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College-bound young adults with ASD: Self-reported factors promoting and inhibiting success

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Young adults with autism spectrum disorder (ASD) are now transitioning to college in increasing prevalence. Despite limitations, high school students with ASD have postsecondary aspirations in-line with their typical peer groups (Anderson, McDonald, Edsall, & Lounds Taylor, 2016; Camarena & Sargiani, 2009), resulting in increasing college enrollment numbers. Data from the National Longitudinal Transition Study-2 (NLTS2) indicate that roughly 43% of students with ASD participate in some level of postsecondary education (Chiang, Cheung, Hickson, Xiang, & Tsai, 2012). Along with these increased numbers comes an increased need to provide access and supports to students at the college level. This need has led to attention on the topic of expanding postsecondary supports for students with ASD (Hart, Grigal, & Weir, 2010), however, limited data is being maintained relevant to the outcomes of this population (Barnhill, 2016).

Understanding the expectations of college students with ASD is essential to meeting their unique needs, yet research on the experiences of these students is also limited (Barnhill, 2016; Gelbar, Smith, & Reichow, 2014; White et al., 2016). Gelbar et al. (2014) conducted a review of the literature investigating the experiences of students enrolled in degree awarding college programs and found only 20 studies, two group design studies with the largest sample size of 12, and 18 case studies, leading to a call for surveying or interviewing college students with ASD to gather first-hand perspectives. Similarly, White and colleagues (2016) note a dearth in research-based programming for young adults with ASD, and a lack of research gathering the perspectives of these students at the time of transition to college.

**Transition**
The transition from high school is a critical period for young adults with ASD (Shattuck
et al., 2013), and quality of life outcomes for this population include limited employment, social isolation, and reduced levels of independent living (Friedman, Warfield, & Parish, 2013). Research and support services to increase transition from high school to postsecondary education programs for such young adults may prove critical to increasing outcomes (White et al., 2016), yet related transition planning may be lacking (Zeedyk, Tipton, & Blacher, 2016). Shattuck et al. (2012) conducted an assessment of NLTS 2 data related to postsecondary education and students with ASD, and found that 2 years after high school over 50% of young adults with ASD were not participating in postsecondary education and were not employed, and 6 years after high school only 35% were participating in college and only 55% held paid employment. At greatest risk are youth with ASD from low-income families and youth with low levels of functioning (Shattuck et al., 2012). An urgent need to provide support at the transition to adulthood, the time systematic support services end, has emerged along with evidence that existing transition services are not successfully preparing young adults for secondary education or employment (Friedman et al., 2013).

Postsecondary transition is a time of increased stress for young adults with ASD (Pinder-Amaker, 2014), and youth with ASD are at risk for “being completely disengaged from any kind of postsecondary education or employment” post high school (Shattuck et al., 2013, p. 1046). These findings warrant investigation of how transition planning throughout high school can more effectively support productive postsecondary outcomes, e.g. by identifying student reported needs and related gaps in transition planning, by analyzing the focus of services provided, by removing barriers to participation, and by increasing supports for students in low income families.

The Americans with Disabilities Act (ADA, 1990) ensures appropriate services and accommodations are provided to assist college-bound students with autism both inside and outside the classroom (Smith, 2007), and it is recommended that youth with ASD be supported across college settings (e.g. across classrooms, dorm rooms, and social activities) (Pinder-Amaker, 2014). VanBergeijk, Klin, and Volkmar (2008) considered the legal foundation for supporting youth with ASD in college settings; The Individuals with Disabilities Education Act (IDEA) authorized in 1990 provides federal mandate to educate children with disabilities aged 3 through 21 in the least restrictive environment. Section 504 of the Vocational Rehabilitation Act of 1973 requires any program receiving federal funds, including universities, to provide equal treatment for people with disabilities. Moreover, ADA mandates all universities provide reasonable services to students with ASD. According to VanBergeijk and colleagues, “to be in compliance with the ADA universities must learn to address the social and organizational difficulties of this population” (2008, p. 1362). While academic supports are provided through accommodations at the university level, the question emerges as to how to support the social and emotional needs of college-bound young adults with ASD.

**First-hand Accounts**

Anderson et al. (2016) investigated the expectations of high school students with ASD through a cross-sectional descriptive study of what high school students expect post-secondary life to be like, and how they define adulthood. Anderson and colleagues (2016) found that students with ASD
identified postsecondary schooling as a primary marker of obtaining adulthood, and as a gateway to obtaining friends, employment, and independence. Yet, Smith (2007) concluded that the supports being provided to young adults with ASD in college settings are those developed for other disability populations, and warned that it is essential to provide support and services based on the understanding of the individual needs of each student with ASD. College-bound young adults with ASD are a heterogeneous population resulting in a need to capture the first-hand perspectives of individuals to better support the larger group, however, a lack of research capturing student perspectives prevails (Van Hees, Moyson, & Roeyers, 2015).

