**Autism Spectrum Disorder and Higher Education**

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*Colleges and universities, specifically community colleges or regional campuses, are seeing a rise in enrollment of students with Autism Spectrum Disorder (ASD). In addition to addressing characteristics of students with ASD, this review of current literature uncovers best practices for supporting these students in higher education and helping them persist in the quest to earn a college degree. Specific programs and accommodations exist to support students with ASD have been found to be effective. In addition, behaviors of professors and support staff, like ensuring that students with ASD seek accommodations for their disability, have been shown to increase the persistence of students on the Spectrum.*

Autism spectrum disorder (ASD) is a neurodevelopmental disorder that is usually diagnosed in childhood. Over the years, rates of ASD have steadily risen and according to the Centers for Disease Control and Prevention (CDC, 2015), rates of autism are now 1 in 68 in all races and socioeconomic groups. Males are five times more likely to be diagnosed with ASD than females (CDC, 2015). The release of the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (*DSM-5),* brought with it significant changes in the way to which ASD is referred. Historically, ASD was differentiated into three categories: Autism, Asperger's Syndrome, and PDD-NOS (Pervasive Developmental Disorder-Not Otherwise Specified). Today, there is no differentiation between the three categories as ASD was encapsulated into one set of diagnostic criteria: "persistent deficits in social communication and social interaction across multiple contexts;" and "restrictive, repetitive patterns of behavior, interests, or activities" (American Psychological Association, 2013, p. 50).

Children with ASD have many different issues with language and motor skills; they also can have a great deal of difficulty functioning in social situations. The term "spectrum" is appropriate for this disorder as the variance in issues is as diverse as the people diagnosed with ASD. For example, one area of difficulty can be speech. Some children with ASD are non-verbal, while others can speak very well; some individuals with ASD are

cognitively challenged, and some are extremely intelligent. The CDC (2015) reported that "46% of children identified with ASD [have] average to above average intelligence;" therefore, it stands to reason that in the future many of these students will choose to pursue college degrees. College can be a challenging place for any student, but it can be extremely challenging to someone who struggles socially, prefers sameness in routines, and has fixed interests. Therefore, colleges and universities need to consider what they can do to accommodate students with ASD.

Students with ASD currently enrolled in college are not doing well as Gobbo and Shmulsky (2014) reported that within 6 years of graduating from high school, 47% of students with ASD enrolled in college; however, only 35% of these students graduated. To compare, 38% of students with all disabilities who also enrolled in college within 6 years of graduating from high school graduated from college, an increase of 3% over students with ASD (Gobbo & Smulsky). The graduation rate for "typical" students was 51%, a 16% gain over students with ASD (Gobbo & Smulsky). Despite their average to above average intelligence, why are students with ASD not graduating from college? Clearly research needs to be done to determine how colleges can help students with ASD persist and earn their degrees.

**Persistence**

The whole point of enrolling in higher education is to eventually graduate and earn a degree. There are many factors that lead students to succeed or fail in this quest. Wei, Christiano, Yu, Blackorby, Shattuck, and Newman (2014) studied 190 students with ASD. Their study divided participants into two groups: STEM (science, technology, engineering, and math) majors and students with other majors. Their research uncovered some pertinent persistence factors. The study uncovered that males and minorities (non-whites) with ASD, regardless of major, were more likely to graduate than females and white students (Wei et al.). Students whose parents attended some type of higher education were also more likely to graduate than those whose parents did not pursue a college degree (Wei et al.). Finally, students with ASD in STEM degree paths were more likely to persist (Wei et al.).

Wei et al. (2014) also addressed how type of college (2-year and 4-year) affected persistence. Of the students with ASD studied, 81.33% chose to attend a 2-year community college and 18.67% enrolled in a 4-year university (Wei et al.). One reason more students with ASD may choose to

attend a 2-year community college is to eliminate the stress of living independently. Van Hees, Moyson, and Roeyers (2015) wrote that many students with ASD prefer to live at home during the first year in order to get acclimated to college. What about persistence at these two types of universities? Of the students with ASD who started at a 2-year college and stayed, STEM majors were more likely to persist than non-STEM majors (Van Hees et al.). Of those who attended only a 4-year university or those who attended both a two- and four-year university, there were no differences between STEM and non-STEM majors in persistence (Van Hees, Moyson, & Roeyers). Wei et al. (2014) uncovered that students with ASD who attended both a 2-year and 4-year college, rather than exclusively a 2-year or 4-year college, persisted more. Interestingly, STEM majors, who tend to persist more, are more likely to attend both a 2- and 4-year institution (Wei et al.).

