

An Internet Survey: Personal perspectives of effective educational and social strategies
used by Individuals with Aspergers or High Functioning Autism

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Abstract

The purpose of this study was to determine the preferred academic and social strategies used by individuals with Aspergers Syndrome (AS) or High Functioning Autism (HFA) using an internet survey. Many dedicated professionals have researched effective strategies to improve learning and social skills for individuals diagnosed with Autism Spectrum Disorders (ASD). Adults on the Autism Spectrum can provide insights into strategies and accommodations that have been beneficial for developing academic and social skills. The individual perspective is a significant factor to consider when educators or parents are developing strategies to facilitate optimal educational and social experiences. Participants were recruited through email invitations sent through a network of services for students with disabilities from six universities, eight autism service organizations, and six individual websites. Four of the universities have a program specifically designed to provide services for students with an autism spectrum disorder for an additional fee, upon acceptance. The 40-item online survey asked adults with a diagnosis of High Functioning Autism or Asperger syndrome to respond to specific strategies used for educational, social, home, and leisure activities. After eight weeks, despite repeated attempts to recruit participants, a total of 5 individuals responded. The results of this research reflect the findings of current research and recommendations in regard to implementing appropriate strategies and supports to enable individuals with autism spectrum disorders to successfully transition into post-secondary educational endeavors.

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The Autism Society of America (2010) defines autism as a complex developmental disability that typically appears during the first three years of life and is the result of a neurological disorder that affects the normal functioning of the brain, impacting development in the areas of social interaction and communication skills. The Autism Society of America (2010) reports that both children and adults with autism spectrum disorders typically demonstrate difficulties with verbal and non-verbal communication, social interactions, and leisure or play activities. Children with autism do not develop theory of mind or empathy and have sensory integration problems and motor skill delays as well as displaying repetitive behaviors. They perceive and process information about the world in a unique way.

The prevalence of individuals affected with autism spectrum disorders is estimated to be 1 in 110, affecting individuals from all socio-economic, educational, and ethnic backgrounds (Center for Disease Control and Prevention, 2010). The American Psychiatric Association classifies autism as one of the five pervasive developmental disorders that begin during childhood. Autism is a spectrum disorder meaning that each individual diagnosed with autism is affected differently and may display a combination of characteristic behaviors in varying degrees of severity. The diagnostic criteria for autism are found in the *Diagnostic Manual of Mental Disorders-Fourth Edition* (DVM-IV; APA, 1994). A multi-disciplinary team consisting of a developmental pediatrician, child psychiatrist, physical therapist, occupational therapist, and speech therapist conduct evaluations and provide treatment recommendations. Autism is a lifelong disability with no known cause or cure.

According to the Center for Disease and Control Prevention (2010), Asperger syndrome is one of the disorders on the autism spectrum. Diagnosis usually occurs during a child's school years. The difference between autism and Asperger syndrome is that children with Aspergers do

not have delays in language and have average or above average intellectual ability. Research does not distinguish with any consistency the difference between High Functioning Autism and Aspergers syndrome because of the similarities between the two disorders according to Baron-Cohen (as cited in Attwood, 2000). The specific diagnostic criteria for Asperger syndrome are found in the Diagnostic Manual of Mental Disorders-Fourth Edition. (DVM-IV; APA, 1994) and is described more fully in the following section. This study does not attempt to discuss the similarities and differences between High Functioning Autism and Asperger syndrome. However, clinical data suggests similar areas of difficulty in understanding facial expressions, and social integration for individual with High Functioning Autism and Asperger syndrome (Attwood, 2000).

Drs. Leo Kanner and Hans Asperger were two early pioneers in the field of autistic disorders. In 1943, Kanner published a report about a small group of children he observed in his clinic in Baltimore, Maryland who shared similar unusual behaviors. Kanner termed this cluster of behaviors, Early Infantile Autism, and associated these behaviors with schizophrenia. At that time, children displaying these behaviors were institutionalized and professionals, including Dr. Kanner, believed the cause of early infantile autism was that parents of these children were cold and unloving. The term “refrigerator mothers” came into use to describe the cause.

In 1944 in Europe, Hans Asperger observed a small group of adolescent boys who also shared unusual social behaviors that he termed autistic psychopathy. However, Asperger’s findings would not receive recognition for many decades. Many of the characteristics described by Drs. Kanner and Asperger are included in the definition of autism in the *American Psychiatric Association’s Diagnostic and Statistical Manual- 4th Edition* (DSM-IV).

The U.S. Department of Education and the Office of Special Education Programs requested the research services of the National Academies of Science provide a multidisciplinary approach to assess the effectiveness of childhood intervention programs for children on the autism spectrum. The National Research Council (NRC) formed a panel of 14 professionals and named it the Committee on Educational Interventions for Children with Autism (CEICA). The panel reviewed intervention programs, the role of the family, diagnostic standards, classification categories, IDEA, inclusion, and assistive technology related to autism spectrum disorders. The recommendations of the CEICA are meant to assist parents, educators, and professionals in the development of programs for children of the autism spectrum. The committee recommended that all children on the autism spectrum be eligible for special education services regardless of the severity of their needs or the specific classification they have been given. The committee recommended that supports a) be provided as needed throughout the lifespan of an individual with autism, b) the child should have the same educational goals as any child, c) educational goals should encourage personal independence and social responsibility, and d) the environment should allow the child to develop social and cognitive skills. The committee's report stressed the importance of considering the effects of autism and understanding the individual strengths and weaknesses of each child in relation to development (NRC 2001). The question the current research was designed to answer is whether or not research-based intervention strategies implemented for students with a diagnosis of Asperger syndrome (AS) or High Functioning Autism (HFA) have provided the supports necessary to transition into post secondary education programs.