Gelbar, Smith, and Reichow (2014) conducted the first literature review of the first-hand experiences of college students with ASD and reported as a major finding the overall scarcity of research capturing student voice. Since the literature review, Van Hees and colleagues (2014) conducted semi-structured interviews capturing the perspectives of 23 college students with ASD in Belgium, asking students the challenges they face and their support service needs. Resulting interview themes were primarily non-academic, with the reported needs of college students with ASD emerging as struggling with: change, social contacts, the processing of information, doubts about disclosing their disability, and mental health issues (e.g. anxiety, stress, and depression). Van Hees et al. (2014) concluded capturing the first-hand perspectives of students living the college experience enhances the understanding of how to provide supports to this population. Moreover, White et al. (2015) captured the perceptions of parents, educators, and college students with ASD participating in a mixed methods study and identified social needs, self-determination needs, and self-regulation needs as challenges faced by college-bound young adults with ASD. Student survey participation was noted as a study limitation, however, and the researchers identify a need to capture the perspectives of students with ASD at the point of transition from high school to college (White et al., 2015).

Framework
The present study was designed to address the paucity of research capturing the first-hand perspectives of young adults with ASD transitioning from a high-school to college setting, and to emphasize the importance of the post high school transition period. To understand the expectations and experiences of young adults with ASD transitioning to a university setting, it is important to capture first-hand accounts and to recognize transition to college is seen by many as a societal pathway to independence. Postsecondary education is a natural progression from inclusive K-12 education experiences and benefits related to experiencing the valued social role of college student include improved quality of life outcomes (Hart et al., 2010).

Purpose
This study aims to capture the perspectives of college-bound students with ASD at the intersection of transition and postsecondary education. Building on the research of Anderson et al. (2016) this study extends questioning how students with ASD define adulthood to questioning how they define college success, and what factors they report as promoting or inhibiting success. In order to capture the perspectives of college-bound students with ASD at the critical period of transition from high school, we used an open-ended prompt to ask the following three questions:
(1) How do you define success as a college student?
(2) What factors have been most influential leading to you becoming a college student?
(3) What factors have been obstacles to you becoming a college student?

Method
This article reports upon the qualitative analysis of initial year 1 data from a larger study of predictors of college success for students with ASD. This cross-sectional descriptive study reports initial results of a longitudinal study designed to document the transition and progress of college students with ASD at one university, with the purpose of providing increasingly effective supports and services.

Setting
The study took place during a specialized freshman orientation for students with disabilities organized by the university disability services center. The week-long orientation allowed students to move into their dorm one week prior to the general campus population and provided options to participate in daily structured social activities such as video game or movie night, university-wide activities such as a healthy campus initiative, and workshops designed to enrich academics and support students in accessing accommodations. On the second day of the week-long orientation university instructors, including the author, led students in a 2-hour academic workshop which included an interactive presentation on accessing university writing supports and using study strategies. Content included previewing university writing course expectations, and building executive functioning by identifying learning preferences and related study strategies for the first college semester. All students participated in discussion related to workshop content and a supportive relationship was established with the university instructors. At the end of the orientation, students were asked to participate in a study regarding predictors of college success. All students agreed to study completion.

Participants
Fourteen incoming students with ASD took part in the study. All participants were male, received disability support services, and provided the university with a documented diagnosis of autism, autism spectrum disorder, or Asperger’s syndrome. Ninety-three percent of participants attended a public high school, with 92-93% participating in high school English and mathematics classes in the inclusion setting. All participants received accommodations in high school. See Table 1 for general participant information.

Data Collection
Data was collected using a mixed methods survey. One component of the survey focused on capturing student voice related to their definition of success at the university along with the factors that have both lead to becoming a college student, and hindered becoming a college student. Students were provided with a paper survey with three open-ended prompts (1) How do you define success as a college student? (2) What factors have been most influential leading to you becoming a college student? And (3) What factors have been obstacles to you becoming a college student?

