A Formative Evaluation of a Program Providing Support to College Students with Autism Spectrum Disorder

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A FORMATIVE EVALUATION OF A PROGRAM PROVIDING SUPPORT TO COLLEGE STUDENTS WITH AUTISM SPECTRUM DISORDER

by

Kourtney Kay Bakalyar

A dissertation submitted to the Graduate College in partial fulfillment of the requirements for the degree of Doctor of Education Special Education and Literacy Studies Western Michigan University December 2016

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A FORMATIVE EVALUATION OF A PROGRAM PROVIDING SUPPORT TO COLLEGE STUDENTS WITH AUTISM SPECTRUM DISORDER

Kourtney Kay Bakalyar, Ed.D.

Western Michigan University, 2016

Young adults with autism spectrum disorder (ASD) are attending institutions of higher education more than ever before (Smith, 2007). All college students with disabilities have the right to accommodations under the American with Disabilities Act Amendments Act of 2008 (ADAAA; P.L. 110-325); however, these accommodations frequently do not address barriers that prevent students with ASD from successfully completing their academic programs. The Autism Services Center at a public, four-year university provides services to its college students with ASD to address difficulties with communication and social skills, unique emotional and behavior characteristics, insufficient executive function, and difficulties with independent living skills. Programs providing additional support to students with ASD are becoming more prevalent. The effectiveness of these services is unknown, and more studies and evaluations are needed to determine what services are beneficial to student success (Longtin, 2014).

This study applies the Context, Input, Process, and Product (CIPP) model to evaluate the preliminary services being provided to college students with ASD through the Autism Services Center (Stufflebeam & Shinkfield, 2007). The CIPP model provides a comprehensive, systematic review of projects often used for formative evaluations of service programs. Online surveys, interviews, a focus group, and review of existing student documents were used to gather
data from the students with ASD, their parents, instructors, and staff; data were analyzed using both qualitative and quantitative methods.

Retention rates, GPA, and percentage of credits completed suggests the Autism Services Center is having a positive impact on academic success. Responses from surveys, interviews, and a focus group highlight satisfaction of the services from all groups. Common suggestions for improvement of services include more training in the area of ASD for staff and instructors and more social events for students with ASD. A discussion of possible changes to the program, limitations of the study, and future research directions is included.
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ACKNOWLEDGMENTS

I would like to begin by thanking my committee members. To Dr. Sarah Summy, my chair, thank you for being my mentor from the first day of my undergraduate program and encouraging me to come back for my doctorate. Thank you for the support, guidance, and friendship along the way. To Drs. Daniel Morgan, Alan Poling, and Katharine Cummings, thank you for your time, feedback, and words of encouragement as I tackled this project.

Additionally, to Dr. Alan Poling along with Drs. Jessica Frieder and Stephanie Peterson, thank you for giving me the opportunity to build the Autism Services Center (ASC) and for the support throughout its development.

To my coworkers and graduate students, thank you for helping me to get services started quickly, helping me problem solve when issues arose, and for engaging in a dozen small (and not so small) projects when an idea came about. Without your support, the ASC would not be where it is today.

To my friends and family, thank you for the meals, the childcare, and the breaks from working. Most of all, thank you for being my cheerleaders.

Lastly, to Alexis and Ben; both of you have been with me for the whole process. Alexis, thank you for being there to brighten my day and remind me to take breaks. Ben, thank you for keeping us all sane as I balanced our family life, completing this research, and building a program. Thank you for all the brainstorming sessions and being my main editor.

Kourtney Kay Bakalyar
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CHAPTER I
INTRODUCTION

Individuals with disabilities have not always received services at or had access to postsecondary education; it was not until the early 20th century, when United States war veterans started receiving incentives to pursue postsecondary degrees, that institutions of higher education (IHEs) started recognizing the need for additional support (Madaus, 2011). With the conclusion of the wars of the early to mid-1900s, veterans returned home with physical and psychological disabilities, many seeking a postsecondary education; IHEs started providing support such as materials for class on cassette tapes and allowing students to take tests in a separate location. Mandates for these services did not exist at the time, so whether individuals with disabilities received support depended on each professor or IHE.