Review of the Literature

The literature reviewed for this study was found during searches of ERIC, Google Scholar, Psych-Lit, and Education Abstract data bases. Many dedicated professionals have researched interventions and strategies implemented to improve academic and social skills for students with autism spectrum disorders. The majority of research has focused on school-age children. Current research suggests many strategies designed to improve social interactions are successful when implemented at a young age and in an inclusive setting (Attwood, 2000; Hess, K. L., Morrier, L, Heflin, J., & Ivey, M. L., 2008; Myles, Grossman, Aspy, Henry, & Coffin, 2007; & Safran, 2002). Myles et al., 2007 indicate “It is important to begin with a thorough understanding of the student’s needs, especially those related to the underlying characteristics of autism spectrum disorders” (p. 398). The authors recommend that based on an understanding of the characteristics of autism spectrum disorders, programs should support social competency, visual and sensory supports, schedules, and modeling. Individuals on the autism spectrum function best when predictability is established across the school day, including schedules, routines, environments, behavioral and academic expectations, and interpersonal interactions (Myles, et al). In addition, (Attwood, 2000) suggests developing strategies to encourage greater competence in the skills necessary to achieve improve social integration especially with peers. Social Stories (as developed by Gray, 1998) are one such strategy written with the intention of providing information and guidance for what people in a given situation are doing , thinking, or feeling, the sequence of events, and identifying the who, what, where, and when of social situations (Attwood, 2000). As people with HFA and Asperger syndrome age, individuals and families begin to plan for the future. The need for information and programs that can help support individual success is increasing (Camarena & Sarigiani, 2009). Parents, educators, and

administrators often have differing opinions concerning inclusion and intervention strategies for students on the autism spectrum. According to (Safran, 2002) few students with Asperger syndrome have been formally identified. Awareness and attention in the educational community is growing along with emerging literature that primarily addresses interventions focusing on structure, individual, and group interventions. Aspergers significantly affects an individual's social perception, interactions, language, and nonverbal communication. Wing (as cited in Safran, 2002) states the individual with Aspergers may have average to above average intelligence and look typical but lacks the social awareness and skills necessary to connect to his or her world. Unfortunately there is a lack of independent evaluation studies in this area to determine how and if specific strategies are successful (Attwood, 2000). Many individuals with autism spectrum disorders would like to develop relationships and friendships however, due to the challenges of understanding nonverbal communication and subtle social cues they are often misunderstood by others as being distant or rude (Adreon & Durocher, 2007). Social rules and skills need to be taught to individuals on the autism spectrum even if the rules appear to be so obvious that many may question why they need to be taught. Adolescents with Aspergers will not learn social rules by merely placing them in social situations or through observation (Graetz & Spampinato, 2008).

As the autism spectrum diagnosis rate increases, more students are placed in an inclusive classroom setting with supports. It is anticipated that more students will be attending post-secondary educational institutions in the future. The accommodations and supports students receive through special education services under IDEIA in public schools will not automatically be continued in the post-secondary setting, as the Americans with Disabilities Act (ADA) and

the Rehabilitation Act are the primary mandates for student assistance at the postsecondary level. (Graetz & Spampinato, 2008). Graetz and Spaminato state that:

In college, students must identify themselves as having a disability to receive reasonable supports that will assist them in academic performance. For individuals with Asperger's [sic] Syndrome, the academic support such as increased time for test-taking and note-taking may be useful, but other support and services, especially those within the social/relationship domain may not be addressed. (p. 23)

University Programs Designed for Students with Autism Spectrum Disorders

In recent years several universities have developed programs specifically designed to meet the individual needs of students with a diagnosis of autism spectrum disorders. The University of Connecticut, Marshall University, University of Alabama, and Mercyhurst College are four secondary educational institutions that have specific programs designed to assist students on the autism spectrum adjust to college life both academically and socially.

Strategic Education for students with Autism spectrum Disorders (SEAD), a program developed by Drs. Jane Thierfeld-Brown and Lorraine Wolf is a program implemented at the University of Connecticut. The SEAD program offers students with an autism spectrum diagnosis and their families the supports necessary to transition into the university environment. In addition to accomplishing this goal students are guided through the program in order to achieve individual autonomy, social strategies and skills, self-advocacy training, and academic accommodations based on the individualized needs of the student. SEAD provides materials and resources beyond federal mandates and provides autism awareness training for faculty and staff. Students with a diagnosis must apply for admission into the program with a cost of \$3000.00 in addition to tuition and room and board each semester (University of Connecticut, 2010).