The prompts were read to the students aloud by the author and all students responded to the prompts in writing. After completion of the open-ended prompts students were asked to check a box to indicate interest in participating in related follow-up semi-structured interviews. Twelve of the 14
Table 1. General Information About Student Participants

<table>
<thead>
<tr>
<th>Variable</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School History</td>
<td></td>
</tr>
<tr>
<td>Attended public high school</td>
<td>13 (93)</td>
</tr>
<tr>
<td>Attended private high school</td>
<td>1 (7)</td>
</tr>
<tr>
<td>Participated in general ed./inclusion setting for mathematics</td>
<td>13 (93)</td>
</tr>
<tr>
<td>Participated in learning support/resource setting for mathematics</td>
<td>1 (7)</td>
</tr>
<tr>
<td>Participated in general ed./inclusion setting for English</td>
<td>12 (92)</td>
</tr>
<tr>
<td>Participated in learning support/resource setting for English</td>
<td>1 (7)</td>
</tr>
<tr>
<td>Participated in self-contained/autistic support setting for English</td>
<td>1 (7)</td>
</tr>
<tr>
<td>Received accommodations in high school</td>
<td>14 (100)</td>
</tr>
<tr>
<td>Received support of a 1:1 aide in high school</td>
<td>4 (28)</td>
</tr>
<tr>
<td>College Major</td>
<td></td>
</tr>
<tr>
<td>Computer Science</td>
<td>1 (7)</td>
</tr>
<tr>
<td>English</td>
<td>1 (7)</td>
</tr>
<tr>
<td>Law/Justice</td>
<td>1 (7)</td>
</tr>
<tr>
<td>Liberal Arts</td>
<td>1 (7)</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>2 (14)</td>
</tr>
<tr>
<td>Management Information Systems</td>
<td>1 (7)</td>
</tr>
<tr>
<td>Psychology</td>
<td>1 (7)</td>
</tr>
<tr>
<td>Radio, Theater, Film</td>
<td>2 (14)</td>
</tr>
<tr>
<td>Undeclared</td>
<td>4 (28)</td>
</tr>
<tr>
<td>College Living</td>
<td></td>
</tr>
<tr>
<td>Plan to live at home and commute</td>
<td>3 (21)</td>
</tr>
<tr>
<td>Plan to live in a single room dorm or apartment</td>
<td>3 (21)</td>
</tr>
<tr>
<td>Plan to live in a dorm with roommates</td>
<td>8 (56)</td>
</tr>
</tbody>
</table>

Note. N= 14 males transitioning to the same university

students indicated interest in participation. The present article reports solely upon the student experiences shared through the three open-ended writing prompts coded and analyzed as a first step in capturing the perspective of young adults with ASD beginning their college experience. The open-ended prompts were designed to provide the researchers with initial data that will become the foundation for the follow-up semi-structured interviews, and inform the criterion variable of success for a later regression analysis on predictors of college success for students with ASD.

Data Analysis
Open-ended responses were reviewed and coded in a cyclical manner using open coding, with responses read in full, then reread, and emerging codes compared for similarities leading to themes. The grounded theory open coding approach was selected to allow for flexibility capturing student perspectives using in vivo and descriptive codes (Saldana, 2009) and to provide a student-centered foundation for semi-structured interview questions. As a quality check, all student responses were coded by a second researcher with discrepancies discussed reaching 100% agreement.

Results
Defining Success
Open-ended prompt 1 asked, how do you define success as a college student? A first cycle open-ended review of the student responses resulted in the identified codes of grades, academic success, graduation, social involvement, employment, self-awareness, and enjoyment (see Table 2 for a complete
list. Independent review and coding resulted in 80% inter-rater agreement, followed by discussion and agreement of the codes “feeling accomplished,” and feeling successful leading to 100% agreement. Themes emerging in response to defining success as a college student in order of frequency reported include getting good grades; feelings of self-efficacy; participating in social opportunities; and graduating.

Getting good grades. A majority of students (n = 8) indicated getting good grades as the primary indicator of college success. One student reported, “Success as a college student is receiving a B, B+ or an A, A- and fully understanding concepts.” Similarly, another reported, “Success as a college student is being on top of your assignments and getting good grades on them.” Students also mentioned good grades in combination with other factors defining success such as forming friendships. “Success as a college student is having good grades while making social interactions and having friends.”

Feelings of self-efficacy. Five out of the 14 students noted both self-efficacy and social opportunities as indicators of college success. Self-efficacy emerged in relation to feeling accomplished and successful as in the student response, “Success as a college student is completing your desired major on a schedule that was comfortable and reasonable while also feeling accomplished and confident.” Students also noted the importance of learning about themselves and feeling successful as in the student definition of success excerpts, “Feeling like you surpassed many challenges,” “Learning about yourself and what works for you,” and “Success as a college student depends solely on the students ability to balance work, play and rest.”

