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UNRECOGNIZED TALENT: GUIDING SECONDARY STUDENTS WITH AUTISM TOWARDS CAREERS IN SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS

A MASTER'S THESIS APPLICATION PROJECT

SUBMITTED TO THE FACULTY

OF BETHEL UNIVERSITY

BY

TORRY KRAFTSON

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

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UNRECOGNIZED TALENT: GUIDING SECONDARY STUDENTS WITH AUTISM TOWARDS CAREERS IN SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS

TORRY KRAFTSON

November 2018

APPROVED

Advisor's Name: Meghan Cavalier, Ed.D.

Program Director's Name: Molly Wickam, Ph.D. MBA

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Abstract

Individuals with Autism have strengths and abilities that are often overlooked in light of their disability. With strengths in the area of systemizing, individuals with autism have the opportunity to excel in educational and career opportunities that draw on these strengths, namely in the fields of Science, Technology, Engineering, and Mathematics (STEM). Individuals with Autism who pursue STEM opportunities will need appropriate supports along the way. Students with Autism find strong support systems in high school, but the level of support diminishes significantly in adulthood. Secondary educators can help prepare students with Autism for a successful progression to adulthood by determining whether a STEM career would be a good fit. This can be done by helping students explore future career possibilities, examining postsecondary pathways, and solidifying strong plans for transition.

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CHAPTER I: INTRODUCTION

Introduction

"There is something different about her." When students notice that a classmate doesn't interact with them in the usual way, the tendency for most students is to avoid that classmate. Despite the decades old advertisement, "Arby's is different, different is good", there is a natural tendency to socialize with those who are like us. Autism Spectrum Disorder (ASD) causes individuals to process information and interact with others in a manner that is different from most other students (Janzen, 2003).

No parent looks forward to the moment they learn that their child has a disability. What does the diagnosis of Autism Spectrum Disorder (ASD) mean for the future of a child? While much progress has been to answer that question, there are still more questions than answers.

My inspiration for learning more about students with Autism comes from my experience as a secondary teacher. Several years ago, I told a mother that I observed her student with Autism excelling in a mechanism unit in my course. Through tears she told me that was first positive feedback she had ever received about her child in eight years of schooling. This interaction gave me a desire to learn how to help students with Autism find a pathway to career and academic success.

My observation has been that students with Autism are given support throughout their elementary and secondary education with an Individualized Education Plan (IEP) that provides modifications designed to help them meet the learning objectives of their courses. Students often have special education teachers or paraprofessionals who help them with their organization, interactions, and other areas of deficiency.

These supports, however, diminish after students leave high school. I often hear students with Autism being told that they need to learn to advocate for themselves. In other words, they need to learn to ask for help from an individual who is capable and willing to help them. While learning to advocate for oneself is a valuable skill, it will not eliminate the need for support for students with Autism who enroll in postsecondary education.

For students with Autism who attend postsecondary institutions, there are both academic and social challenges. This can result in a number of outcomes, including anxiety, lack of persistence, and even significant mental health challenges (Jackson, Hart, Brown, and Volkmar, 2018). I believe that students with Autism are deserving of better outcomes.

Along with challenges, students with Autism have giftedness in certain areas. Many individuals with Autism have skill sets that enable them to function well in a Science, Technology, Engineering, and Mathematics (STEM) environment. How can we help these students discover their gifts and find a pathway towards a STEM career?

This question forms the focus of my research and application. In order to help students with Autism find a successful career path, it is helpful to understand the obstacles that can get in their way as they progress from high school, to postsecondary education, and to a successful career. The following research examines what types of supports and pathways are helpful for students with Autism to overcome their obstacles.

Rationale

Students with Autism who pursue postsecondary education face a challenging path. Postsecondary institutions are getting better at serving individuals with Autism, but there is a lot

of progress yet to be made. I hope that colleges, community colleges, and technical schools will be increasingly innovative in finding ways to help students with Autism succeed.

Even for students with Autism who complete a postsecondary degree, the challenges are not over. Due to social challenges and complexities, workplaces are typically not friendly for individuals with Autism. Supports to help navigate these challenges can be crucial for an individual with Autism to persist and find success.

As a secondary educator, my hope is to help individuals with Autism find support on the front end of their journey. I hope to be able to help students identify their passions and find meaningful careers where they can pursue these passions. Students with Autism who have identified career passions need to know what types of degree or certification is attainable for them and could point them on the road towards their career.

Students with Autism receive support throughout secondary school. Since these supports diminish after high school, students with Autism need to anticipate some of the obstacles they will face. They need to look ahead to determine where they might be able to get the support they need and to develop the mindset and skills necessary to overcome obstacles that might stand in their way.

Helping students with Autism find a pathway to success is a valuable endeavor on many levels. Finding a satisfying career can provide meaning, fulfillment, and stronger self esteem for individuals with Autism. As they are employed, there is reduced burden on families and other support systems to meet the needs that employment can provide. Finally, having individuals with Autism employed helps to meet the shortage of workers, particularly in STEM fields.

Definitions of terms

Science, Technology, Engineering, and Math (STEM): STEM refers to certain career fields or educational pathways. According to a study by Wei, Yu, Shattuck, McCracken, and Blackorby, (2012), STEM majors included computer science, programming, information technologies, engineering, mathematics and statistics, science, biology, earth science, geology, physics, chemistry, and environmental science.

Autism Spectrum Disorder (ASD): ASD is a developmental disorder that affects communication and behavior.

Individualized Education Plan (IEP): An IEP is written document developed for every public education student who is eligible for special education.

Attention Deficit Hyperactive Disorder (ADHD): ADHD is a brain disorder marked by an ongoing pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development.

Empathizing-Systemizing (E-S): Baron-Cohen (2009) developed the E-S scale as a means to understanding the Autistic brain. Individuals with Autism tend to score lower on the Empathizing scale and higher on the systemizing scale.

Intellectual Disability (ID): ID is a general term referring to an impairment in mental functioning.

Post-Secondary Enrollment (PSE): PSE includes education at 2-year and 4-year institutions and also career and technical education institutions (Wei, Wagner, Hudson, Yu, and Shattuck, 2015).

Vocational Rehabilitation (VR): VR is a federal and state-funded program administered by states to help people with disabilities prepare for and engage in gainful employment in the U.S (Roux, Anne, Rast, Anderson, and Shattuck, 2016).

Developmental Disability (DD) services: DD services are services individuals with intellectual or developmental disabilities (I/DD) might receive to maximize their well-being and participation in the community. These services are administered through DD agencies which are local agencies that provide services for people with DDs (Roux, Rast, Anderson, and Shattuck, 2017).

Stepped Transition in Education Program for Students with ASD (STEPS): STEPS is a curriculum created by White et al. (2017) in two parts. The first part targets secondary students with Autism and the second part targets individuals with Autism who have graduated from high school.