As time has gone on, federal legislation has helped these services become more common (Madaus, 2011); however, they tend to not provide enough support for individuals with autism spectrum disorder (ASD; VanBergeijk, Klin, & Volkmar, 2008). To address this concern IHEs are beginning to provide additional support to their college students with ASD. This study examines the services being provided to this population at a public, four-year university, with the focus of evaluating the effectiveness of services and applying the feedback to help to make changes to better serve the students with ASD.

Federal Legislation

There have been three important federal legislations that impact the individuals with disabilities access to higher education (Madaus, 2011). Section 504 of the Rehabilitation Act of
1973 (Pub. L. No. 93-112), the Education of All Handicapped Children Act (EAHCA; Pub. L. No. 94-142, 1975), and the Americans with Disabilities Act (ADA, Pub. L. No. 101-336, 1990) each provide individuals with disabilities specific rights to make pursuing a degree at an IHE possible. These legislations are discussed in the sections below and in the section for Pertinent Laws found on page 11.

Section 504

The passage of Section 504 of the Rehabilitation Act of 1973 (Section 504; Pub. L. No. 93-112) and the Education of All Handicapped Children Act (EAHCA; Pub. L. No. 94-142) in 1975 improved access to postsecondary education. The EAHCA provided services for students with disabilities from elementary school until graduation. While the rights provided by the EAHCA did not extend past graduation, it did allow for more students with disabilities to have the skills needed to qualify for postsecondary education. Section 504’s reach impacted public IHEs by making it a civil rights violation to discriminate against an “otherwise qualified handicapped individual” (20 U.S.C. 1405 § 104.11). Students had the right to receive reasonable accommodations if they had a “physical or mental impairment, a record of such impairment, or were regarded as having such an impairment which substantially limited one or more major life activities” (20 U.S.C. 1405 § 104.3(3)(ii)(j)). Major life activities were classified as “functions such as caring for one’s self, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and working” (20 U.S.C. 1405 § 104.3(2)(ii)). These accommodations included requiring public buildings to be accessible, providing readers and interpreters, and modifying equipment or technology (20 U.S.C. 1405 § 104.12). For example, if a student could not read a test due to a visual impairment then someone would read the questions and record the students’ answers.
Americans with Disabilities Act

In 1990, the Americans with Disabilities Act (ADA, Pub. L. No. 101-336) was passed, extending the civil rights of Section 504 to the private sector (28 C.F.R. § 35.102). The ADA was most recently reauthorized with some amendments in 2008 and renamed the ADA Amendment Act (ADAAA; Pub. L. No. 110-325). One change was to the ADAAA was the broadening of the definition of disability and “major life activities” (42 U.S.C. § 12101(b)). Under the ADAAA, major life activities now include “sitting, reaching, and interacting with others” (29 C.F.R. § 1630.2(i)). As in Section 504, Individuals with disabilities have the right to auxiliary aids and services such as interpreters, readers, recorded texts, and acquisition or modification of equipment. They are also allowed accommodations including: extra time on tests, other testing modifications, course substitution, early course registration, permission to record lectures, and modifications for attendance policies.

Adult Outcomes for Individuals with Disabilities

Postsecondary education can help individuals with disabilities have greater success as adults (Madaus, Banerjee, & Merchant, 2011). The most current data from the Bureau of Labor Statistics (2016) show unemployment rates decrease with each increase in educational degree (e.g., unemployment is at 5.4% for individuals with a high school diploma and 3.8% for those with an associate’s degree); at the same time, weekly earnings increase with each step (e.g., $678 for high school graduates and $798 for those with an associate’s degree). While there is no significant difference in employment rates between individuals with disabilities and the general population, a significant difference exists between the two groups for postsecondary education (Newman et al., 2011). Only about 19% of young adults with disabilities ever attend a four-year
college; this is significantly less than the general population of young adults, of whom about 40% attend a four-year college. For young adults with ASD, this percentage is even lower.