In 2002, The College Program for Students with Asperger's Syndrome was implemented by the West Virginia Autism Training Center at Marshall University. The goal of this program is to integrate appropriate strategies based on individual student needs to attain the necessary skills to earn a college degree and prepare for a productive and independent life after college. Students and their families work together as a team to develop a student support plan. The program also provides training for faculty and staff related to the unique learning styles and characteristics of students with HFA or AS. Students with a diagnosis must apply for admission into the program and pay a fee of \$3,200.00 in addition to room and board and tuition each semester (Marshall University, 2010).

The Autism Spectrum Disorders College Transition & Support Program (UA-ACTS) is a program of The University of Alabama Autism Spectrum Disorders Research Clinic. The UA-ACTS program works in conjunction with support services from the Office of Disability Services, the Center for Teaching and Learning, and Resident Life. The UA-ACTS mission emphasizes providing individual services to help students improve self-advocacy, daily living, and social interaction skills. To further support the needs of their students UA-ACTS provides diversity workshops for faculty and staff, peer mentoring programs, and bi-monthly support groups. An additional fee is required per semester for program services (University of Alabama, 2010).

The Asperger Initiative is part of Mercyhurst College's Learning Differences Program. Both programs offer students with diagnosed learning disabilities and Asperger academic and social services based on each student's individual needs. Admission into the program requires application for services, documentation of the student's diagnosis, and an additional fee per semester. In addition to these two programs, the ACCLAIM@Mercyhurst College, a Watson

Institute model is a two-week summer program designed for college bound teenagers with High Functioning Autism or Aspergers. The program personnel work in collaboration with parents, school personnel, community service providers, and participants in developing goals and objectives for the skills necessary to transition and succeed in college (Mercyhurst College, 2010).

Parental Perspective

Green et al. (2006) conducted an internet survey to identify what treatment methods were being used by parents with children diagnosed with autism. The researcher sent out 764 surveys and received a 72% response rate. Parents reported 111 different treatment options. The findings indicated parents use a wide range of treatment options and strategies for their children. The authors conclude additional research may provide insights into influential factors that affect a parent's decision about treatment programs and strategies. Parents frequently serve as advocates for their children during the elementary and secondary school levels. However, like the parents of typically developing college students, the parental role in education diminishes as the expectations for student autonomy increases (Morrison, Sansosti, & Hadley, 2009). When friendships are lacking, parents of children with Aspergers may attempt to fill the void. Supports that typically form from friendships may not occur. As a result, parents frequently continue to solve problems, make decisions, and ask questions for their children (Graetz & Spampinato, 2008).

Personal Perspective

Another factor to consider when developing and evaluating intervention strategies for students on the spectrum is the students' perspective. Many educators are now learning about autism from their students, and one way to find success with a learner is to get to know the

individual and his or her family (Kluth, 2006). Individuals on the autism spectrum have written biographies, essays, blogs, fiction, and even speak at conferences. In her book, *Emergence: Labeled Autistic* (1986), Dr. Temple Grandin shares her experiences and insights about living with autism. Embedded within her life stories, she offers the reader practical advice about how to motivate and work with individuals on the autism spectrum. She reports her school days as the most 'unhappy times' in her life with negative memories and feelings of isolation. Within the prose of *Aquamarine 5* (2002), *Beyond the Wall* (2003), *Reflections of Self* (2005), *Voices from the Spectrum* (2006), and *Out to Get Jack* (2003) written by individuals on the autism spectrum, all share the commonality of providing readers with interesting perspectives about life on the spectrum.

A review of existing literature found no studies that focus on preferred educational and social strategies of individuals on the autism spectrum. Camarena and Sarigiani (2009) interviewed 21 adolescents diagnosed with an autism spectrum disorder and their parents to evaluate perspectives and aspirations of post-secondary achievement. Their research findings described several key challenges faced by all participants: a) social challenges play a central role in educational achievement, b) there is a gap between the hopes and the availability of resources specifically designed to assist the college transition process, and c) families responded positively to any programs that made an attempt to meet their needs beyond the typical academic recommendations that are legally granted to students. Camarena and Sarigiani concluded that:

Access to special services while having the opportunity to develop their talents and skills will best ensure that adolescents with autism spectrum disorders will overcome some of the obstacles associated with their disability and ultimately contribute to their resilience.

(p. 126)

Existing research supports the importance for students with autism spectrum disorders to have access to interventions and strategies based on their individual needs and abilities at an early age. Social integration, self regulation, and organizational skills have an impact on the individual's self-esteem and motivation to continue into postsecondary educational programs. There is a need for future scientific-based research on effective strategies that will prepare and support individuals on the spectrum as they transition into a post-secondary education environment. Adults with an autism spectrum disorder can provide valuable insights into which strategies and accommodations have been beneficial in their preparation and transitions. These insights are invaluable as professionals, family members, and students work as a team when evaluating and implementing academic and social interventions.

Method

The purpose of this study was to evaluate the preferred academic and social strategies used by individuals with High Functioning Autism or Asperger syndrome. An individual perspective is a significant factor for educators or parents to consider when developing and implementing strategies to facilitate optimal educational and social experiences for individuals with AS or HFA.