Self Determination (SD): SD is the ability to identify and achieve one's own set goals (White et al., 2017) .

Self Regulation (SR): SRis a multifaceted construct that involves monitoring, oversight, and modulation of behavior, emotion, and cognition. SR is closely related to executive functioning capacity and ability to regulate one's emotions, or adapt and modify one's emotional response in the service of identified goals (White et al., 2017).

Statement of the Question

What are the effective strategies that secondary educations educators can employ to guide students with Autism Spectrum Disorder (ASD) towards future careers in Science Technology Engineering and Math (STEM)? The Literature Review will examine the supports, obstacles,

and gaps that students with Autism navigate on their pathway to a STEM career. The Application Materials are tools that secondary educators and families can use to guide students with Autism to select and prepare for a career in a STEM field.

CHAPTER II: LITERATURE REVIEW

Characteristics of students with Autism Spectrum Disorder (ASD)

Individuals with Autism Spectrum Disorder (ASD) have unique needs and characteristics. Often individuals with Autism are gifted in certain areas yet struggle with organization, socialization and big picture activities. It can be difficult for educators and other adults to understand their needs and to know how to best support them.

To help understand how the autistic brain works, Janzen (2003) introduces the analogy of a computer, which has camera sensors. Individuals with ASD have less control to focus their camera, turn it on or off, filter relevant information, or adjust the volume. Individuals with ASD have challenges retrieving the information and processing it in a way that provides meaning. According to Janzen (2003), this leads to the following:

1. The individual is unable to modulate and process or integrate sensory stimulation.
2. The individual has decreased ability to scan an area or environment to identify and focus consistently on the important elements or events.
3. Information is not automatically or independently organized or analyzed to eliminate the clutter, to elicit the meaning, or to determine the relationship of new information to that from past experience.
4. Information is not retrieved in the correct sequence.
5. Time concepts and perception of passing time are impaired.
6. Language is understood and used literally.
7. Auditory information is not processed efficiently or reliably.
8. Meaning is not automatically attached to visual information.

9. The individual is unable to solve problems and generate new or alternative solutions to fit varied or changing situations.
10. The individual is unable to totally and automatically control motor (and verbal) responses.
11. The individual is unable to understand the perspective of others, that people have different perspectives.

Obstacles for students with Autism

In order to address the needs of students with Autism, it is important to understand the characteristics that pose obstacles to academic success. While each individual with Autism is unique with their own strengths and areas for growth, there are general characteristics that individuals with Autism possess in varying degrees. Fleury, et al. (2014) identified several factors that tend to inhibit success for students with Autism. Students with Autism tend to have greater difficulty imitating the actions of teachers and peers. Individuals with Autism tend to interact less frequently with peers, causing a reduced opportunity to develop verbal skills (Fleury et al., 2014).

Students with Autism tend to process verbal instruction less effectively than general education peers getting caught up in the details and losing the perspective of the bigger picture. Students with Autism tend to struggle with executive functioning which inhibits the ability to stay organized and follow multi-step instructions. Individuals with Autism tend to have difficulty understanding role playing. Individuals with Autism tend to struggle with remembering academic content and details. This impacts the ability to remember and complete homework assignments that are necessary for academic success (Fleury et al., 2014).

Students with Autism tend to have difficulty comprehending text. Their reading skills tend to develop more slowly than their peers. Students with Autism tend to have difficulty writing legibly with a writing utensil. They tend to struggle with organizing their thoughts and writing concisely about a topic (Fleury et al., 2014).

In their study of 31 high school students with Autism, Anderson, Mcdonald, Edsall, Smith, and Taylor (2016) found a disconnect between anticipated postsecondary transition and actual postsecondary transition. The students in the study anticipated a smooth transition to adulthood. Anderson, et al. (2016) discussed that the transition to adulthood for students with Autism involves dynamic changes and multiple transitions. One of the findings presented is that secondary institutions need to prepare students for the uncertainty of adulthood.

Cai and Richdale (2016) completed a study of 23 individuals with Autism enrolled in postsecondary schools in Australia. Of these students, 27.3% felt that their social needs were being met and only 9.1% of the students felt well prepared for postsecondary enrollment. The students in the study reported struggles in a variety of areas, including social interactions, organization, and anxiety. Cai and Richdale (2016) emphasize that students with Autism need to take advantage of a support structure in order to navigate the challenges of attending a postsecondary institution.

In a study by Hedges et al. (2014), focus groups were conducted of 5 individuals with Autism, 10 parents, and 26 school personnel. Of the five individual participants two were in high school and the other three had graduated from high school, while six of the parents had students in high school and the other four had students who had recently graduated from high school. The participants in the study were asked to consider positives and negatives of the high

school experience, and how these experiences prepare students with Autism for postsecondary experience. Three common themes emerged from the study. The first was the struggle of inconsistency in the high school environment. Students have multiple teachers each day and each teacher has a different approach. Schedules often vary making it difficult for students with Autism to establish routine. Second, Hedges et al. (2014) found that that participants noted a struggle in the area of interpersonal relationships. Students with Autism struggled to make friends. They found it difficult to communicate with teachers about areas where they need help. Third, the participants in the study indicated that the processes in place to assist students with Autism often broke down. Teachers were sometimes unaware of the accommodations in the student's Individualized Education Plan (IEP). Teachers did not have adequate training about Autism. Additionally, teachers were too overwhelmed by the demands of teaching to make modifications that would benefit students with Autism.

Jackson, Hart, Brown, and Volkmar (2018) surveyed 56 students with ASD diagnosis who were enrolled in postsecondary institutions. Of the 56 students, 22 (39.3%) were enrolled in STEM majors. The survey focused on academic, social, and mental health experiences of the students. Jackson et al. (2018) reported that 62.5% of students were neutral or comfortable with their academic workload. While many of the students took advantage of existing support services, 30.4% felt a need for additional services.

In the area of social experiences, Jackson et al. (2018) reported 50% of the students felt satisfied with the number of close friends that they had. Of the 56 students surveyed, 22 (39.3%) indicated that they had no close friends. Either some of the time or all of the time, 76.8%

reported feeling isolated, 79.5% feeling left out, and 80.4% lacking companionship. Some form of bullying was experienced by 35.7% of the participants.

Regarding mental health experiences, a majority (57.1%) of the respondents in the survey by Jackson et al. (2018) had a psychiatric diagnosis during their postsecondary experience. Some of the disorders reported included depression, anxiety disorder, and Attention Deficit Hyperactivity Disorder (ADHD). Over half (53.6%) of the participants had thought about suicide in the past year. Jackson et al. (2018) believe that the concerns raised about suicidal behavior in their report should draw attention by the support and counseling service at postsecondary institutions.