**Adult Outcomes for Individuals with ASD**

Autism spectrum disorder (ASD) is described as an impairment in social interactions and communication, and repetitive, restrictive behaviors, interests, or activities that limit everyday living (American Psychiatric Association, 2013). The current *Diagnostic and Statistical Manual of Mental Disorders 5th Edition* (*DSM-5*; APA, 2013) diagnosis for ASD includes Asperger’s disorder and pervasive developmental disorder not otherwise specified. Due to their disabilities, individuals with ASD often struggle to find opportunities to participate in employment and postsecondary education (Shattuck et al., 2012). Shattuck and colleagues also found that young adults with ASD have lower rates of participating in any postsecondary education or employment than young adults with speech and language impairments (SLI), learning disabilities (LD), or intellectual disabilities (ID). They found only 12.1% of young adults with ASD attended a four-year IHE and only 28% attended a two-year IHE. Young adults with ASD had paid employment at a significantly lower rate as well; only 55.1% of the population had paid employment compared with 86% for young adults with SLI, 93.8% for those with LD, and 68.9% for those with ID. Additionally, Howlin (2013) found young adults with ASD worked less than young adults with ID (about 50% less) and other groups (33% less) and on average had lower hourly wages than any of the other groups. Postsecondary education is viewed as a way young adults with ASD can improve these outcomes (VanBergeijk et al., 2008).

The transition from high school to college can be difficult for students with ASD due to the differences in services from high school (Pillay & Bhat, 2012), faculty knowledge of working with students with ASD (Dente & Coles, 2012), and an increase in the level of student
independence. Many students with ASD received services while attending elementary, middle, and high schools through either the Individuals with Disabilities Education Improvement Act (IDEIA, Pub. L. No. 108-446, 2004) or Section 504 (Pub. L. No. 93-112, 1973). The IDEIA, which is the fourth reauthorization of the EAHC, is an educational rights law that provides all students with disabilities, regardless of the severity of the disability, the right to a free public education that benefits them. To the greatest extent possible, this education takes place in a setting with same age students without disabilities. Decisions on whether a student will receive special education services are made using bias-free assessments and evaluations, and parents are treated as equal partners throughout the process (34 C.F.R. § 300). This creates an environment where students with ASD are supported and can succeed. However, the IDEIA’s coverage stops once students receive their high school diploma or age out, which is at 26-years in Michigan (Mich. MARSE Code R. 340.1402; Michigan Department of Education, 2013).

**Current State of Services at IHEs**

The reasonable accommodations provided under ADAAA currently do not meet all the needs of many young adults with ASD (VanBergeijk et al., 2008). Disability Services, located within colleges and universities, are familiar with providing accommodations to address testing needs, help students gain access to lectures and instructional materials, and open communications about missed classes, late assignments, and assignment substitutions due to disabilities. While college students with ASD may use some of these accommodations, they fail to address the deficits in social interaction, communication, and independent living skills. Many college-age students with ASD have average or above-average intellectual function and the academic skills to attend college, but these deficits affect their ability to be successful at the collegiate level (Gobbo & Shmulsky, 2012). VanBergeijk and colleagues (2008) state, “The
failure to provide supports in the social realms for students with ASDs would exclude these students from being successful in academic achievement, which is a major life activity and the primary focus of universities” (p. 1362).

Institutions of higher education are beginning to provide services in addition to those being provided under ADAAA (Hansen, 2011). These services often support students’ independent living skills, social and communication skills, executive functioning skills, and time management skills (VanBergeijk et al., 2008). Many IHEs that do have services charge students a fee (in addition to tuition, housing costs, and university fees) to receive their services (Hansen, 2011). While these programs are becoming more prevalent, little has been done to investigate the various strategies or effectiveness. A literature review of ERIC and PsycINFO, using the terms autism or Asperger* and higher education, postsecondary, college, or university, and not setting a range for dates found that no evaluations of services provided to college students with ASD have been published. Gelbar, Smith, and Reichow (2014) called for researchers to move on from writing about how to support college students with ASD and to start evaluating the services that are being provided.