A 40-item survey was designed to be completed by adults with a diagnosis of High Functioning Autism or Asperger syndrome. The survey was designed to be completed by individuals ranging in age from 18 years and above. No identifying markers were used in this study and participant demographics included age and gender. Confidentiality was carefully considered in the development of the survey. Individuals were identified only as participant 1, participant 2, and so on. After the survey was developed an adult diagnosed with Asperger syndrome agreed to pilot survey questions and provide feedback. The individual responded to

the questions and provided substantive feedback regarding the content, comprehensibility, and presentation of the survey questions. After the questions were revised, a proposal was submitted to the university Internal Review Board for the Use of Human Subjects. Upon approval the survey was set up using an online data collection instrument similar to Survey Monkey.

Procedure

Upon approval from the university Institutional Review Board for the use of Human Subjects, a test email was sent to an individual to examine the email attachment and link in order to determine that the system was functioning properly.

A review of potential websites was conducted to locate the best avenues to reach potential participant and contact information. A cover letter including an attachment with the consent form and imbedded survey link was emailed to the appropriate personnel of universities and organizations providing a description the study and asking them to approve posting the consent and survey link via their listserv to recruit potential participants.

Participants were recruited through email invitations sent through a network of services for students with disabilities from five universities and five autism service organizations. The University of Connecticut, Marshall University, and the University of Alabama have specific programs designed to address the individual needs of students with autism spectrum disorders. Ohio University and The Ohio State University were also selected. Although they do not have a specific program for students on the autism spectrum, they do provide accommodations through student services for individuals with disabilities. The Autism Society of Ohio, The Ohio Center for Autism and Low Incidence (OCALI), Treatment and Education of Autistic and related Communication handicapped Children, (TEACCH), Hope Intervention, and Me Info were also contacted via email.

After four weeks a follow up email was sent to the original recipients. Included in the follow up email was an additional invitation page, highlighting the purpose, confidentiality of the survey based on the information provided in the consent form and a statement of non-affiliation with any program or organization was included. An additional six emails were sent to expand potential participant recruitment. Mercyhurst College, the Autism Society of America (ASA), the Global and Regional Asperger Syndrome Partnership (GRASP), and the Gray Center were contacted. A FaceBook account was opened on the ASA website per the organizations recommendation and the survey was posted on their wall. Another attempt to post the survey invitation was made on one large organizations website. Unfortunately, due to privacy restrictions a request to participate was not possible. Six individual websites were selected as additional sources of recruitment. The six individual websites are not being identified due to possible participant identification. After four additional weeks the survey data was aggregated and exported into Microsoft Excel for appropriate statistical analysis. Results were compiled without identifiers in an Excel file. Despite repeated efforts a total of five responses were returned.

Participants

Participant-One is a 27-year-old male with a diagnosis of High Functioning Autism, Asperger Syndrome, and Pervasive Developmental Disorder (PPD). In addition he was diagnosed with depression. He did not have an IEP while in school and is currently enrolled in a 4-year university undergraduate program. He already holds one Bachelors Degree.

Participant-Two is a 48-year-old male with a diagnosis of atypical development, strong autistic tendencies, and childhood psychosis. He did not have an IEP during his school years and is not currently enrolled in a postsecondary education program.

Participant-Three is a 23-year-old male with a diagnosis of High Functioning Autism and Aspergers. This participant did have an IEP in school and at the age of 16 was an active member on his IEP team and reports being “consulted as to what I thought I needed”. He is currently enrolled in a 4-year university undergraduate program.

Participant-Four is a 55-year-old-female with no official diagnosis. However, neuropsychological evaluations seem to indicate a non-verbal learning disability (NLD). She did not have an IEP in school and graduated from a postsecondary program.

Participant-Five is 28-years-old. No gender was identified. This individual has a diagnosis of Asperger Syndrome and did have an IEP in school. At the age of 12, this participant became an active member of the IEP team reported being “progressively more involved until I controlled everything at 18”. This individual is currently enrolled in a community college.

Instrument

A 40-item electronic survey was used to collect data for this study. The online survey included questions focused on participant demographics, educational, organizational, social, and sensory abilities. The format was forced-choice as well as several open-ended questions seeking participants’ perspectives and advice. The survey contained no identifying markers, was confidential, and voluntary. Consent was indicated by clicking on the link to the survey contained in the email. Completion of the survey was estimated to take approximately 15-20 minutes. A copy of the survey is available upon request from the researcher/author.

Demographic questions addressed age, gender, disability diagnosis, if the participant had an IEP in school, and if they were currently enrolled in a postsecondary educational program.

Academic service questions addressed the nature of post-secondary program services, whether the individual is currently receiving services, and if so what services are used. Finally, participants were asked to summarize services they believe would have been beneficial.

Academic accommodation questions addressed participants' preferred study techniques, test taking strategies, seating preferences, and strategies to help stay focused during class.

Questions pertaining to *organization* addressed what strategies were used to stay organized for school, work, or social schedules.

Life questions addressed special dietary needs and housing arrangements. Questions relating to sensory or leisure issues addressed information about strategies used for *handwriting* and *relaxation* techniques.

Finally, participants were asked questions regarding challenging *social situations* and asked to share *personal advice* for students and educators.

Results

This research was designed to determine preferred academic and social strategies used by individuals with Asperger syndrome or High Functioning Autism using an online survey. Despite repeated efforts over an extended period of time, only five participants completed the survey. The survey data was collected via an online survey tool and exported into Microsoft Excel for appropriate statistical analysis. The data was analyzed using qualitative strategies looking for common themes across responses. Several common themes emerged after analyzing the data.