**Support**

If students with ASD are going to succeed in their quest to earn a college degree, they will need a great deal of support. Entering a new place, meeting new people, and dealing with new situations can cause students to have a great deal of fear (Van Hees et al., 2015). Having support from different sources can help students manage anxiety, and getting these supports in place before starting classes can alleviate a great deal of fear (Mitchell & Beresford, 2014). Cullen (2015) reported that students relied predominantly on their families and schools to meet their needs; for this reason, students with ASD often make the choice to attend college close to home (Van Hees et al., 2015).

Whether they go far away or stay close to home, students will need support to transition from high school to college. Oftentimes this transition begins one or two years before students actually enroll in college. All college students are faced with many choices and their consequences, but students with ASD often have more difficulty navigating these choices on their own (Van Hees et al., 2015). Mitchell and Beresford (2014) attested that campus visits helped students with ASD make their decision about which college to attend as well as assisting them to feel more comfortable on the campus. During the process of deciding on a college at which to enroll and when making the move from high school to college, parents are identified as the people on whom students with ASD depend the most. This dependence on family makes sense in light of van Asslet-Goverts, Embregts, Hendriks,

Wegman, and Teunisse's (2015) study. In this case study, a participant describes how her parents recognized the lesser amount of support in college when compared to high school (van Asslet-Goverts et al.). Therefore, the student recorded her lectures so that her parents could help her with her work at home (van Asslet-Goverts et al.).

Families can provide students with ASD with support whenever it is needed. The student with ASD's parents have been helping him or her navigate the world outside of their home all of the student's life, so students will feel comfortable expressing concerns because they are confident their parents understand them and how their disorder impacts their life (Mitchell & Beresford, 2014). Having this support from families is vital; in fact, van Asslet-Goverts et al. (2015) found that students with ASD wanted quality of contact versus quantity of contact with their families. One of the roles parents took on for students with ASD was that of coach (van Asslet-Goverts et al.). Doing so helped to decrease students' fears and anxiety (Mitchell & Beresford, 2014). Campuses need to make an effort to welcome and include parent involvement so that students can utilize their most prominent support. College visit days are a start, but having on-campus events or sponsoring parent programs may be another way to get parents involved.

Besides their families, students with ASD also seek support from college personnel. A study by van Asslet-Goverts et al. (2015) discovered that individuals with ASD preferred contact with professionals rather than peers, and Van Hees et al. (2015) contended that a personal coach was the preferred method. This preference is confirmed by Mitchell and Beresford (2014) who found that students felt best supported when the practitioner knew them personally, including their strengths, weaknesses, and how their autism affected them. In addition to knowing them personally and having a relationship, students with ASD cited reliability of practitioners as being vital (Mitchell & Beresford). Some participants had experiences where practitioners did not deliver or follow through on what they promised, which frustrated students with ASD (Mitchell & Beresford). Students appreciated when practitioners gave information, both verbally and written, that was clear and understandable (Mitchell & Beresford). Honesty, comprehensiveness, sincerity, and being willing to listen were also valued traits (Van Hees et al., 2015).

Another trait of an effective coach was familiarity with ASD (Van Hees et al., 2015). When students felt that the coach understood ASD, for

example by having a family member with the disorder, students felt safer and less anxious (Mitchell & Beresford, 2014). When college personnel do not have insight into or understanding of ASD, support services are unlikely to be effective.

Students with ASD expect support in various areas from their coaches. They want help with social issues, time management and choices (Van Hees et al., 2015). Rather than the typical social skills group, students preferred to have their coach facilitate a support group in which students with ASD could exchange their experiences (Van Hees et al.). They also wanted advice in many areas, like choosing a major and study and organizational skills (Van Hees et al., 2015). Due to these preferences, it is clear that colleges and universities need to either look for individuals who have experience with ASD or train current employees to meet the very specific needs of students with ASD in college. Many colleges and universities are creating programs aimed at helping students with ASD make the transition to college, but many of them require an additional fee for services (*10 Impressive Special College Programs*, 2017; College Autism Spectrum, n.d.). Services can include, but are not limited to, peer mentors, counseling, and special living arrangements.