Elias and White (2018) surveyed 99 parents of postsecondary students to examine the postsecondary experience of their child. Of the 99 students, 52 had ASD and 47 had ADHD. The primary concerns identified by parents of students with Autism were social difficulties such as speaking up for oneself and emotional regulation. The parents of students with Autism see a greater need for social supports for students with Autism in the postsecondary environment. This finding together with the findings by Jackson et al. (2018) highlight that college students with Autism need additional levels of supports that extend beyond the classroom.

Strengths of Students with Autism

Perceptions of ASD often focus on an individual's inability to empathize with others. However, Baron-Cohen (2009) examined a new way to understand the brains of individuals with Autism referred to as the Empathizing-Systemizing (E-S) Theory. Individuals with Autism typically score lower than their peers on the empathizing scale, but equivalent or higher than their peers on the systemizing scale.

Systemizing refers to trying understand the rules which govern a system. It means understanding that if one thing occurs, it causes an effect on something else. Individuals can be scored using a measure of Systemizing Quotient and individuals with autism score higher than the general population (Baron-Cohen, 2009).

Baron-Cohen (2009) list several categories of systemizing. Mechanical systemizing, for instance, involves behavior like fixing bicycles or taking things apart and putting them back together. Individuals with autism can use their strengths in systemizing to understand many aspects of the world around them and to see life as a combination of systems of varying complexities.

Tendency for success in Science, Technology, Engineering and Mathematics fields

Wei, Yu, Shattuck, McCracken, and Blackorby, J. (2012) found that fewer students with Autism enroll in postsecondary education. However, of those who do enroll, they found that a larger percentage (34.31%) enroll in Science, Technology, Engineering, and Mathematics (STEM) fields compared to the general population (22.8%). In the study, STEM majors included computer science, programming, information technologies, engineering, mathematics and statistics, science, biology, earth science, geology, physics, chemistry, and environmental science. The study found that the gender gap in STEM enrollment is greater for students with Autism with 39% of male students choosing STEM enrollment compared to only 3% of female students. These findings show that students with Autism, males in particular, tend towards STEM enrollment (Wei et al., 2012).

Wei et al. (2013) found that students with Autism who attend a two-year community college have higher persistence rates for STEM (80.68%) fields than for non-STEM (47.39%)

fields. This finding suggests that students with Autism find a more rewarding and therefore persisting path in a STEM field. Due to the shortage of STEM employees in the United States, these students with Autism have a high likelihood of finding employment (Wei et al., 2013).

A study performed by Jenson, Petri, Day, Truman, Duffy (2011) surveyed 20 participants with disabilities who were enrolled in postsecondary STEM fields. The researchers first asked students a series of questions related to what helped build their confidence for success in their coursework. The researchers then used focus groups to ask more probing questions about specific experiences that helped the participants find success.

Jenson et al. (2011) looked at survey responses in four categories: mastery experiences, vicarious experiences, social persuasion, and physiological reaction. In the area of mastery experiences, the participants felt that success in prior STEM classes gave them confidence to continue. Some respondents indicated that character traits such as perseverance were important, while others spoke about the importance of support from teachers.

Vicarious experiences were important to many of the survey participants. Students reported that seeing other students with disabilities find success encouraged them and gave them a sense that they could do it too. Working with peers and in teams environments was valuable to a number of the students who took the survey.

In the area of social persuasion, Jensen et al. (2011) found that the support of families was valuable the STEM participants with disabilities. However, the support from families was typically general in nature, and not specific support in their STEM field. The participants found academic support and encouragement from their their peers, specifically from other STEM

majors with disabilities. Of highest importance to the participants was developing a rapport with instructors.

In the final area of physiological reaction, Jensen et al. (2011) examined how the respondents handled stress and anxiety. Some of the students felt their disabilities caused higher stress levels, because the material did not come as easily as general education peers. To overcome anxiety, students discussed some strategies such as getting enough sleep, studying hard, and using deep breathing techniques.

Emphasis on math and science rigor

Wei, Yu, Shattuck, and Blackorby (2017) found that for students with Autism to find success in postsecondary STEM education it is important that they are given opportunities to pursue challenging high school math courses along with their general education peers. The study found that the number of STEM majors who took advanced math classes in high school was 42%, compared to 22% for non-STEM majors. In the general population, 28% of STEM majors take advanced high school math classes compared to 25% of non-STEM majors. The greater difference for students with Autism shows how important it is for them to have exposure to mathematics rigor in high school.

The study by Wei et al. (2017) also found that students with Autism need opportunities to continue developing communication skills. Communications skills are vital as students make the transition from high school to postsecondary education. Wei et al. (2017) reported a gap between the number of students with Autism identified with a need for speech and communication services and those who actually received those services. Cameto, Levine, and Wagner (2004) report that 23.3% of students with Autism identified a post high school need for speech and

communication services in their transition plan. However, only 13.6% of students with Autism received speech and communication services up to 6 years after leaving high school (Wei et al., 2017).

Academic supports helpful to students with Autism

Fleury, et al. (2014) identified a number of strategies that can assist students with Autism in general education settings. Priming involves providing an overview or precursor of a topic before beginning to teach the content. To support visual learning, graphic organizers help students understand the connections between words, concepts, and ideas. Video modeling involves students observing videotaped examples that demonstrate what they are supposed to do. These types of instructional tools are becoming increasingly available.

Another strategy that Fleury, et al. (2014) suggest is that general education peers can come alongside students with Autism to help them stay engaged during class activities. The general education peers can be taught to adapt instruction to help students with Autism learn more effectively. Interacting with peers benefits students with Autism as they develop their communication by interacting with other students.

Many of these same strategies are discussed in an article by Chalfant, Rose, and Whalon (2017) that explored four strategies to enhance instruction for learners with Autism in a science classroom. The four methods were priming, peer supports, schedules (listing steps), and visual supports. While these strategies will benefit all students, they can be of particular benefit to students with Autism.

Kuder and Accardo (2018) examined strategies that are helpful for students with Autism to succeed in a college environment. Due to the wide-ranging needs of students with Autism, the

authors found that college students with Autism need primarily non-academic supports that are individualized. The research showed that most postsecondary institutions are not equipped to provide individualized supports to students with Autism.

Anderson, Stephenson, Carter (2017) performed a literature review of supports for individuals with Autism in postsecondary settings. Similarly, the research indicated that students with Autism are generally satisfied by the academic supports available. Anderson et al. (2017) indicated that students are lacking in social supports and mental health services that may be necessary to help them cope with a postsecondary environment.

Postsecondary schools have made improvements to the supports they offer to students with Autism in recent years (Anderson et al., 2017). However, problems persist as many students with Autism are reluctant to seek support and those who do, often do not receive support that is adequate to address their needs. Anderson et al. (2017) recommend additional research on staff and faculty training programs to help institutions better recognize the characteristics and needs of students with Autism.

Transition From High School to Adulthood

Minnesota Department of Education (2018) provides resources to complete secondary transition planning using the IEP process. Information is provided on the various formal and informal assessments available for transition planning. Training modules are available to assist secondary education staff with transition planning.