**Statement of the Problem**

The prevalence of ASD has surged in the last 20 years (Centers for Disease Control and Prevention, 2014). The latest numbers from the Centers for Disease Control and Prevention (CDC) report an increase in the rate of children identified with ASD to one in 68, up from one in 88 just two years before (CDC, 2012). At the same time, the proportion of children who have ASD along with an average to above average intellectual ability has also increased, now at 46%, from 32% when studied in 2002 (CDC, 2014). Researchers are contributing increases in prevalence rates to a wider definition of ASD, diagnostic substitution, and better diagnostic tools
that are also easier to acquire (Coo et al., 2008; VanBergeijk et al., 2008). Many IHEs are seeing an increase in their population of students with ASD (VanBergeijk et al., 2008). One college found its prevalence rate on campus was between 1 in 130 and 1 in 53, depending on the criteria used for the diagnosis (White, Ollendick, & Bray, 2011). Better early interventions, tools for the identification of ASD, and improved special education services are helping more students with ASD attend college (Smith, 2007). However, many students with ASD will not succeed in completing their degrees without additional support or services from their IHE (Cai & Richdale, 2016).

For college students with ASD, their disorder may make communicating with professors and peers difficult, and can also lead to complications when dealing with schedules that have less structure and frequently change (Ames, McMorris, Alli, & Bebko, 2015). For this reason, many colleges and universities are adding specific programs to assist students with ASD while they attend their IHE (Hansen, 2011). Each IHE developing and providing services to college students with ASD takes a unique approach, but almost all of them build supports in the common areas of academics, social skills, and independent living skills. Therefore, results from an evaluation at one IHE would have some external validity to other IHEs providing similar services. Not only do IHEs need to complete evaluations of their services, but they must also share them so that more college students with ASD benefit from services with evidence of helping students succeed at the postsecondary level.

**Significance of the Research**

The available research explains the need for more programs at the postsecondary level supporting college students with ASD (Gobbo & Schulsky, 2012; Smith, 2007; White et al., 2011). Additionally, personnel from individual colleges have added to the literature the
methodology behind how their colleges developed their supports (Hansen, 2011; Wenzel & Rowley, 2010). However, services for college students with ASD have yet to be evaluated for their effectiveness in improving student outcomes (Longtin, 2014; VanBergeijk et al., 2008; White et al., 2011). The continued lack of services or providing services that have not been evaluated for college students with ASD “bears a considerable cost in terms of unmet human potential and loss of productivity” (White et al., 2011, p. 698).

Starting with the fall 2015 semester, a Midwestern, public university began offering services for college students with ASD through the Autism Services Center (ASC). Services were made possible through a grant from the state’s Department of Health and Human Services to improve the lives of individuals with ASD. It was important to evaluate the services being provided to students with ASD at this IHE so that in the future, time and resources are spent on activities that are adding to students’ postsecondary success. Publishing the results will also extend what is known about the effectiveness of some of the services being provided to college students with ASD.

**Research Questions**

The purpose of this study was to evaluate the effectiveness of ASD services being provided at a Midwestern, public university. The Context, Input, Process, and Product (CIPP) model of program evaluation (Stufflebeam & Shrinkfield, 2007) was used to gather student, parent, and faculty/staff input on the services provided during the fall 2015 and spring 2016 semesters. The evaluation analyzed current and historic data for the offices providing services for college students with ASD. Zhang and colleagues (2011) explain what the four components of the CIPP can do for a program evaluation:
The input evaluation component can then help prescribe a responsive project that can best address the identified needs. Next, the process evaluation component monitors the project process and potential procedural barriers, and identifies needs for project adjustment. Finally, the product evaluation component measures, interprets, and judges project outcomes and interprets their merit, worth, significance, and probity. (p. 59)

The focus of the evaluation was to discover to what extent the ASD services helped college students with ASD, as well as what changes need to be implemented to improve the support provided. These were addressed through the following research questions:

- **Context**
  - What services are available to college students with ASD since the creation of the Autism Services Center?