Besides families and coaches, instructors often have the most contact with students; therefore, they are in a position to provide students with a great deal of support. In addition, students with ASD often feel more comfortable interacting with professors than classmates (Gobbo & Schmulsky, 2014). One strategy outlined by Gobbo and Schmulsky (2014) was for instructors to make time to have one-on-one meetings with students with ASD. Doing so gives them a non-threatening space in which to give students feedback and support. Since students with ASD are often prone to anxiety, instructors can keep an eye out for an individual student's triggers and intervene before the student is overwhelmed. Another way in which instructors can support students with ASD is by encouraging a respectful classroom environment. At the onset of the course, the instructor can talk about how all students have different learning styles and needs. Oftentimes, the comments from students with ASD, whether due to social deficits or a passionate interest on a topic, during classroom discussions are met with "sarcasm and fed-up facial expressions" (McKeon, Alpern, & Zager, 2013, p. 355). Creating a positive learning environment free of judgmental behavior as described above can benefit every student and help them all flourish. McKeon et al. (2013) reported that many professors see students

with learning issues, like ASD, as some of their best students. In addition, having these students in their class is a positive experience. Instructors not only have an obligation do what they can to serve students with special needs, but they can also enhance the classroom environment for "typical" students as well as having an enriching, rewarding experience themselves by creating a classroom culture that is accepting of all students.

**Accommodations**

Whether the support personnel be family, coaches, or instructors, one of the best pieces of guidance that can given to students with ASD is help getting their instructional accommodations. ASD students will likely come out of high school is an IEP (Individualized Education Plan) or 504 plan. Both allow student's accommodations which help students with ASDs navigate the educational process. When a student enters college, many of the accommodations fall under ADA (Americans with Disabilities Act) compliance. Typical accommodations afforded to students with ASDs are extended time for exams, a quiet, distraction-free space to complete exams, note-takers, and the option to do alternate assignments rather than group work (McKeon et al., 2013; Van Hees et al., 2015). Sayman (2015) observed that students often do not know where or how to get their accommodations; therefore, it is very important for support personnel to ensure that accommodations are made. In addition, some accommodations do not make the jump from IEPs to ADA accommodations. Sayman (2015) told of a student who was allowed to use a calculator in high school but not in college. This same student used an organizer in high school as dictated by her IEP but did not feel compelled to do so on her own in college (Sayman). One has to wonder if the university in this case refused the accommodation of the calculator or if the student chose not to use it. Some students are embarrassed about their condition. Interesting to note is that Van Hees et al. (2015) found that students will share their ASD diagnosis with the Office of Disabilities to secure accommodations, but will often not willingly divulge their disorder with others unless they were overwhelmed with stress, felt safe enough to share, or needed specific support. Students stated concerns about others' lack of knowledge about ASD or fear being generalized as reasons for not divulging their disorder. They also express a wish to start over somewhere new (Van Hees et al.).

Besides federally mandated ADA accommodations, many instructors are making accommodations for students on the spectrum within their

classrooms. One hallmark of students with ASD is an interest in a particular topic. Gobbo and Schmulsky (2014) expressed that this interest, should it overlap with course content, can be a great opportunity for students with ASD to excel and share their passion with others. It also may allow students to practice research skills. Instructors also keep a close eye on anxiety in students with ASD as it can hinder the learning process. McKeon et al. (2013) shared that half of the professors surveyed in their study make adaptations to their instructional styles for students with ASD. Nearly 70% provide additional support for long-range assignments and allow re-writes; more than 80% encourage frequent individual conferencing (Gobbo & Smulsky, 2014). Making directions clear, having classroom routines, previewing material and changes, and making the course design transparent were all accommodations and suggestions shared by Gobbo and Schmulsky.