During ninth grade, a transition plan must be developed for students with an IEP that addresses transition from secondary to postsecondary education, career, and community living (Minnesota Department of Education, 2018). The Minnesota Department of Education (2018)

notes that there are compliance concerns as some IEP teams are not documenting their transition evaluations in their reports. Age-appropriate assessments are required to provide baseline data; assist the student in identifying strengths, interests, and preferences; support the identification of appropriate measurable postsecondary goals; identify appropriate accommodations and needed services; and identify needed instruction and activities to achieve measurable postsecondary goals (Minnesota Department of Education, 2018).

The postsecondary goals must include postsecondary education and training, employment, and independent living. These goals must be future oriented, measurable, based on age-appropriate assessments, and updated annually. The IEP plan must provide at least two years of courses of study that will correlate to and support the postsecondary goals (Minnesota Department of Education, 2018).

Following courses of study, the IEP plan must address transition services. Transition services must include instruction, related services, community participation, the development of employment and other post-school adult living experiences, and if appropriate, acquisition of daily living skills and provision of a functional vocational evaluation. The IEP must include annual goals that are broken down into benchmarks or short term objectives. The annual goals must be achievable in twelve months, move from current level of performance to an anticipated level of performance, and must guide instruction (Minnesota Department of Education, 2018).

Greene (2018) conducted a study of 39 IEPs in Southern California from 2012 to 2015 to determine compliance with the Individuals with Disabilities Education Act (IDEA) of 2004. Green (2018) reviewed the Individual Transition Plans (ITP), the name given to the portion of

the IEP that addresses transition. The Indicator 13 Checklist created by the National Secondary Transition Technical Assistance Center (NSTTAC) was used to evaluate the ITPs.

Greene (2018) concluded that 19 of the 39 ITPs (48.7%) lacked age appropriate transitions assessment information or contained inadequate descriptions of the transition assessment results. The reasons cited for the lacking ITPs are that special education teachers may not be adequately trained in transition assessment, that other parts of the IEP receive greater emphasis, that special education teachers lack time and resources, and that ITP forms are not properly structured.

Many of the transition assessments documented by Minnesota Department of Education (2018) are designed to assess life skills, such as community involvement, recreation, finances, and independent living. In contrast, Wehman et al., (2012) designed Project SEARCH to give individuals with Autism on-the-job internship opportunities in medical fields. Case studies were reported for two individuals with Autism who were each placed in three different internships. Their job performance was reported and supports were reduced over time. The researchers conclude that, "...it appears that youth with ASD may have more employment potential than has been realized to date. This study provides evidence that access to intensive training embedded in the community environments may improve the employment outcomes for youth with ASD" (Wehman et al., 2012, P. 154). The researchers recommend that the model be expanded into other job fields (Wehman et al., 2012).

A study by Taylor and Seltzer (2011) examined the educational and careers outcomes for 66 adults with Autism who recently left the secondary school system. The adults were placed into five categories: college/university, competitive employment, supported employment, adult

day services, and no regular activities. Participants with Autism who did not have an Intellectual Disability (ID) were three times more likely to have no activities than autistic participants with ID. "The current developmental disability service system does not appear to be accommodating the unique needs of individuals with ASD without ID" (Taylor and Seltzer, 2011, p. 572).

Wei, Wagner, Hudson, Yu, and Shattuck (2015) report that 29.0% of individuals with Autism are disengaged from employment or Post Secondary Enrollment (PSE) for up to 6 years after high school. "The high rate of youth with ASDs who were continuously or increasingly disengaged from either work or PSE and the very low full-time employment rates are worrisome" (Wei et al., 2015, p. 42).

While there are many support services available to students with Autism during high school, according to Roux, Shattuck, Rast, Rava, and Anderson (2015) these services drop off as individuals move into adulthood. They report that 37% of adults with Autism are disconnected from both work and education after high school.

Roux et al. (2015) report a strong correlation between household income and postsecondary enrollment. There is a 19% chance of postsecondary enrollment when an individual with Autism comes from a household with an income level below $25,000 per year. When an individual with Autism comes from a household with an income level greater than $75,000, there is a 60% chance of postsecondary enrollment.

This same type of salary correlation exists for employment. From households with an income level below $25,000, there is a 33% employment rate for adults with Autism, while for households with an income level above $75,000, there is a 72% employment rate. Only 19% of

adults with Autism lived independently, away from parents and without supervision (Roux et al., 2015).

A report by Roux, Anne, Rast, Anderson, and Shattuck (2016) examined data from the federal Vocational Rehabilitation (VR) program. The program provides job assistance services to individuals with disabilities in all 50 states. The report found that 60% of individuals with Autism who sought services through VR were employed for at least 90 days. Of those who were employed, 80% had part time employment with a median salary of $160 per week.

The report by Roux et al. (2016) indicates that at 8%, Minnesota had the highest percentage of individuals with Autism seeking VR services, compared to the national average of 3%. In 2014 there were 425 individuals with Autism in Minnesota who sought VR services. Of those individuals, 56% were secondary students at the time of application. In Minnesota, individuals with Autism made $8.96 per hour compared to the statewide average of $18.30 per hour. On average, Minnesota spent $5,226 on VR services for each individual with Autism who sought services.

Roux, Rast, Anderson, and Shattuck (2017) reported on another source of support for individuals with Autism referred to as State Developmental Disability (DD) services estimating that 111,400 adults with ASD sought DD services in 2014. In Minnesota, 100% of the adults with Autism who utilized DD services also had intellectual disability.

There are many services provided by DD including healthcare, transportation, residential services, education or training, and employment services. Nationally, 54% of adults with Autism receiving these services also had at least one mental health condition. Only 14% of DD service users with Autism were employed for pay within the community.

Proact is an organization which provides individuals with disabilities opportunities for employment and development. It is a nonprofit organization which receives its fundings from a variety of sources. The clients of Proact perform volunteer work, employment in a variety of settings, and participate in activities (T. Borchardt, personal communication, June 22, 2018).

Some of the Proact clients work in light manufacturing or hospitality industries. Some individuals require supported employment while others work independently. For example, one of Proact's clients is an adult with Autism who has skills working with electronics. This client works about 20 hours week in a field that he is passionate about. His work experience has helped him grow and develop.

According to Borchardt (personal communication, June 22, 2018), the client was given a title of Junior Engineer, which bolstered his confidence. When he first started on his job, he was intimidated by the communication aspects of employment. Borchardt created a picture directory for him of the individuals in the company that he could go to when he had different types of questions.

According to Borchardt (personal communication, June 22, 2018), it is critical for adults with Autism to work directly in their area of passion. Individuals with Autism typically have a narrow band of interest and they thrive when they find work that coincides with their interest. Borchardt goes into secondary schools to help students with IEPs discover their interests and what type of environment would be the best fit for them after secondary school.