- **Input**
  - What alternative services are available to add for college students with ASD?

- **Process and Product**
  - To what extent are the current services for college students with ASD meeting their needs?
    - What impact do the ASD supports have on retention?
    - What impact do the ASD supports have on academic success?
    - What impact do the recruitment activities and available support have on student enrollment for students with ASD for the 2016-2017 school year?
    - To what extent are students satisfied with the ASD supports they received?
    - To what extent are parents satisfied with the ASD supports their children received?
    - To what extent are instructors/staff satisfied with their interaction with the staff members providing the ASD supports?
Based on the findings from the other evaluation components, what changes need to be made to services for students with ASD?

Online surveys, interviews, a focus group, and review of existing student documents were used to gather data from the university’s students with ASD, their parents, instructors, and staff.

Assumptions

This study assumed:

1. Any conclusions, recommendations, or suggestions pertain to this IHE.
2. The participants’ feedback reflects the services provided by the Autism Services Center during the fall 2015 and spring 2016 semesters.
3. The students with ASD have the ability to communicate and rate their satisfaction of services.

Terms

Autism spectrum disorder (ASD). An impairment in social interactions and communication, and repetitive, restrictive behaviors, interests, or activities that limit everyday living (American Psychiatric Association, 2013). The DSM-5 ASD diagnostic criteria include Asperger’s disorder or syndrome and pervasive developmental disorder not otherwise specified. This term will be used to discuss the individuals who identify with ASD and Asperger’s disorder (syndrome).

Asperger’s disorder/syndrome. Formally a separate diagnosis in the DSM-IV, the diagnostic criteria for Asperger’s disorder included impairments in social interaction and restricted, repetitive, and stereotyped behavior without delays in communication or cognitive development (American Psychiatric Association, 2000).
Disability services. Disability services (DS) refers to the office on most campuses charged with helping students register their disability and access their accommodations at institutions of higher education. At this IHE, the office is called Disability Services for Students. Throughout this study, DS will be used when discussing offices for disability services in general and DSS will be used when discussing the IHE’s individual office.

Evaluation. “The process of delineating, obtaining, reporting, and applying descriptive and judgmental information about some object’s merit, worth, significance, and probity in order to guide decision making, support accountability, disseminate effective practices, and increase understanding of the involved phenomena” (Stufflebeam & Shrinkfield, 2007, p. 326).

Institution/s of higher education (IHE). Includes two-year community or technical colleges and four-year colleges and universities; IHE are included in postsecondary education.

Postsecondary education. Broader than higher education, can include vocational training.

Pertinent Laws

Section 504 of the Rehabilitation Act

Section 504 states: “No otherwise qualified individual with a disability . . . shall, solely by reason of her or his disability, be excluded from the participation in . . . any program or activity receiving federal financial assistance” (34 C.F.R. §104, 2006). Section 504 is a civil rights law that protects individuals with disabilities from discrimination (Garda, 2012). For students in elementary or secondary schools, a “504 plan” would include reasonable accommodations to allow students with disabilities to access their education.
Americans with Disabilities Act Amendments Act of 2008

ADAAA’s wording is almost identical to that of Section 504; “No qualified individual with a disability shall, by reason of such disability, be excluded from participation in or be denied the benefits of the services, programs, or activities of a public entity, or be subjected to discrimination by an such entity” (29 C.F.R. § 1630, 2011). The ADAAA provides students with disabilities reasonable accommodations to access their education at the postsecondary level (Garda, 2012).

Individuals with Disabilities Education Improvement Act of 2004

Turnbull, Huerta, and Stowe (2006) explain six components of the IDEIA of 2004 well in the statement below:

The first four principles reflect the actual processes that schools follow in order to confer the benefits of a free appropriate education in the least restrictive environment for each student with a disability. The last two are the procedures that parents and students use to hold the schools accountable for carrying out the first four principles and to be partners with educators.

. . . For now, however, it is sufficient to define each in the briefest of terms.

Zero reject reflects the process of enrollment and provides that every child with a disability (under IDEA) is entitled to a free appropriate public education.