Technology Use

First, technology was a tool used for time management, organization, academics, in lieu of handwriting, and leisure. Computer use for academic supports was another commonality

among the participants. Most participants relied on some type of visual support to guide them through social challenges. None of the participants reported having special dietary needs but the majority had difficulty sleeping. A variety of relaxation techniques were used by the participants.

Academic Services

Questions 10, 11, 12, and 13 addressed academic services and resources. All of the participants responded yes to question 10 “If you are attending a university/college, does it provide services for students with disabilities?” Question 11 asked, “What services did you receive?” Four of the five participants responded to this question. One participant reported receiving no services and the remaining three participants listed the services they received. Of the three participants receiving services only one received extensive supports.

***Participant 1:** Counseling, Priority Registration, Allowed to use computer for notes, Assistance with notes, Free tutoring, Allowed to use computer for tests/extra time.*

***Participant 2:** None*

***Participant 3:** Accommodations from university Institutional Equity department as needed (usually limited to allowing use of laptop to take notes in class.*

***Participant 4:** At this point 1 on 1 academic counseling through disables [sic] student services (counseling is like a production line for non disabled students), and time and a half on test in a distraction free arena.*

Question 12 was a follow-up question asking participants to provide a reason for not receiving services. Participant five did not receive services and explained that,

“The disabilities office did not understand my needs and thus did not properly advocate on my behalf.”

Although two participants received limited services, they did not provide any additional explanation. Question 13 inquired “What resources would have been beneficial to you as a student?” Three of the five participants provided a response. Among the wish list of beneficial accommodations were quiet testing areas, extra time for tests, using laptops for note taking, and counseling. Although participant one received the most extensive services offered, this individual’s response to question 13 indicates

“Safe Zones-areas on the campus I feel that I can go to have solitude and quiet in, and just sort of zone out. I like quiet areas without much noise or traffic. Knowing I have people and support network if I have a crisis or just need someone to talk to on a full time basis that I can rapidly get ahold of. Also I have been working with a social worker for low income services for several years that has been a big factor I my lifestyle’s gradual improvement, above what the school has provided, that has been my primary service.”

Academic Strategies

Questions 16, 17, 18, 20, 21, 22, 23, 30, 31, and 38 addressed academic supports. Question 16 asked “What strategies do you use when taking notes in class?” Question 17 asked to specify other strategies if ‘other’ was selected in question 16. All five participants responded to question 16 or 17. Three indicated that teacher-prepared outlines were used. Additionally, note sharing with peers and computer use and memorization skills were indicated as strategies used for taking notes in question 16 and 17.

Question 16

Participant 1: Teacher prepared outline, scribe, note sharing with peers, Other

Participant 2: Teacher prepared outline, note sharing with peers

Participant 3: Other

Participant 4: Teacher prepared outline

Question 17

Participant 1: Use computer as primary means of taking notes on laptop. Will often take notes in word document centered around the [the] presentation in close or organized in [organized in] those categories. Often will be looking [looking] at the online information of the day as well (ie, blackboard) to help note important points or organized in [organized in] and look up reading.

Participant 3: take notes using word processor software

Participant 5: Commit everything to memory since my ability to write and listen is poor.

Question 18 asked about seating preference in the classroom. Four out of five participants responded to this question. Two participants preferred the front of the room, one the side of the room, and one the middle of the room. Unfortunately no explanations were provided for seating preferences. Questions 20 and 21 addressed study techniques. Four out of the five listed lecture outlines, while three out of the four listed study or peer groups as preferred study strategies. Flashcards and memorization skills were also included in the responses. Question 21 was answered by one participant, once again adding in-depth personal insight:

Participant 1: Primary method is writ[ten] memorization. Will try and memorize notes verbatim, and use study guides, readings, online course materials as supplementary to read and help familiarize. Normal method is to simply go through notes repeatedly, the reread course materials and books for secondary reinforcement.

Testing Strategies

Question 22 asked, “When you are taking tests, which accommodations do you use or would find helpful?” Four of the five responded that extra time for taking a test and three of the

four also responded that taking a break during testing would be another accommodation helpful for taking tests. Four out of five indicated that separate testing rooms are a strategy that they have used or would be helpful. One participant listed reading the test aloud as a test taking accommodation. Question 23 asked participants to specify any other strategies that they used or thought would be helpful during test taking. Participant one responded that,

***Participant 1:** Use of computer to take test on, if feeling aggravated [an] area to walk in without disturbing anyone (ie, computer room or hallway using a computer would be desired.*

Strategies for Focusing Attention

Question 30 asked “Do you have difficulty staying focused in class?” Three of the five answered no and two of the three indicated they did experience difficulty staying focused in class. Question 31 asked what strategies were used if individual had difficulty staying focused. Although only two participants responded positively, three responses were given. One response from question 30 indicated in the open-ended answer that they “have always had few problems paying attention.”

***Participant 1:** Have always had few problems paying attention. If anything will sidetrack teacher with questions I feel are pertinent but have little connection to the material at hand.*

***Participant 3:** Ask questions, stay engaged in class discussions.*

***Participant 5:** Hope the instructor gives us a break time half way through class.*

Question 38 asked participants to describe their greatest challenges during their first year of postsecondary education. All participants responded and commonalities that emerged from the responses were social interactions, time management, self advocacy, and independence.