Pathways for postsecondary success

A study by Wei et al. (2013) provides encouraging news for students with Autism. The study indicates that 81.33% of students with Autism who attend postsecondary institutions

pursue at least a portion of their education at a two-year community college. The authors suggest that this may be a prefered environment for students with Autism because they are often able to reside at home for greater support and stability. "For students with an ASD who are interested in pursuing postsecondary education, community colleges are an affordable option and may provide a smoother transition to the academic and social challenges that can arise in a university setting" (Wei et al., 2013, p. 1164).

A study was performed by Chiang, Cheung, Hickson, Xiang, Tsai, (2012) to determine what factors indicate whether students with Autism will participate in postsecondary education. They focused on data from 830 students with Autism in the National Longitudinal Transition Study 2 (NLTS2). The researchers found that 43% of students with Autism went on to pursue postsecondary education.

Based on the results of the research, Chiang et al. (2012) made four recommendations to help prepare students with Autism for participation in postsecondary education. The first was to have a goal of attending postsecondary education written into the IEP of the student. The second recommendation was to have students with Autism attend a regular high school and take general education classes. Third, teachers of students with Autism should employ effective instruction strategies. Fourth, educators should form partnerships and coordinate with parents to set expectations and discuss concerns for the child's postsecondary experience.

There is scant research available dedicated towards preparing students with Autism for successful transitions to employment. Bennett and Dukes (2013) found only 12 studies of predominantly students with Autism between ages of 14 and 22 that address preparing individuals with Autism for employment. They conclude, "therefore, it behooves our field, and

the children and adolescents we serve, to begin rigorous lines of research exploring the most effective means of preparing them for employment" (Bennet and Dukes, 2013, p. 74).

Chiang, Cheung, Li, and Tsai (2013) found that 56% of individuals with Autism found employment after high school. The researchers looked at the NLTS2 data set to determine factors associated with employment after high school finding that adults with Autism from high income families were much more likely to be employed. Chiang et al. (2013) conclude that additional resources should be granted to individuals with Autism from low income families.

Chiang et al. (2013) additionally concluded that students with Autism should receive instruction to improve social skills in areas specific to job interviews and job settings. The researchers believe that all students with an ASD diagnosis should receive career counseling. They recommend that high schools provide career services, such as work experience and job placement.

White et al. (2017) constructed a curriculum to help students with Autism transition successfully to a postsecondary institution. The curriculum is named Stepped Transition in Education Program for Students with ASD (STEPS). It is designed to improve the Self Determination (SD) and Self Regulation (SR) of students with Autism. The curriculum is designed in two steps, with the first step taking place in a secondary school setting and the second step taking place during college or between completion of high school and commencement of postsecondary school.

The first step in the curriculum involves six counseling sessions that focus on readiness assessment, psychoeducation, identifying deficits for remediation, and family-centered decision making (White et al., 2017). In between sessions the students complete homework assignments.

After the counseling sessions, students participate in an immersion experience at the postsecondary institution that they are interested in attending.

The second step of the curriculum involves one-on-one counseling in 12 to 13 sessions that facilitate transition, social integration, life skills coaching, and identifying and securing appropriate services and accommodations (White et al., 2017). The counselor communicates regularly with the student throughout the second step of the curriculum. The STEPS curriculum is under trial at the time of publication (July 6, 2017). The 26 students involved in the trial reported finding it helpful thus far.

Conclusion

Individuals with Autism struggle with academic skills that are critical to success in postsecondary education. These skills include organization, communication, and reading and writing skills (Fleury et al., 2014). Many supports are available to assist students with Autism in secondary school, but fewer exist at postsecondary education institutions (Elias and White, 2018).

Many students with Autism find success in a community college environment where they can live at home with greater support from family (Wei et al., 2013). Students with Autism find that the lack of social support at postsecondary institutions is a greater obstacle than the academic challenges (Anderson et al., 2017). Wei et al. (2013) found higher persistence for students with Autism who major in STEM fields.

For students with Autism who come from lower income families, there is reduced chance that they will attend a postsecondary institution (Roux et al., 2015) and find employment (Chiang et al., 2013). While there are programs, such as VR and DD, it remains challenging for

individuals with Autism to find employment. Borchardt (personal communication, June 22, 2018) suggests that finding employment directly in their area of passion is crucial for success.

There are a number of ways to help students with Autism transition successfully from secondary to postsecondary education. Students with Autism should have a goal of postsecondary education written into their IEP, take general education courses in high school, learn from teachers using effective strategies, and collaborate with parents and educators to set expectations for postsecondary experience (Chiang et al., 2012). White et al. (2017) suggest that counseling sessions and intensive preparation are key to preparing students with Autism for postsecondary success.

CHAPTER III: APPLICATION MATERIALS

Introduction

The review of the literature reveals that students with Autism have unique challenges to find success in postsecondary endeavors. Individuals with Autism often have giftedness in specific tracks that align with STEM education and occupations. When students with Autism find their way into these fields, they have a higher tendency for persistence and success (Wei et al., 2012).

However, many individuals with Autism are limited by struggles in a variety of areas that are key to postsecondary success. These areas include social interaction, organization, and other academic skills such as reading and writing (Fleury et al., 2014). This may leave secondary students with Autism feeling like they do not have the capability to succeed in a postsecondary education environment.

In addition, the literature suggests that children with Autism from lower income families have fewer opportunities to succeed in a postsecondary environment (Roux et al., 2015). This may be due to the fact that families with a lower income do not have the means to provide the same level of opportunities and awareness as individuals from a family with higher income. The Key Findings (see Appendix A) summarizes some key points in the research and can be used to point students, families, and educators toward the need for greater effort in the area of transition.

Students with Autism will benefit from engaging opportunities to explore postsecondary and career opportunities. The Career and Postsecondary Education Toolkit (CPET) was designed as a component of the Masters Thesis Project to document hands-on, engaging activities that can lead students to explore STEM postsecondary education and career pathways. A set of tools has

been developed that that will help secondary students with Autism develop greater awareness of opportunities that are available to them.

The first set of documentation tools in the CPET relate to career exploration. Before students can find success in STEM fields, they need to become aware of the career and educational opportunities that may lead to positive future outcomes. Students with Autism will benefit from seeing the types of STEM occupations that are available and might be suited to their individual strengths.

The second set of tools in the CPET relate to exploring postsecondary educational opportunities that can put students on a path towards a STEM career. The process of selecting a school and preparing for postsecondary success is a significant challenge for any student. For students with Autism there are additional concerns and considerations that need to be explored. Students with Autism should be particularly thoughtful about the environment and the supports that will be available to help them succeed in a postsecondary environment.

The process of documenting career and postsecondary exploration is vital to preparing for success. A set of forms has been prepared to help students process their career and postsecondary exploration. These forms include a range of questions that help students reflect on their exploration experiences in relation to their own future plans and expectations.