Some students also take the initiative to make accommodations for themselves. Sayman (2015) told of a student who was uncomfortable talking to professors, so she decided to take a friend with her when she met with them. Doing so made her less fearful and more confident (Sayman). Still others make changes to their course loads. In Van Hees et al.'s (2015) study, all of the students except one started the study with a full load of courses, but by the end nearly half of them had reduced their load of courses. Most dramatically, students in the study shared that although they craved and felt most comfortable with structure and predictability, they forced themselves to plan less and deal more authentically with unexpected events in an effort to improve.

Due to their often binary and overgeneralized thinking, students with ASD can have difficulty with problem solving. Therefore, institutions and instructors may be wise to invest time and energy into teaching students effective ways to solve problems. The explicit teaching of problem solving steps was found to be helpful by Pugliese and White (2013). In a study by Hochhauser, Weiss, and Gal (2014) that compared and measured negotiation and conflict resolution strategies of adolescents who were both typical and on the spectrum, participants noted that group meetings in which problem solving and strategies were taught were helpful. However, only 9% of participants with ASD demonstrated improvement in problem solving skills on the post-test (Hochhauser, Weiss, & Gal). While this final measure is not impressive, one has to ponder whether or not the students' problem solving skills might not really be improved in the outside world.

**Social Issues**

According to the *DSM-5*, a hallmark of ASD is a "deficit of social communication" (American Psychological Association, 2013, p. 31). A student who has been living with ASD up to the age of entering college will be well aware of his or her social difficulties, and Sayman (2015) stated that many students are "acutely aware" of their awkwardness in social situations (p. 87). This awareness can lead to fear about saying the wrong thing and anxiety which can cause students with ASD to have diminished self-confidence when attempting to develop and keep relationships with others. Ultimately, students report feeling lonely and isolated (Van Hees et al., 2015). Van Asslet-Goverts et al. (2015) found that people with ASD wanted to increase the size of their network. Cullen (2015) stated that students with ASD have a desire to meet people and want to find out where to meet them. Once they found the best places to meet people, they were unsure what to say to them.

Concerns about academic skills for students with ASD take a back seat to the social elements of the classroom and the college campus (Cullen, 2015). Instructors and students acknowledge that students with ASD often do not recognize the nonverbal social cues of the classroom environment (Gobbo & Shumlsky, 2014; Van Hees et al., 2015). This deficit makes it difficult for students to know when to ask professors questions, how to talk to professors outside of the classroom, and how to initiate and sustain conversations (Van Hees et al., 2015). While students want and need relationships with their peers, often they just do not know how to go about developing them. Gobbo and Shmulsky (2014) reported that students with ASD have difficulty with recognizing the needs of their audience. Difficulty properly interpreting social skills is also noted by Sayman (2015). Oftentimes, these students will say too much or too little. In addition, they may go on a tangent. Unfortunately, the student with ASD often does not realize when his or her behavior has been off-putting to his or her audience. Van Hees et al. (2015) discovered that many students with ASD use the strategy of watching and analyzing others' social interactions in order to model appropriate social behavior on campus.

Sadly, while students with ASD recognize their social difficulties and are desperate to make improvements, they often do not know how. Mitchell and Beresford (2014) noted in their study that none of the participants with whom they spoke were receiving support in the area of social skills. Interesting to note, in a study by Wei et al. (2014), STEM majors

with ASD indicated less difficulty with social skills than their non-STEM counterparts. Could this be because the disciplines represented in STEM programs are attractive to the characteristics of students with ASD? If so, then the STEM students are often surrounded by peers who also experience difficulty with social interaction. Another explanation may be having a common interest. Van Hees et al. (2015) found that students felt more comfortable conversing with college than high school peers because of their "shared interests in the field of study" (p. 1679).

Another hallmark of ASD is a "restricted interest" (American Psychological Association, 2013, p. 31). This interest can sometimes be used to dispel social awkwardness and be to the student with ASD's advantage. When students with ASD are permitted and encouraged to share the interest in which they're passionate, doing so can have classmates see them as a credible authority in a topic. If this occurs, the student with ASD could be considered by others to be engaging and therefore less socially awkward (Gobbo & Shmulsky, 2014).