Participating in social opportunity. Successful navigation of social opportunities or the development of friendships was reported as an indicator of success by five out of 14 young adults. Students indicated the desire to develop social relationships as evidenced by one student’s response, “Success as a college student is a healthy social life.” Young adults with ASD transitioning to college life were further found to frequently identify a goal of participating in social clubs and opportunities. “Success as a college student is excelling in social situations and getting involved with clubs and other groups,” and “Success as a college student is trying new things, making new friends…”

Graduating. Graduation from college was noted by 21% of students, and was mentioned in the context of feeling successful in your major of choice. “Success as a college student is managing to graduate,” “Success is leaving college with the degree you want,” and “Success as a college student is completing your desired major.”

Identifying Factors Influencing Success
Open-ended prompt 2 asked students, what factors have been most influential leading to you becoming a college student? Inter-rater agreement of coding was 100%, with emergent student themes including parental impact; self-determination; goals of employment; provided resources and accommodations; and general support (with one student reporting support of a friend, and one reporting support from school). See Table 3.

Support from parents. Only one factor, parent impact, was indicated by approximately half of students (43%) as instrumental in their pathway to college. Parental impact was noted in terms of
support, help, motivation, and expectation. The impact of parental expectation was captured in the student response, “A factor influencing me to become a college student is the expectations from my parents to receive a higher degree of learning…”

While motivation stemming from a parent was captured in the response of another student, “My mother has two college degrees. I want to someday have the intellectual and critical thinking skills that my mother and my great aunt have,” the necessity and impact of parental help was also captured, as in the student response, “If I had to pick it would be my mother and father. I could never of paid for college if my father hadn’t helped me take out a loan…”

**Identifying Obstacles to Success**

Open-ended prompt 3 asked students, what factors have been obstacles to you becoming a college student? Inter-rater agreement of coding was 100%. Student reported obstacles to success in order of frequency reported consist of mental health issues including anxiety, fear and stress; poor study skills; poor social skills; having a disability that impedes success; and worry about college professors (see Table 3).

**Mental health issues.** Only one factor, mental health issues including anxiety, fear, and stress, emerged as common in a majority of student responses (57%). Students were reflective and expressed concern that their own mental health issues may potentially hold them back and inhibit their success at the college level. Anxiety and fear were indicated most frequently as a student concern, as evidenced in the student identified obstacles to becoming a college student, “Embarking on this journey alone (is an obstacle) because it is nerve wracking,” “Anxiety and panic attacks, fear of failure, approaching other students and working in groups,” and “…general anxiety and fear of failure.” Stress and recognition of mental health issues also emerged as a

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**Table 2. Defining Success as a College Student**

<table>
<thead>
<tr>
<th>Sample Codes</th>
<th>Themes</th>
<th>Sample Student Response</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic success, Grades/ good grades, Assignments</td>
<td>Getting Good Grades</td>
<td>“Being on top of your assignments and getting good grades on them.”</td>
<td>8 (57)</td>
</tr>
<tr>
<td>Feeling accomplished, feeling successful</td>
<td>Felings of Self-efficacy</td>
<td>“Completing your desired majors on a schedule that was comfortable and reasonable while also feeling accomplished and confident.”</td>
<td>5 (36)</td>
</tr>
<tr>
<td>Degree, Graduate/ graduation</td>
<td>Graduation</td>
<td>“Managing to graduate with the best grades possible while still having an enjoyable experience.”</td>
<td>3 (21)</td>
</tr>
</tbody>
</table>

*Note. N = 14; Additional emerging themes: Employment 7% (n = 1); Enjoyment 7% (n = 1); Self-awareness 7% (n = 1)*
Table 3
Factors Reported as Promoting and/or Inhibiting College Success

<table>
<thead>
<tr>
<th>Factors Identified as Promoting Success</th>
<th>n (%)</th>
<th>Factors Identified as Obstacles to Success</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Parental Impact</td>
<td>6 (43)</td>
<td>1. Anxiety/Fear/ Stress</td>
<td>8 (57)</td>
</tr>
<tr>
<td>2. Self-determination</td>
<td>4 (29)</td>
<td>2. Poor Study Skills</td>
<td>5 (36)</td>
</tr>
<tr>
<td>4. Resources &amp; Accommodations</td>
<td>2 (14)</td>
<td>4. Having a Disability</td>
<td>3 (21)</td>
</tr>
<tr>
<td>5. General Support</td>
<td>2 (14)</td>
<td>5. College Professors</td>
<td>2 (14)</td>
</tr>
</tbody>
</table>

*Note. N = 14*

c. concern as captured in the student responses, “It’s sort of stressful now since I’m away from home,” and “Myself has been the biggest obstacle towards college...since I always bring myself down and then rise back up so I stop myself from going places.”