***Participant 1:** General lack of supervision-not having to be constantly reminded to keep on a schedule, to do things on time and show up. Had a difficult transition learning to make my own routines without a layer of backup, and having each day often be run differently was very difficult. Having a computer full time and unmonitored was also very difficult.*

***Participant 2:** Social interactions, planning my schedule.*

***Participant 3:** Making new friends.*

***Participant 4:** Other kids, dorm life, parties, etc.*

***Participant 5:** Speaking up for myself, being responsible for managing my own time.*

Organizational Strategies

Question 14 and 15 pertain to organizational strategies used to stay organized for school, work, or social schedules. Question 14 asked participants to choose preferred strategies that help them to stay organized for class, work, and social engagements. One commonality among all responses was the use of computers as an organizational tool. The only explanation provided in addition to the responses to question 14 was a computer-based calendar.

***Participant 1:** Day planner, computer, checklist*

***Participant 2:** Computer, Other*

***Participant 3:** Computer*

***Participant 4:** Day planner, computer, checklist*

***Participant 5:** Computer*

Life Skills and Strategies

The next set of questions addressed current sleeping challenges, special dietary needs, and housing arrangements. All five participants responded to, “Do you have difficulty

sleeping?” Three of the five participants indicated sleeping challenges. The next question asked participants to describe the strategies used if they experienced difficulty with sleeping. Two participants reported using medication, one using over-the-counter medication and the other did not specify prescription or over-the counter.

Participant 1: Medication, have attempted meditation[meditation] to little success or effort. General problems are entirely out of whack sleep schedule where I am often in bed for twelve or more hours on average a night

Participant 5: Take a large amount of OTC sleeping meds because Rx sleep meds leave me unable to wake up or think in the morning

In response to the question, “Do you follow a special diet?” none of the participants followed a special diet, however one participant's wonderful sense of humor was evident in the response that, “Unless caffeine counts, not very much! And meant as a joke.”

In response to question 34, “Where do you currently live?” three of the five reported living in an apartment off campus, one lives in low income housing, and the remaining two participants live at home with family members.

Handwriting and Relaxation

The next set of questions addressed handwriting and relaxation techniques. Question 28 asked “Do you have difficulty with hand writing?” All of the participants responded positively. The next question asked participants what strategies were used and three of the five individuals reported using a computer. The remaining responses indicated that they slowed down and tried to place their thoughts in writing.

Participant 1: Do everything on the computer, hand in electronically (email, file submission) or printed copy.

Participant 2: *Use a computer to type.*

Participant 3: *Just do it, but make professors aware that it's harder for me to put my thoughts to paper than if I were typing it." "Slow down and make sure that what I'm writing is what I want to say, and that I've phrased it the way I wanted to.*

Participant 4: *"Computer"*

Participant 5: *"Slow down. Luckily most assignments can be taken home and typed."*

Question 32 asked participants to indicate from a selected list, activities participated in for relaxation. Walking and listening to music were listed in three of the five responses. Sports were also listed; however no specific sport was mentioned. Yoga was also listed as a relaxation activity. Additional responses included bicycling and video games were reported as additional activities. Two of the participants responded with very specific interests.

Participant 1: *Video Games, Role Playing Games, Television. Fantasy/Escapism*

(reading, imagination, action figures/toys.) Much time is spent online in various forums.

Geek activities (Sci-fi, toys, comics). Reading."

Participant 3: *Going to church, going shooting (I may have ASD but I'm still eligible and competent to own guns), playing with my guinea pig.*

Social Challenges

The next questions addressed social challenges. Question 36 asked participants to choose strategies from a list that they have used in challenging social situations. Four of five participants answered this question and answers varied from one or two strategies to five. Social stories, visual cues, role playing, and support groups were listed. In addition, ritualism, social coaches, power cards, and trial and error were additional strategies used by participants.

Question 36

Participant 1: Social Stories, Social Skills Groups, Role Playing, Visual Cues, Other

Participant 2: Social Stories, Other

Participant 3: Visual Cues

Participant 5: Other

Question 37

Participant 1: Learned to socialize to a large degree by ritualism. With a language therapist and many social coaches. Normal method was to have 'practice conversations' and memorize dialogue trees and appropriate responses, and to focus on narrowed visual cues to help interpret.

Participant 2: Power Cards

Participant 5: Support Groups, lots of trial and error.

Personal Advice

The final two questions asked participants to offer personal advice to students and educators. The first asked participants to provide advice for students preparing to attend a post-secondary educational program. Advice from the participants focused on using support groups, safe havens, attending to structure and scheduling, as well as becoming familiar with the environment. Advice for educators focused on understanding individual student needs and different learning styles, taking time to speak one-on-one with students, listening to their concerns and abilities, and taking time to explain the syllabus and class expectations. Commonalities that emerged from individual responses were engaging in social experiences such as a support group or other organization, learning time management skills, self advocacy, and independence.