A summary form has been developed in the CPET to tie together the career and postsecondary reflection forms. This planning document serves to solidify future hopes and expectations for students with Autism. All of the forms are designed with the intent of encouraging students to consider STEM education and careers, but are not limited in this regard.

The career and postsecondary exploration activities are targeted for students with Autism approaching graduation (i.e. 11th or 12th grade), but would also benefit general education students. The CPET is designed with flexibility to be implemented in a variety of settings. The exploration activities could be planned by students, families, or by secondary education staff such as teachers, case managers, or counselors. Completion of all or portions of the CPET will help students explore careers of interest, examine postsecondary educational pathways, and document experiences to prepare for positive future outcomes.

Career Exploration

Secondary students often have limited career awareness. For students with Autism who have narrow bands of interest, it is particularly important for them to find careers that align with their interests. Students can watch career exploration videos to obtain an overview of a variety of careers. Teachers or case managers can instruct students to watch the 51 career videos available by Illinois Worknet (2018).

While career transition is not required in the IEP until age 16, the career exploration could begin at age 14 when many students are entering high school. A Career Exploration Video Form (see Appendix B) has been created to help students process career exploration videos. The form asks students to document some of the careers they learned about by watching videos and to highlight the one that seemed to be of highest interest. The form asks them to consider education and training that is necessary to work in this career.

Another means to help students with Autism understand what types of career opportunities are available is to take them on a field trip(s) to see different careers in action. Manufacturing Day, which is the first Friday in October, presents an opportunity for students to

see a manufacturing company where employees work in STEM occupations. Many companies partner with schools for tours that are mutually beneficial. Companies want to attract future employees and schools want their students to become inspired about future career opportunities.

There are a number of resources available to help arrange field trips for Manufacturing Day. National Association of Manufacturers (2018) has nationwide resources that can be sorted by state, while Bemidji State University (2018) has opportunities specific to Minnesota. These resources provide dates and locations of organized field trips along with contact information for host businesses. Field trips can also be arranged by networking with local businesses. Depending on the desire of the school, field trips can be organized for a specific class, a subject, or opened to any interested students.

A Career Observation Form (see Appendix C) has been created to help students process a field trip to a business. The form asks students to describe their experience and to comment about careers that they observed that might be of interest to them. Additionally, it asks them to consider education and training that is necessary to work in this career.

In addition to field trips, guest speakers can be a great way to introduce students to career possibilities. Multiple speakers can come on the same day and address students for short periods of time. In this format, the speakers address students in small groups and then move to another next station. This approach keeps students attention and enables students to hear about a variety of career opportunities in a single class period. A Guest Speaker Observation Form (see Appendix D) documents whether students are interested in the career(s) that they heard about.

If a students has identified a career of interest, a job shadow provides a great opportunity to explore this interest further. A job shadow is typically a one day event where a student

follows an employee in an area of career interest throughout their work day. This enables the student to observe a variety of facets of work to get a sense for whether the work would be suitable to them. However, a one day job shadow is not likely to give a student a complete understanding of the job and its demands.

For a more complete experience, a student should consider an internship at a company. An internship can vary in length and can be paid or unpaid. For students with Autism, an internship will likely require some level support until the student is able to complete tasks independently. An internship can be valuable for both the student and the company as they both determine if future employment could be a good fit. A Job Shadow or Internship Reflection Form is included in the CPET (see Appendix E) to help students process their experience and determine their next steps.

Postsecondary Education Exploration

Once students with Autism determine a career of interest, the next step in the CPET is to help students determine the educational pathway that will lead them to their career choice. Since research has shown that students with Autism have greater persistence in STEM fields at two-year institutions (Wei et al., 2013), the focus should be on 2-year schools that offer STEM pathways. Many academic institutions have recruiters who are trained to present to high school school students.

One way to introduce students with Autism to educational opportunities is to research local 2-year STEM institutions and invite a recruiter to come in to the classroom. These recruiters can address some of the benefits of a 2-year degree, such as reduced cost and an increase in hands on applications. The recruiter can also speak about the fields their institution

specializes in and how those degrees translate to job opportunities. The recruiter should speak about Disability Services that are available to assist students with Autism.

Students can visit with college recruiters in their school's college and career center. They can also attend a college fair where they can talk with multiple schools in one visit. The College Recruiter Report Form (see Appendix F) has been created to help students prepare for and process their visit with a college recruiter.

A campus visit is another tool in the CPET that enables a student to get a sense of how it would look and feel to attend a particular postsecondary institution. Students should attend a STEM classroom, eat in a dining area, and visit gathering areas, such as libraries and student unions. Students with Autism should also visit the office of Disability Services and discuss what supports and accommodations they could receive on campus. A Campus Visit Report Form (see appendix G) will help students document their visit.

Meeting with a student who currently attends or attended the college can provide insight into the college experience. This is particularly true for students with Autism where the college experience has unique challenges. An Interview of Current or Former Students Form (see Appendix H) is included to help students prepare for and process an interview with a student.

Transition Plan Documentation

Once career and postsecondary options have been sufficiently explored, the final step in the CPET is to document career and postsecondary education interests for the student with Autism. Many existing transition assessments focus on social and living skills and do not encourage students to consider challenging and rewarding careers in STEM. The CPET

Summary Form (see appendix I) summarizes the experiences a student has had exploring STEM career and postsecondary options.

The CPET Summary Form can then be used as a tool to help prepare the IEP postsecondary goals for employment, education, and training. The documented obstacles can form a source of goals to help students with Autism overcome their fears and challenges associated with pursuing a STEM career. Not all individuals with Autism are naturally inclined for success in STEM careers and the CPET is broad enough to be tailored to meet the needs of students preparing for any type of career.

CHAPTER IV: DISCUSSION AND CONCLUSION

Summary of Literature

Individuals with Autism are important contributors in our society with strong systemizing skills (Baron-Cohen, 2009). These systemizing skills often enable individuals with autism to excel in STEM fields (Wei et al., 2012). However, some traits of Autism can present obstacles to success.

According to Janzen (2003), individuals with Autism are unique in the way that they filter and make sense of information they receive through their senses. They are challenged to retrieve information and relate it to their knowledge in a meaningful way. Janzen (2003) relates the Autistic brain to a computer with a camera that cannot be turned on or off, filter information, or adjust the volume.

These characteristics of students with Autism often give rise to certain challenges in the classroom. Students with Autism tend to be challenged in the areas of verbal skills, organization, academic content, writing, multi-step instructions, and interacting with peers (Fleury et al., 2014). However, individuals with Autism can overcome their obstacles and find success.

There are a number of strategies that can help students with Autism succeed academically. Teachers who employ these strategies can give both general education students and students with Autism a greater chance for success. For students with Autism who want to pursue a STEM field, it is important to take rigorous math courses in high school (Wei et al.,

2017). Once students with Autism reach college, their needs are more individualized and non-academic (Kuder and Accardo, 2018).