**Discussion**
The increase in young adults with ASD transitioning to post high school life is a pressing topic. The student first-hand definitions of success and accounts of factors contributing to and inhibiting success shared in the present article add to our understanding of how to promote access and success at the college level for young adults with ASD. Findings have led to the conclusions that college-bound young adults with ASD (1) define success in terms of both academic (grades, and graduation) and non-academic (social relationships, and feeling efficacious) factors, (2) identify factors leading to their success that require a move beyond accommodations, suggesting a need to collaborate with and support parents and to utilize evidence-based practice (EBPs) to support student self-determination, and (3) identify obstacles to success as expressed concerns with mental health, study skills, social skills and disability identity. The college-bound young adults are seemingly requesting support in relation to overcoming mental health and social skills issues, and navigating college life with a disability.

Gelbar and colleagues (2014) found reports of anxiety, loneliness, and depression emerging from the 18 case studies investigated through literature review leading to a suggested need for non-academic support services at the college level. The findings of the present study, in which a majority of incoming college freshman with ASD reported obstacles to success as mental health issues, and non-academic stressors, echo the findings of Gelbar et al. and suggest a clear need for non-academic social and emotional support services to be in-place starting at the point of university orientation for incoming students with ASD. Students noted the desire to get good grades and to form social relationships
in college, yet reported - as a majority - the realization that they have to overcome their own anxiety and fears to achieve these goals.

**Limitations**

This article reports the initial results of a three-question open-ended probe with a sample size of 14 young adults with ASD. Results are preliminary and will be used to inform follow-up semi-structured interviews. While typical of the sample size of studies in the literature, a large-scale sample is needed to further validate emergent themes as those held in the wider population of college-bound students with ASD. Furthermore, this article reports on the perspectives of college-bound young adults with ASD only, and as a result, is not representative of the larger group of all young adults with ASD transitioning from high school settings. Young adults with ASD in the present study were purposefully questioned during the time of transition to a college setting. This cross-sectional analysis may not indicate the definitions of college success, or the factors promoting and inhibiting success, that these same young adults may hold at other points in time, or after participating in college experiences.

**Implications for Research and Practice**

Research appears warranted not only to determine specific non-academic support services to provide young adults with ASD in college settings, but also to provide non-academic support services in formats and ways that are most inviting and effective for young adults with ASD. For example, VanBergeijk, Klin, and Volkmar (2008) recommend higher functioning students with ASD matriculate into community college courses while still in high school as a transition plan to gain supported exposure to the academic and social demands of college settings; and recommend high school IEP transition plans include academic modifications, independent living skills goals, socialization goals, vocational goals, and mental health supports to help identify a college fit for each individual with ASD. In considering the emergent theme that students with ASD transitioning to college settings are anxious, stressed, and concerned with social situations, it appears effective transition plans from high school to college should include a system of non-academic supports that start at the high school level. Furthermore, transition teams should empower students with ASD with EBPs and strategies to reduce anxiety, to understand their own disability, to self-advocate in a college setting, and to seek out colleges with the appropriate social and emotional supports in place throughout the application and decision-making process.

With the emerging data indicating a need to recognize and support the social emotional needs of college students with ASD in the present study, faculty training in how to implement strategies and EBPs related to social emotional needs at both the high school and college level emerge as priority, along with the need for high school and university support service offices to collaborate. In contrast, Zeedyk et al. (2016) note there is limited research designed to gather data leading to designing programs and faculty training in higher education for students with ASD, White et al. (2015) indicate there is limited research to establish interventions specific to college-bound young adults with ASD, and Gerber et al. (2014) indicate limited research identifying EBPs for young adults with ASD transitioning to college. Finally, college-bound students with ASD identified parents as the number one factor leading to attaining participation in postsecondary education. This suggests research investigating means to increase parent impact, e.g. through
collaboration among parents, middle and high school transition teams, high school teachers, and/or college disability service offices must be added to our prior list of research needs.

Conclusion
This cross-sectional analysis is the first step of a larger research project, and our next steps for research include student semi-structured interviews at the end of their first year of college life. Resulting student definitions of success will inform our follow-up semi-structured interview questions, and will inform the identification of criterion variable(s) that will define success (e.g. the student reported factors of grades, graduation, and self-efficacy will be used in a quantitative regression analysis to identify predictors of college success). In addition, the tracking of student progress and perspectives through longitudinal studies emerges as a recommendation for future research, along with the need for multi-university studies of student needs and outcomes encompassing larger numbers of college-bound students with ASD.

References


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