One of the most oft cited difficulties related to students with ASD's social shortcomings is group work (Cullen, 2015; Gobbo & Shmulsky, 2014; Van Hees et al., 2015). Students cited issues with conversing with their group members as well as how to distribute and navigate assignments (Cullen, 2015). Frustration with group work will often lead to anxiety. When students with ASD become anxious, they often are more rigid and tend to withdraw (Gobbo & Shmulsky, 2014). The best-case scenario is when students with ASD conquer the will to withdraw and instead persevere. Van Hees et al. (2015) gives an account of students who were uncomfortable with group work but still forced themselves to stay engaged. These students saw group work as a great opportunity to socially engage with their classmates.

**ASD Behaviors**

Thus far, many characteristics of ASD behaviors have been addressed, but there are behaviors that are specific to college students with ASD. Some of these behaviors are positive and others are detrimental. People with ASD prefer their routines to be consistent (American Psychological Association, 2013). Van Hees et al. (2015) found that students with ASD immediately started searching for structure and predictability but were often left with neither. This led these students to difficulties with organization and effectively managing their time. Sayman (2015) recounted

a situation where the student felt she needed to study more; in reality, the student needed to be more organized as well as get her assignments in on time. In fact, Van Hees et al. (2015) stated that as students took on and needed to organize more, they became overwhelmed and their organization and time management failed. Sadly, when students became overwhelmed, they isolated themselves, felt tired, were stressed and often depressed and anxious. In extreme cases, these feelings lead to panic attacks. Hendrickson et al. (2013) affirmed that students with ASD have difficulty managing stress, and Bishop-Fitzpatrick et al. (2015) found that when compared to typical volunteers, students with ASD both observed and experienced greater overall stress.

Some behaviors that students with ASD exhibit are strengths. Van Hees et al. (2015) found these students often have good memories, are very detail-oriented, are able to focus well, are analytical and are very observant. These skills often contribute to the submission of exceptional work. Professors note that these students are respectful to the classroom environment on a regular basis by not exhibiting language or behaviors that are disrespectful or insensitive to others (McKeon et al., 2013). When an instructor provides a student with ASD with structure, the student generally embraces it and is subsequently ready to learn a great deal from the course. In addition, these students express a need to be and feel right, which leads them to not be afraid to seek clarification in order to get the correct answers. Students with ASD are also able to take in and learn large quantities of information, but oftentimes struggle with seeing and understanding “the big picture” (Gobbo & Shmulsky, 2014). Often if these students are given additional time, they can see the connections between the smaller and larger pieces of information (Van Hees et al., 2015).

Students with ASD often exhibit behaviors that many would consider atypical. These behaviors can include being easily distracted, disorganized, lacking impulse control and atypical non-verbal behaviors, like lack of eye contact (McKeon et al., 2013). Often they will talk either too close or too far away from someone. They may also not understand unwritten rules for discussions like not talking too long or interrupting others. Eye contact may also be nonexistent or minimal (Gobbo & Shmulsky, 2014).

Language and communication problems also exist for students with ASD (Wei et al., 2014). Many of these issues echo those found in the area of social difficulties. Being able to communicate with others was found to be a

factor in persistence by Wei et al., but not in the way one might expect. In non-STEM majors, those who had more difficulty communicating we more likely to persist than those who did not have as much trouble conversing (Wei et al.). While no explanation is provided in the research, one has to wonder if the ability to converse effectively is consistent with fewer attributes of strengths in other areas. McKeon et al. (2013) asserted that students with ASD have issues with asking and answering questions as well as veering off topic during discussions. Additionally, they may have a difficult time understanding "complex, nuanced information" (p. 355). Students with ASD also have difficulty putting themselves in some else's place; for example, it can be difficult for an student with ASD to communicate what a character in a book is thinking or to empathize with what discussion partners are saying (Gobbo & Shmulsky, 2014).

Individuals with ASD are often very sensitive to sensory stimulation (American Psychological Association, 2013). The APA noted college students with ASD reported feeling overwhelmed by flickering lights and sounds in the classroom (ie. typing on keyboards, cell phone noises). These sensory issues inside and outside of the classroom cause students to avoid certain areas (like the cafeteria). In addition, students often became stressed and fatigued (Van Hees et al., 2015).