Adults with Autism can receive support from VR (Roux et al., 2016) and DD (Roux et al., 2017) services, though many are neither working nor enrolled in school (Roux et al. 2015). In order to provide better career outcomes, it is important to provide transition support for students with Autism as they progress from high school to postsecondary education and careers. White et al. (2017) are piloting the STEPS curriculum to provide transition support to students with Autism.

The CPET presented in the previous chapter is intended to prepare high school students with Autism for careers and postsecondary enrollment. The first portion of the curriculum helps students identify a career of interest. The second portion introduces the students to postsecondary enrollment options that are well suited for them. The final portion of the curriculum is to document a transition plan, including identifying potential obstacles and supports.

Professional Application

Jackson et al. (2018) reported that over half of the postsecondary Autism study participants had thought about suicide in the past year. This is a crucial finding indicating that more needs to be done to help students with Autism find the support they need for success. Also of concern is the finding by Roux et al. (2015) that students with Autism from low income families are far less likely to attend postsecondary education or find employment.

As educators, we need to prepare students with Autism for postsecondary education in a manner that is inclusive of our students from low income families. By providing in-school opportunities, we ensure that all students have access. The CPET is designed to give students with Autism experiences that help them prepare for postsecondary education and careers.

It is my hope that the CPET will be used to guide students with Autism towards positive career outcomes that foster confidence and independence. With these efforts we can create a reduction in the number of adults with Autism who are neither employed nor engaged in postsecondary education. Seeing the pride and sense of accomplishment of individual with Autism find meaningful STEM employment makes it worth our efforts.

Limitations of the Research

Individuals with Autism tend to be strong in the area of systemizing (Baron-Cohen, 2009). This would indicate that individuals with Autism should find success in STEM fields due to the systemizing nature of these fields. However, the study by Wei et al. (2012) was the only research directly linking students with Autism to success in postsecondary STEM education. The research by Baron-Cohen (2009) has not been explored further to determine if individuals with Autism have greater success in STEM courses and careers.

There is an emerging body of research related to helping students with Autism succeed in a postsecondary environment. Wet et al. (2013) indicated that students with Autism have greater success at 2-year institutions than 4-year institutions. Kuder and Accardo (2018) found that postsecondary students with Autism need individualized, non-academic support.

However, this research has not become specific or actionable enough to inspire sweeping changes in the way postsecondary institutions support their students with Autism.

There are few places to turn to find guidance on how to help students with Autism transition from high school to postsecondary education or careers. The study by White et al. (2017) proposed a transition curriculum for secondary students with Autism, but the results of their study have not been released. The CPET in the previous chapter is simpler and easy to implement, but is unsupported by data.

The Autism Institute at Drexel University issued reports in 2015, 2016, and 2017 examining data on how individuals with Autism transition to adulthood and what type of supports are provided by VR and DD programs. These reports provide valuable data, but leave unanswered questions. For instance, Roux et al. (2017) found that all students with Autism who received assistance from DD programs in Minnesota also had ID. This begs the question of why students with Autism who do not have ID are finding fewer opportunities for career and postsecondary education.

Implications for Future Research

There are four areas related to my topic which would benefit from additional research; establishing a correlation between autism and success in STEM fields, researching supports available for postsecondary students with Autism, examining how to help students with Autism transition from secondary school to adulthood, and exploring career assistance needs for individuals with Autism.

The study by Wei et al. (2012) showed that students with Autism have greater persistence in STEM fields. However, this is an indirect means of showing a correlation between an ASD diagnosis and an inclination towards STEM. More direct studies should be undertaken to solidify this understanding. For instance, future research could compare the grades and interest levels of students with Autism in STEM versus non-STEM subjects. The standardized test scores of students with Autism could be analyzed to compare the results in STEM and non-STEM categories. If the data shows a correlation between Autism and STEM, it would provide additional support for encouraging students with Autism to pursue STEM careers.

Postsecondary students with Autism report inadequacy in the areas of social support and mental health services (Anderson et al., 2017). Future research should be more specific regarding the types of support that students with Autism find necessary to succeed in a postsecondary environment. The research should also examine what type of knowledge staff and faculty possess at postsecondary institutions to indicate where additional training is necessary.

It was indicated by Roux et al. (2015) that support services for students with Autism drop off significantly after high school, leaving many individuals with Autism without either career or educational pursuits. Additional research is necessary to help guide students with Autism from high school into educational and career programs that are suited to their needs. The data is forthcoming on the success of the transition curriculum created by White et al. (2017). This data and other future research could help secondary educators and others providing support for individuals with Autism.

As Borchardt (personal communication, June 22, 2018) indicated, helping individuals with Autism work directly in their area(s) of passion is key to career success. Additional research is necessary to determine the best approach to help students with Autism discover their passions, as traditional career inventories may not be effective for this population. Taylor and Seltzer (2011) found that students with Autism without ID are more likely to be left out of educational and employment activities. Additional research should examine what types of supports are necessary to help students with Autism without ID engage in employment opportunities.

Conclusion

For several years I have been captivated by both the gifts and the struggles of students with Autism in my classroom. I am concerned about the future outlook for these students. The research I have undertaken in my thesis substantiates my concern. Roux et al. (2015) report that 37% of individuals with Autism are disconnected from education or employment after high school.

Students with Autism face a variety of obstacles in the secondary classroom (Fleury et al., 2014). These obstacles persist in the postsecondary setting. Elias and White (2018) and Jackson et al. (2018) conclude that additional supports are necessary to help students with Autism succeed in postsecondary education.

Individuals with Autism have strengths in the area of systemizing (Baron-Cohen, 2009) that may translate into success in STEM fields. Students with Autism have greater success at 2-year institutions and higher postsecondary persistence in STEM fields (Wei et al., 2013).

There are strategies that students with Autism can undertake to find greater success in their postsecondary education (Jensen et al., 2011).

Secondary schools are challenged to prepare students with Autism for postsecondary outcomes. The transition planning undertaken in the IEP process is often lacking. Compliance concerns are noted by the Minnesota Department of Education (2018) and by Greene (2018). A curriculum designed to guide students with Autism through postsecondary transition is under trial (White et al., 2017).

It is clear that more can be done to help students with Autism transition from high school to postsecondary success. Many students with Autism, particularly those without ID are well suited for careers in STEM when provided with the right training and supports. The objective of the thesis is to determine what strategies secondary educators can use to guide students with Autism into STEM careers.

The CPET is designed to create and document stimulating experiences for secondary students with Autism. Students first learn experientially about potential future careers. They can take field trips, hear from career speakers, job shadow, or perform internships. The four career documentation forms in the Appendix help students with Autism process their experiences and prepare for next steps.