Nondiscriminatory evaluation occurs after the student enters school and when the school or others believe the student may have a disability and thus be entitled to IDEA’s benefits.

Appropriate education occurs when the student receives individualized programs that benefit him/her in progressing toward the national policy goals.

Least restrictive environment reflects the presumption that the student's education will take place in a typical setting and with nondisabled students.

Procedural due process is a way for parents to hold schools accountable for that education and for schools to hold parents accountable for their child.

Parent participation ensures that parents and the student can be partners with educators in having a say about the student’s education. (p. 3)
Summary

Students with ASD make up a growing college-going population that can be successful with supports and services. This population has unique deficits in their social interactions, communications, and independent living skills. Institutions of higher education are starting to recognize the need for additional supports for students with ASD and have created and implemented them; however, there is a lack of evaluation of these services. The focus of this study is to evaluate the effectiveness of services, apply the feedback, and make changes to better serve the students. Chapter II provides an overview of the current research on college students with ASD and the policies affecting their services, while Chapter III describes the methodology for the evaluation. Chapter IV shares, analyzes and clarifies the results, while Chapter V provides a summary of the findings, discusses impacts they have on services, and provides recommendations for further research.
CHAPTER II
LITERATURE REVIEW

The previous chapter provided a background and rationale for an evaluation of services being provided to students with autism spectrum disorder (ASD). This chapter provides a review of the current literature pertaining to college students with ASD. This is a new research track, with the oldest research published during or after 1999 (Gelbar et al., 2014). The research discussed in this chapter includes information from Gelbar and colleagues’ meta-analysis on the experiences of college students with ASD, along with other research documenting the need for supports in higher education (Adreon & Durocher, 2007; Cai & Richdale, 2016; Dente & Coles, 2012; Dillon, 2007; Gobbo & Schmulsky, 2014; Longtin, 2014; Mitchell & Beresford, 2014; VanBergeijk et al., 2008). Research on how institutions of higher education (IHEs) are recommending and providing supports to college students with ASD (Ackles, Fields, & Skinner, 2013; Gobbo & Shmulsky, 2012; Pillay & Bhat, 2012; Taylor & Colvin, 2013), the policies guiding the services (ADAAA, 2011; Disability Rights California, 2013), and the applied research addressing needs of college students with ASD (Koegel, Ashbaugh, Koegel, & Detar, 2013; Mason, Rispoli, Ganz, Boles, & Orr, 2012; Pugliese & White, 2014; Trammell, 2013) are also discussed.

Meta-Analysis

Gelbar and colleagues (2014) published a meta-analysis in a peer-reviewed journal for individuals with ASD and developmental disabilities providing a summary of the experiences of college students with ASD and their need for supports and services. The authors found 20 studies
fitting their selection criteria published in journals contained in the Medline, Embase, and PsycINFO databases. Studies were included in the review if they were published in a peer-reviewed journal and provided “a first-hand description of the services, supports, or experiences of one or more individuals” with ASD (p. 2595) attending an IHE. While this is an important topic of research in the area of college students with ASD, much of the available research (n = 39) was not included because it did not provide first-hand experiences from college students with ASD.

Their review of the literature found that all the studies were descriptive in nature, save two, which described studies that applied interventions systematically and examined the outcomes (Mason et al., 2012; Pugliese & White, 2013). Of the studies reviewed, 17 shared experiences from students with ASD, 12 provided suggestions for academic supports, and nine included recommendations for non-academic supports. Table 1 presents the experiences shared and the recommended academic and non-academic supports in order of most common to least from the studies reviewed by Gelbar and colleagues. College students with ASD most often shared that they experienced loneliness, anxiety, and depression while at college. The most common academic supports include testing accommodations, lecture notes, and working with a tutor. Peer mentors and counselors were the non-academic supports recommended the most. Overall, Gelbar and colleagues felt that enough had been published suggesting practices that may help college students with ASD, and recommended that future research in this area should focus on studying the effectiveness of services.
Table 1