**Conclusions**

When looking at trends in ASD, prevalence has steadily increased. No one knows when and if the numbers will level off, decrease, or continue to rise. Because nearly half of students with ASD have average to above average intelligence, it is vital that colleges and universities begin to address their needs so that they can graduate with college degrees. What would a successful program look like? Based upon the research, support needs to begin with the college visit. Parents need to be considered as part of the support network and kept in the circle of information since they are often students with ASD's number one support structure. Colleges need personnel to act as coaches for students with ASD. These coaches need to get to know the students personally and be available for consultation frequently. These coaches need to be very familiar with ASD and need to ensure that the ASD students secure their accommodations. The university needs to offer training and support groups for note-taking, time management, and social skills. These need not be social skills groups, but more along the lines of like-minded students getting together and discussing concerns and issues

with a coach as a facilitator. Universities also need to provide training for professors in order to educate them on the characteristics and needs of students with ASD as well as how to make their classrooms more safe and accepting for all students.

People with ASD have made exceptional marks on the world thus far, and young adults with ASD need to be afforded the same opportunities. A college education is often the gateway to greatness. Colleges and universities need to take the steps necessary to help students with ASD succeed in reaching their potential.

**References**

*10 impressive special college programs for students with autism* (2017). Retrieved from Bes Colleges Online: http://www.bestcollegesonline.com/blog/10-impressive-special-college-programs-for-students-with-autism/

American Psychological Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychological Association.

College Autism Spectrum (n.d.). *Programs for students with Asperger's syndrome.* Retrieved from CollegeAutismSpetrum.com website: http://www.collegeautismspectrum.com/collegeprograms.html

Centers for Disease Control and Prevention (2015). *Autism spectrum disorder (ASD).* Retrieved from the Centers for Disease Control and Prevention website: cdc.gov

Cullen, J. A. (2015). "The needs of college students with autism spectrum disorders and Asperger's syndrome." *Journal of Postsecondary Education and Disability, 28*(1), 89-101.

Gobbo, K., & Shmulsky, S. (2014). "Faculty experience with college students with autism spectrum disorders: A qualitative study of challenges and solutions." *Focus on Autism and Other Developmental Disabilities, 29*(1), 13-22. doi: 10.1177/1088357613504989

Hochhauser, M., Weiss, P. L., & Gal, E. (2015). "Negotiation strategies of adolescents with high-functioning autism spectrum disorder during conflicts." *Research in Autism Spectrum Disorders, 10*, 7-14.

McKeon, B., Alpern, C. S., & Zager, D. (2013). "Promoting academic engagement for college students with autism spectrum disorder." *Journal of Postsecondary Education and Disability, 26*(4), 353-366.

Mitchell, W., & Beresford, B. (2014). "Young people with high-functioning autism and Asperger's syndrome planning for and anticipating the move to college: What supports a positive transition?" *British Journal of Special Education, 41*(2), 151-171.

Pugliese, C. E., & White, S. W. (2014). "Brief report: Problem solving therapy in college students with autism spectrum disorders: Feasibility and preliminary efficacy." *Journal of Autism and Developmental Disorders, 44*, 719-729. doi: 10.1007/s10803-013-1914-8

Sayman, D. M. (2015). "I still need my security teddy bear: Experiences of an individual with autism spectrum disorder in higher education." *The Learning Assistance Review, 20*(1), 77-98.

van Asselt-Goverts, A. E., Embregts, P. J. C. M., Hendricks, A. H. C., Wegman, K. M., and Teunisse, J. P. (2015). "Do social networks differ? Comparison of the social networks of people with intellectual disabilities, people with autism spectrum disorders and other people living in the community." *Journal of Autism and Developmental Disorders, 45,* 1191-1203. doi: 10.1007/s10803-014-2279-3

Van Hees, V., Moyson, T., & Roeyers, H. (2015). "Higher education experiences of students with autism spectrum disorder: Challenges, benefits and support needs." *Journal of Autism and Developmental Disorders, 45,* 1673-1688. doi: 10.1007/s10803-014-2324-2

Wei, X., Christiano, E. R. A., Yu, J. W., Blackorby, J., Shattuck, P., & Newman, L. A. (2014). "Postsecondary pathways and persistence in STEM versus non-STEM majors: Among college students with an autism spectrum disorder." *Journal of Autism and Developmental Disorders, 44,* 1159-1167. doi: 10.1007/s10803-013-1978-5

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