After learning about careers, the second step in the CPET is to examine postsecondary educational opportunities. This can be achieved initially by hearing from college recruiters in a classroom, college fair, or college and career center. Students with Autism should then take a campus visit and interview a former student who has Autism. The three postsecondary forms in the Appendix help students prepare for and document their postsecondary education exploration.

The third and final portion of the CPET is to summarize the career and postsecondary exploration experiences in a summary document (see Appendix). This document is signed by the student, parent(s)/guardian(s), and the student's case manager or counselor. These signatures indicate that all parties are working together to seek a positive future career for the individual with Autism. The planning for future career and postsecondary education can be used to prepare the IEP postsecondary goals for employment, education, and training.

It is my hope that the CPET will be used to create successful transitions to STEM careers for students with Autism. As they overcome their obstacles, they will achieve a high level of accomplishment. The result will be a higher quality of life for the individual and a benefit to their family, community, and society.

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Appendix A

Key Findings

- Individuals with Autism score higher on a measure of Systemizing Quotient than the general population (Baron-Cohen, 2009).

- 37% of individuals with Autism are disengaged from employment or postsecondary education after high school (Roux et al., 2015).

- Students with Autism anticipate a smooth transition to adulthood, but typical face multiple dynamic transitions (Anderson et al., 2016).

- 81.33% of students with Autism who attend postsecondary institutions pursue at least a portion of the education at a 2-year community college (Wei et al., 2013).

- Students with Autism who attend 2-year community college have higher persistence rates for STEM fields (Wei et al, 2013).

- A majority of students with Autism enrolled in postsecondary education are comfortable with their academic workload, but face challenges with social experiences (Jackson et al., 2018).

- There is a need for social supports for students with Autism in postsecondary education settings (Elias and White, 2018).

- Students with Autism who want to pursue STEM fields find great encouragement from hearing about other students with disabilities who found success. Developing a rapport with instructors is also a key to success (Jensen et al., 2011)

- High schools should provide career services such as work experience and job placement for students with Autism (Chiang et al., 2013).

Appendix B

Career Exploration Video Form

Your name:

Date:

How many career exploration videos did you watch?

Which one did you find the most interesting?

What tasks were employees performing?

What is the name of the job(s) or career(s) of the employees?

Did you observe anyone performing a job that you think you would enjoy?

What do you think you would enjoy about this job?

What part of their job do you think would be difficult for you?

What training or skills would you need to acquire to perform this job?

Appendix C

Career Observation Form

Your name:

Date of field trip:

Name of the business observed on the field trip:

What does this business produce or what services do they provide?

What stood out to you during the field trip?

What tasks were employees performing?

What is the name of the job(s) or career(s) of the employees?

Did you observe anyone performing a job that you think you would enjoy?

What do you think you would enjoy about this job?

What part of their job do you think would be difficult for you?

What training or skills would you need to acquire to perform this job?

Appendix D

Guest Speaker Observation Form

Your name:

Date:

Name of guest speaker:

Profession of guest speaker:

What type of tasks does the speaker perform?

Does the speaker primarily work independently or in teams with others?

In what ways does the speaker communicate with others?

What does the speaker particularly seem to enjoy about their occupation?

Are their aspects of the work that they do not enjoy?

What education and training did the speaker need to prepare for their occupation?

Do you think you would enjoy being employed in this occupation?

What parts of the job do you think you would like and what parts would you dislike?

Appendix E

Job Shadow or Internship Reflection Form

Your name:

Name of company:

Date(s) on the job:

What tasks did you observe or perform during this experience?

Did you or would you need help performing the task(s)?

Could you learn to perform the task(s) without assistance?

What did you enjoy about the work you were doing?

What did you dislike about the work you were doing?

Is there training or education that is required or recommended to prepare you to work in this career?

Appendix F

College Recruiter Report Form

Student Name:

Date:

Name of college/university:

Where is the college/university located?

What are the strengths of college/university?

How much does it cost to attend this college/university?

Do they offer a degree or certification in an area that interests you?

What living arrangements would you have if you attended this college or university (commuting, living on campus, living off campus, etc.)?

What support services do they offer for students with disabilities?

What do you think are the biggest challenges that you would face at this institution?

Are they ways that you could find support or encouragement to help overcome these challenges?

Appendix G

Campus Visit Report Form

Student Name:

Date:

College or University visited:

Did you visit a STEM classroom(s)? What did it look like? Was class in session?

Did you visit other student areas, such as a libraries, gathering areas, computer labs, etc.? Do you think you would spend time in these areas if you were a student?

Did you eat a meal on the campus? Would you like to eat there as a student?

Are you considering living on campus? Did you visit student housing?

What did you like or dislike about the appearance of the school? Consider the inside and outside of buildings and the setting of school.

Did you visit the office of Disability Services? Did you talk with them about what accommodations would be available you as a student? Did you talk to them about how you register for services?

What challenges do you think you think you would face as a student on this campus?

Are there any counseling, tutoring, or other support services that could assist you?

What is your general feel of the campus? Do you think you would feel welcome and comfortable on the campus?

Appendix H

Interview of Current or Former Students Report Form

Date:

Name of Student:

Name of College/University attended:

What degree or certification did this student pursue?

What did this student enjoy most about their postsecondary experience?

What strategies did this student use to help them succeed?

Did this student have accommodation or supports that benefited them?

What were the biggest challenges for this student during their postsecondary education?

What advice did the student have for you?

Appendix I

CPET Summary Form

Student name:
Parent/Guardian name(s):
Case Manager:
Date:

Section 1: Career

What career(s) have you observed and found interesting (please list 1 to 3):

Discuss when and where you had an opportunity to observe or hear from employees working in this career(s).

What skills and interest do you have that make this career(s) seem appealing?

What obstacles would you face in getting employed or working in this career path?

What would help you overcome these obstacles?

Section 2: Education

What type of degree or certification is necessary to be employed in the career (s) listed in Section 1?

If applicable, which postsecondary institution could you attend to become qualified for this career?

What have you learned about the institution from recruiters, a campus visit, or from other students?

When have have you visited or when will you visit the institution?

Why would this institution be a good fit for you?

What obstacles are you likely to face at this institution?

What could you do to overcome these obstacles (accommodations, Disability Services, help from others, etc.)?

Section 3: Timeline

When would you like to be working in the career of your choice?

If applicable, when will you enroll in postsecondary education?

If applicable, how long do you anticipate it will take to complete your postsecondary education?

Section 4: Certifications

I believe that I have a bright future ahead of me. I have been thoughtful about my future plans and have done my best to prepare for my future. If I need help along the way, I know where I can find support. Signed _____ [student]

I/We are supportive of the career and educational goals that have been described. I/we would like to see our student achieve the highest possible level of independence and career fulfillment. Signed _____ [parent(s)/guardian(s)]

I have been involved in the transition planning process and believe that this plan represents a path of high potential for my student. I believe the career and postsecondary plans identified are achievable and consistent with the passions and skills of the student.
Signed _____ [case manager/counselor]