred autism approach (Kurtz, May, Hagner, & Cloutier, 2014; Breakey, 2006) is also ideal. Ultimately however, empowering the student to self-advocate for their needs will help build personal resilience and allow the student to feel confident in their higher learning experience.

One of the important factors in the struggle for acceptance, integration, and success of autistic students into higher education is innovative leadership. Institutional leaders and their boards are critical in the creation and updating of ASD friendly policies. Post-secondary leaders are undergoing many challenges today that their predecessors did not have to face such as globalization, changes in funding models, increased pressure from students as consumers, increased competition, and a movement towards a business model (Denman, 2005; Drew 2010, Scott & Dixon, 2008).

Along with leadership, evidence-based policies and actions should be developed to reflect inclusivity of autistic students in all aspects of college and university life. The writing of these evidence-based policies need to include members of the autistic student-body past or present. Pioneering person-centred programs (Beadle-Brown, Roberts,

& Mills, 2009) offer supports such as peer mentoring programs, priority for specialized housing arrangements, individualized social skills training, a personalized student success plan that is adaptive over time, vocational skill development, and job shadowing. These person-centred actions would allow the campus to move away from simply assisting individuals with their disabilities, and instead, move towards a focus on removing barriers so autistic students can participate fully in the post-secondary education experience.

Conclusion

To conclude our review of the literature concerning autism spectrum disorder and the implications for higher education, we found there is a marked absence of research on the benefits of having autistic students in the college or university setting. Though there are numerous advantages of having autistic students in every learning community, there is an embedded pathological view of autism that has contributed to a continued reading of autism and autistic individuals as a problem to be fixed. A flourishing neurodiversity movement is attempting to change perceptions of neurodiversity in the classrooms, workplace, and the world. Having autistic individuals in the classroom creates a diverse learning environment that allows neurotypical and neurodivergent students to learn how to work together, preparing them for a diverse work environment. Exposure to people with mixed abilities allows course designers and instructors to innovate and explore different ways of applying pedagogical methods to their work, which helps make them and their post-secondary institution more global in their appeal.

While the literature review points to several contributing factors in the lack of preparation for ASC students moving into higher education such as a lack of understanding of ASD needs and a lack of person-centred supports and accommodations, arguably the most important element concerns the part that secondary schools play in inspiring and preparing autistic individuals for the transition. Given the diverse challenges autistic people are living with, higher education can seem like an impossible milestone. The review of the literature amplifies high numbers of autistic students who report graduating high school without being prepared for higher education, and that autistic students who did attend post-secondary education tended to wait until a high stress event before revealing their autism, which

sometimes caused challenges to the perception that others had of the students and the self-identity that the students had of themselves. Faculty perception of autistic students also caused challenges for ASC students such as being humiliated, judged, or embarrassed in the classroom setting by faculty members (Hong, 2015). This type of conduct increased the likelihood of autistic students withdrawing from their program. The review of the literature also posited that accommodations and supports for autistic students vary greatly by institution. Importantly, what the review of the literature leaves us thinking is that one of the possibilities for the success of autistic students is to find a college or university that is well-versed in autism and grounded in person-centred autism policies that develop meaningful and successful outcomes for autistic students (Beadle-Brown, et al., 2009; Breakey, 2006; Chown, & Beavan 2012).

REFERENCES

- Adreon, D., & Durocher, J.S. (2007). Evaluating the college transition needs of individuals high- functioning autism spectrum disorders. *Intervention in School and Clinic*, 42(5), 271-279.
- American Autism Association. (2017). Autism quick facts. Retrieved May 30, 2018, from <https://www.myautism.org/all-about-autism/autism-quick-facts/>
- Austin, R. D., & Pisano, G., P. (2017). Neurodiversity as a competitive advantage. *Harvard Business Review*, 1-9.
- Autism Society (2016). *Facts and statistics*. Retrieved March 28, 2018, from <http://www.autism-society.org/what-is/facts-and-statistics/>
- Beadle-Brown, J., Roberts, R., & Mills, R. (2009). Person-centred approaches to supporting children and adults with autism spectrum disorders. *Tizard Learning Disability Review*, 14(3), 18-26. Retrieved May 30, 2018, from <http://dx.doi.org/10.1108/13595474200900024>
- Bell, S., Devecchi, C., McGuckin, C., and Shevlin, M. (2017). Making the transition to post-secondary education opportunities and challenges experienced by students with ASD in the Republic of Ireland.