Question 39

Participant 1: *Have support groups available and people or areas you trust to find ways to distress. Knowing your way around and feeling safe and having familiarity in places where you can isolate yourself or people you feel you can unload to. If anything, at first finding ways to acclimate [acclimate] yourself with the campus and knowing the services ahead of time is of great benefits. Try and make your own schedule. For me, each time I would have a new quarter start I would walk the route I would take to each class to figure out the best method of going from place to place.*

Participant 2: *Have support provided for students much like the Bridges to Adelphi program at Adelphi University in Garden City, New York.*

Participant 3: *Get involved in a campus organization that you can feel comfortable.*

Participant 4: *Have your own room or your own apartment off campus.*

Participant 5: *Start out with a part time schedule (about half is good) for at least the first semester so you can gauge how you will handle the workload and the stresses related to taking classes. Unlike high school, nobody is going to do anything for you if you don't ask, and not always even then. Don't make any excuses unless you are sure the instructor will agree that whatever you have going on must take priority, and even then try to avoid making excuses. Don't ask for any additional accommodation that's not listed with disabled student services except under the most extreme circumstances (treat this like excuses) If you screw something up, admit it because your honesty will be refreshing.*

The next question asked participants to provide advice for educators preparing their students for transitioning into life after high school. Four of the five participants responded and

common themes emphasized the significance for educators spending time with students. Thoroughly explaining post-secondary expectations both academically and socially, understanding students' individual abilities and needs, focusing on self-advocacy and time management, and living skills were beneficial in helping students understand expectations. Additionally, these recommendations also help educators understand the students' learning styles and needs.

Question 40

Participant 1: *Be aware of problems of students, and be willig [willing] to work with tehm [them], but also be firm. IF a student is disruptive or such or is taking up too much class time, talk with tem[them] and try and work with tehm [them]. Find subtler ways fo [for] getting their attention and such. Be available to help them transition into life at a college away from home and to help them keep focused and have a safe haven.”*

Participant 2: *Spend time on discussing and exploring what life is like after graduation in terms of higher education, employment, relationships, housing, etc. Teaching self-advocacy skills is vital as well in preparation for obtaining accommodations under ADA” which is a self-serve model in contract to being a madate [mandate] as is IDEA.*

Participant 3: *Emphasize time management, study skills, getting involved in extracurricular activities.*

Participant 5: *The syllabus can be intimidating. Emphasize to the students that it can be done. Understand that different people have different learning skills and some people just won't measure up to their usual expectations because the class is outside the scope of their major and they are just trying to scrape by.*

Discussion

This research was designed to determine preferred academic and social strategies used by individuals with Asperger syndrome or High Functioning Autism using an online survey. The question this research intended to answer was whether or not research-based intervention strategies implemented for students with a diagnosis of Asperger syndrome or High Functioning Autism have provided the supports necessary to transition into post secondary education programs. Several common themes emerged from the data focusing on social interactions, time management, self-advocacy, and independence. Due to the small sample size and the individual abilities and needs of the participants, the results cannot be generalized. However, these findings support the findings and recommendations of existing research.

Advice from the participants to future students focused on using support groups, safe havens, attending to structure and scheduling, as well as becoming familiar with the environment. Advice for educators focused on understanding individual student needs and different learning styles, taking time to speak one-on-one with students, listening to their concerns and abilities, and taking time to explain the syllabus and class expectations. Myles, Grossman, Aspy, Henry, and Coffin, 2007 indicate “It is important to begin with a thorough understanding of the student’s needs, especially those related to the underlying characteristics of autism spectrum disorders” (p. 398). The authors recommend that based on an understanding of the characteristics of autism spectrum disorders, programs should support social competency, visual and sensory supports, schedules, and modeling. Individuals on the autism spectrum function best when predictability is established across the school day, including schedules, routines, environments, behavioral and academic expectations, and interpersonal interactions, (Myles, et al.), recommendations supported by the findings of the current study. Self-advocacy

and autonomy were two additional themes that emerged from the participants' responses. These findings echo the recommendations by the NRC (2001), that independence and self-advocacy skills should be embedded within student educational goals because the nature of autism spectrum disorders affects an individual throughout their lifespan.

Participants responded having used as few as one or two social strategies to as many as five. Social stories, visual cues, role playing, and support groups were listed. Most participants relied on some type of visual support to guide them through social challenges. In addition, ritualism, social coaches, power cards, and trial and error were additional strategies used by participants. Graetz and Spampinato (2008) argue that social rules and skills need to be taught to individuals on the autism spectrum even if the rules appear to be so obvious that many may question why they need to be taught. Additionally the authors suggest, adolescents with Aspergers will not learn social rules by merely placing them in social situations or through observation (Graetz & Spampinato, 2008). It is necessary to develop strategies to encourage greater competence in the skills necessary to achieve improve social integration especially with peers (Attwood, 2000).