- European Journal of Special Needs Education*, 32(1), 57-70. Retrieved April 4, 2018, from <http://dx.doi.org/10.1080/08856257.2016.1254972>
- Block, M.E., Block, V.E., & Halliday, P. (2006). What is autism? *Teaching Elementary Physical Education*, 17(6), 7.
- Breakey, C. (2006). *The autism spectrum and further education: A guide to good practice*. London: Kingsley Publishers.
- Callan, P.M., Ewell, P. T., Finney, J.E., & Jones, D.P. (2007). Good policy, good practice. Improving outcomes and productivity in higher education: A guide for policymakers. *Joint Report from The National Center for Public Policy and Higher Education and The National Center for Higher Education Management Systems*. 7(4), 1-53.
- Casanova, M.F., & Pickett, J. (2013). The neuropathology of autism. In: M. Casanova, A. El-Baz, J.Suri (Eds.), *Imaging the brain in autism*. (27-43). New York: Springer.
- Celani, G. (2004). Comorbidity between autistic syndrome and biological pathologies: Which implications for the understanding of the etiology? *Journal of Developmental and Physical Disabilities*, 16(2), 215-228. Retrieved April 4, 2018, from <http://dx.doi.org/10.1023/B:JODD.0000026617.62533.44>
- Centre for Disease Control and Prevention. (2016, July 11). *Autism spectrum disorder: Data and statistics*. Retrieved March 23, 2018, from <https://www.cdc.gov/ncbddd/autism/data.html>
- Chown, N., & Beavan, N. (2012). Intellectually capable but socially excluded? A review of the literature and research on students with autism in further education. *Journal of Further and Higher Education*, 36(4), 477-493. Retrieved March 26, 2018, from <http://dx.doi.org/10.1080/0309877X.2011.643771>
- Coates, H. (2009). What's the difference? A model for measuring the value added by higher education in Australia. *Higher Education Management and Policy*, 21(1), 1-19. Retrieved March 26, 2018, from <http://dx.doi.org/10.1787/hemp-v21-art5-en>
- Cox, B.E., Thompson, K., Anderson, A., Mintz, A., Locks, T., Morgan, L., Edlestein, J., & Wolz, A. (2017).

- College experiences for students with autism spectrum disorder: Personal identity, public disclosure and institutional support. *Journal of College Student Development*, 58(1), 71-87.
- Delaney, L., & Farren, M. (2016). No 'self' left behind? Part-time distance learning university graduates: social class, graduate identity and employability. *The Journal of Open, Distance, and E-Learning*, 31(3), 194-208. Retrieved March 26, 2018, from <http://dx.doi.org/10.1080/02680513.2016.1208553>
- Denman, B. (2005). What is a university in the 21st century? *Higher Education Management and Policy*, 17(2), 9-28. Retrieved March 6, 2018, from <http://dx.doi.org/10.1787/hemp-v17-art8-en>
- Drew, G. (2010). Issues and challenges in higher education leadership: engaging for change. *The Australian Educational Researcher*, 37(3), 57-76. Retrieved February 9, 2018, from <http://dx.doi.org/10.1007/BF03216930>
- Dymond, S., K., Meadan, H., & Pickens, J. L. (2017). Post-secondary education and students with autism spectrum disorders: Experiences of parents and university personnel. *Journal of Developmental and Physical Disabilities*, 29(5), 809-825. Retrieved February 14, 2018, from <http://dx.doi.org/10.1007/s10882-017-9558-9>
- Fenton, A. & Krahn, T. (2007). Autism, neurodiversity, and equality beyond the 'Normal.' *Journal of Ethics in Mental Health*. 2(2), 1-6.
- Freedman, S. (2010). Developing college skills in students with autism and asperger's syndrome. Jessica Kingsley Publishers. Retrieved March 6, 2018, from ProQuest Ebook Central, <https://ebookcentral-proquest-com.ezproxy.lib.ucalgary.ca/lib/ucalgary-ebooks/detail.action?docID=677683>.
- Gelbar, N.W., Smith, I., & Reichow, B. (2014). Systematic review of articles describing experience and supports of individuals with autism enrolled in college and university programs. *Journal of Autism and Developmental Disorders*, 44(10), 2593-2601. Retrieved April 4, 2018, from <http://dx.doi.org/10.1007/s10803-014-2135-5>
- George Washington University. (2017). Students with Autism in college classrooms. Retrieved February 2, 2018,