The use of technology was a tool used for time management, organization, and academics, in lieu of handwriting, as well as for leisure. Computer use for academic supports was another commonality among the participants. Among the list of beneficial academic and test-taking accommodations reported in this research were quiet testing areas, extra time for tests, using laptops for note taking, and counseling. Additionally, participants indicated using teacher-prepared outlines, peer note sharing, and memorization techniques. Appropriate accommodations are vital for students on the autism spectrum to achieve their full potential in

the post-secondary environment. Janiga and Costenbader (as cited in Adreon & Durocher, 2007) state,

The specific challenges faced by students with learning disabilities include difficulty with academic content, organization, time management, and study skills. These difficulties are exacerbated by several issues, including proper identification of students in need of services, the hidden nature of the disability, students' reluctance to disclose their disability, and larger class sizes and more limited teacher-student contact in college settings (p. 274)

Each person is uniquely affected by the characteristics and nature of autism spectrum disorders. None of the participants reported having special dietary needs but the majority had difficulty sleeping. A variety of relaxation techniques were used by the participants. However, they did not provide any explanation as to how often relaxation and sleeping strategies were used. The individual preference for relaxation reinforces the significance of considering the effects of autism and understanding the individual strengths and weaknesses in relation to planning and implementing effective academic and life skill strategies. A variety of supports may provide some assistance for students academically; however, the supports for life skills such as social and emotional well-being, coping with feelings of fear, anxiety, and stress may not often be addressed (Graetz & Spampinato, 2008). The program summaries provided by the four universities with specific programs for students with autism spectrum disorders, report an effort to educate faculty, staff, and students, as well as develop a comprehensive academic and social plan based on the individual abilities and needs of each student in the program.

Recommendations

The recommendations of CEICA are meant to assist parents, educators, and professionals in the development of programs for children on the autism spectrum. Supports should be provided as needed throughout the lifespan for an individual with autism. A child on the spectrum should have the same educational goals as any other child. Educational goals for students should encourage personal independence and social responsibility. That being said, it is important to consider the effects of autism disorders and understand individual strengths and weaknesses of each student in relation to development (NRC 2001). The NRC also concluded that studies indicate children with autism receiving intensive early intervention make significant progress in some of the developmental domains. However existing research does not support any one approach over another all research finding reviewed for this study support NRC recommendations.

The classroom at all academic levels is a learning community for all students and educators. Teaching is a process of combining student-initiated and teacher-directed learning methods based on a child's strengths, needs, abilities, and unique learning styles. As the number of students with autism spectrum disorders applying for post-secondary educational programs increases, the research for evaluating their needs for a successful academic experience is imperative.

In the future, it may be beneficial to further examine the individual universities that offer support programs for individuals with Asperger syndrome or high functioning autism. Interviewing service providers would present an educational perspective of interventions and supports used to provide students with opportunities to succeed in post-secondary education endeavors. A continued effort to connect with the adult autism spectrum disorder community is

necessary to evaluate the recommended strategies and interventions currently being implemented for students. Another consideration for future research is examining the educator's experiences and perspectives about teaching individuals with autism spectrum disorders. The results of future research may provide educators, families, and researchers with resources to improve intervention and classroom strategies.

Conclusion

Each person diagnosed with autism or Asperger syndrome is uniquely affected. Individuals with autism spectrum disorders perceive the world in an exceptional way. Are there preferred effective interventions and strategies for individuals with autism? The question this research was designed to answer is whether or not research-based intervention strategies implemented for students with a diagnosis of Asperger Syndrome or High Functioning Autism have provided the supports necessary to transition into post secondary education programs. Appropriate strategies and interventions should focus on functional communication skills, leisure skills, social interactions, cognitive development, and behavioral needs. The family and individual student should be considered and supported in the educational process. Families should work with professionals to develop, implement, and evaluate the student's progress to ensure that the interventions are applicable in the educational, home, and community environments.

There is a wealth of knowledge to be learned from adults with life experience. The voice of individuals on the spectrum is necessary for professionals and family members to implement and evaluate successful social and life skill strategies. The findings of this study support the significance of personal advice gathered from individuals with autism spectrum disorders when

considering the implementation of strategies and interventions used for preparing students for post-secondary educational programs.

Limitations

There were several limitations in this study. First, despite repeated efforts only five participants responded to the online survey.

Another limitation in this research was the element of time. This research was conducted over an eight-week period. Participation invitations sent to the university population arrived at the end of the semester of the 2009-2010 academic year. The quarter system is in effect at the researcher's university. A one month difference between the quarter and semester system potentially had a significant impact on the ability to recruit participants for this study.

Another challenge was establishing a connection with the adult Asperger and high functioning autism community. Potential participant recruitment was limited due to privacy restrictions for listservs. Confidentiality is an essential component for protecting individuals' identities. Time is an element that is necessary to establish the validity of the intended research. Future researchers should be aware of any research policies or restrictions organizations may have in regard to their listserv or online groups. A wall posting on Facebook has the potential to reach many individuals, however it is not known if individuals would be willing to respond due to confidentiality and validity of the research.

The internet is a resource with the potential for connecting with individuals globally, without time restraints, and collecting an accurate database for evaluation. However, there is a personal disconnect when utilizing an online survey. Potential participants do not know if the researchers' intentions are legitimate, and may be reluctant to participate due to potential exploitation or breach of confidentiality.

Establishing a rapport with a facilitator of an organization might serve to improve the validity of the intended research. Another factor to consider is extending the time line for gathering results which might yield a larger sample size.

For future research these recommendations should be taken into consideration. The results of this research reflect the findings of current research and recommendations in regard to implementing appropriate strategies and supports to enable individuals with autism spectrum disorders to successfully transition into post-secondary educational endeavors. With additional research, those results are even more likely to be confirmed.

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