- from George Washington University, Health web site: <https://www.health.gwu.edu/students-autism-college-classroom>
- Goffman, E. (1963). *Stigma: Notes on the management of spoiled identity*. Middlesex, UK: Penguin.
- Government of Canada (2017). Surveillance of autism spectrum disorder. Retrieved April 12, 2018, from <https://www.canada.ca/en/public-health/services/diseases/autism-spectrum-disorder-asd/surveillance-autism-spectrum-disorder-asd.html>
- Graetz, J., E., & Spampinato, K. (2008). Asperger's syndrome and the voyage through high school: not the final frontier. *Journal of College Admission*, 198, 19-24.
- Hamlet, E. (2010). "Over-accommodation" in higher education: an ADA sanctioned injustice exposed. *Cardozo Public Law, Policy & Ethics Journal*. 12(49), 495-527.
- Harloe, M., & Perry, B. (2005). Rethinking or hollowing out the university? External engagement and internal transformation in the knowledge economy. *Higher Education Management and Policy*, 17(2), 29-41. Retrieved 6 April, 2018 from <http://dx.doi.org/10.1787/17269822>
- Haley, C. (2013, Oct 11). *Grandin says think differently*. *McClatchy - Tribune Business News*. Retrieved February 9, 2018, from <http://ezproxy.lib.ucalgary.ca/login?url=https://search-proquest-com.ezproxy.lib.ucalgary.ca/docview/1441310520?accountid=9838>
- Hong, B., S., S. (2015). Qualitative analysis of the barriers college students with disabilities experience in higher education. *Journal of College Student Development*, 56(3), 209-226.
- Hendricks, D.R., & Wehman, P. (2009). Transition from school to adulthood for youth autism spectrum disorders: Review and recommendations. *Focus on Autism and Other Developmental Disabilities*, 24(2), 77-88. Retrieved March 6, 2018, from <http://dx.doi.org/10.1177/1088357608329827>
- Jaarsma, P., & Welin, S. (2012). Autism as a natural human variation: Reflections on the claims of the neurodiversity movement. *Health Care Analysis*,

- (20) 1, 20-30. Retrieved March 8, 2018, from <http://dx.doi.org/10.1007/s10728-011-01679-9>
- Kitagawa, F. (2005). Entrepreneurial universities and the development of regional societies: A spatial view of the Europe of knowledge. *Higher Education Management and Policy*, 17(3), 59-86.
- Kurtz, A., May, J., Hagner, D., & Cloutier, H. (2014). Person-centered planning for transition-aged youth with autism spectrum disorders. *The Journal of Rehabilitation*, 80(1), 4.
- Lewis, D. R. (2017). *Best practices for facilitating independent living, employment, and higher education for emerging adults with autism* (Order No. 10196020). Retrieved January 28, 2018, from <http://ezproxy.lib.ucalgary.ca/login?url=https://search-proquest-com.ezproxy.lib.ucalgary.ca/docview/1834109287?accountid=9838>
- MacLeod, A., Lewis, A., & Robertson, C. (2013). 'Why should I be like bloody rain man?!' Navigating the autistic identity. *British Journal of Special Education*, 40(1), 41-49. Retrieved January 28, 2018, from <http://dx.doi.org/10.1111/1467-8578.12015>
- Mercyhurst University. (n.d.). Autism initiative at Mercyhurst. Retrieved February 20, 2018, from <http://www.mercyhurst.edu/academics/autism-initiative-mercyhurst>
- Parsons, B.M., (2016) Local autism policy networks: Expertise and intermediary organizations. *Educational Policy*, 1-32. Retrieved March 6, 2018, from <http://dx.doi.org/10.1177/0895904816673743>
- Public Health Agency of Canada. (2018). *Autism spectrum disorder among youth in Canada 2018*. Retrieved April 4, 2018, from <https://www.canada.ca/content/dam/phac-aspc/documents/services/publications/diseases-conditions/autism-spectrum-disorder-children-youth-canada-2018/autism-spectrum-disorder-children-youth-canada-2018.pdf>
- Remy, C., & Seaman, P. (2014). Evolving from disability to diversity: How to better serve high-functioning autistic students. *Reference & User Services Quarterly*, 54(1), 24.

- Roberts, B. L. (2012). Beyond psychometric evaluation of the student-task determinants of accommodation: Why students with learning disabilities may not need to be accommodated. *Canadian Journal of School Psychology*, 27(1), 72-80. Retrieved March 8, 2018, from <http://dx.doi.org/10.1177/0829573512437171>
- Roberts, N., & Birmingham, E. (2017). Mentoring university students with ASD: A mentee-centred approach. *Journal of Autism and Developmental Disorders*, 47(4), 1038-1050. Retrieved 8, March, 2018 from <http://dx.doi.org/10.1007/s10803-016-2997-9>
- Scott, S., & Dixon, K. (2008). The globalised university: trends and challenges in teaching and learning. Perth, West Australia: Black Swan Press.
- Scott, S., & Dixon, K. (2009). Partners in a learning organization: A student-focused model of professional development. *The Education Forum*, 73(3), 240-255. Retrieved March 8, 2018, from <http://dx.doi.org/10.1080/00131720902991319>
- Walters, S. (2015). Toward a critical ASD pedagogy of insight: Teaching, researching, and valuing the social literacies of neurodiverse students. *Research in the Teaching of English*, 49(4), 340-357.
- Webber, C. (2016). Higher education administration, and leadership: Current assumptions, responsibilities, and considerations. *Research in Educational Administration & Leadership*, 1(1), 61-84.
- Webber, C. F., & Scott, S. (2008). Entrepreneurship and educational leadership development: Canadian and Australian perspectives. *International Electronic Journal for Leadership in Learning*, 12(11).

Address for Correspondence

TC Waisman

teresia.waisman@ucalgary.ca

University of Calgary