*Shared Experiences and Recommended Academic and Non-Academic Supports*

<table>
<thead>
<tr>
<th>Experience</th>
<th># Times Identified</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Hand Experiences</strong></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>12</td>
</tr>
<tr>
<td>Loneliness/Isolation</td>
<td>11</td>
</tr>
<tr>
<td>Depression</td>
<td>8</td>
</tr>
<tr>
<td>Bullying</td>
<td>3</td>
</tr>
<tr>
<td>Housing/Roommate Concerns</td>
<td></td>
</tr>
<tr>
<td>Marginalization</td>
<td></td>
</tr>
<tr>
<td>Academic Difficulty/Failure</td>
<td></td>
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<tr>
<td>Lack of Understanding</td>
<td>2</td>
</tr>
<tr>
<td>Friendship</td>
<td></td>
</tr>
<tr>
<td>Stress</td>
<td>1</td>
</tr>
<tr>
<td>Time Management</td>
<td></td>
</tr>
<tr>
<td>Discrimination</td>
<td></td>
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<tr>
<td>Disruptive Behavior</td>
<td></td>
</tr>
<tr>
<td>Sensory Sensitivities</td>
<td></td>
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<tr>
<td>Dislike of Crowds</td>
<td></td>
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<tr>
<td>Difficulty for Writing for an Audience</td>
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<tr>
<td><strong>Supports</strong></td>
<td></td>
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<tr>
<td><strong>Academic Supports</strong></td>
<td></td>
</tr>
<tr>
<td>Testing Accommodations</td>
<td>6</td>
</tr>
<tr>
<td>Lecture Notes</td>
<td>5</td>
</tr>
<tr>
<td>Tutor</td>
<td>4</td>
</tr>
<tr>
<td>Coursework/Curriculum Modifications</td>
<td>3</td>
</tr>
<tr>
<td>Extended Deadlines</td>
<td>2</td>
</tr>
<tr>
<td>Note Taker</td>
<td>1</td>
</tr>
<tr>
<td>Professor Facilitation of Group Work</td>
<td></td>
</tr>
<tr>
<td><strong>Non-Academic Supports</strong></td>
<td></td>
</tr>
<tr>
<td>Peer Mentor</td>
<td>5</td>
</tr>
<tr>
<td>Counselor</td>
<td></td>
</tr>
<tr>
<td>Parent Involvement</td>
<td>3</td>
</tr>
<tr>
<td>Social Stories</td>
<td>1</td>
</tr>
<tr>
<td>Video Modeling</td>
<td></td>
</tr>
<tr>
<td>Social Support Group</td>
<td></td>
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<tr>
<td>Disability Team</td>
<td></td>
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<tr>
<td>Cognitive Behavioral Intervention</td>
<td></td>
</tr>
<tr>
<td>Problem Solving Skills Lessons</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Table adapted from Gelbar et al. (2014).
Further reviews of the literature using the terms *autism* or *Asperger* and *higher education, postsecondary, college, or university* found most of the research published in peer-reviewed journals about students with ASD attending IHEs followed the same pattern as those reviewed by Gelbar and colleagues (2014). All the studies found were published after 2001 and all of the studies except for two had the purpose of sharing the need for supports and providing recommendations for IHEs.

**Need for Support**

Whether through direct investigation or indirect observation, the research has documented the need for IHEs to provide additional services for college students with ASD (Adreon & Durocher, 2007; Cai & Richdale, 2016; Dente & Coles, 2012; Dillon, 2007; Gobbo & Schmulsky, 2014; Hansen, 2011; Longtin, 2014; Mitchell & Beresford, 2014; Morrison, Sansosti, & Hadley, 2009; VanBergeijk et al., 2008; Van Hees, Moyson, & Roeyers, 2015). The common deficits for college students with ASD impacting their success at IHEs include deficits in communication and socialization skills (Adreon & Durocher, 2007; Dente & Coles, 2012; Dillon, 2007; Gobbo & Schmulsky, 2012, 2014; Mitchell & Beresford, 2014), unique emotional and behavior characteristics (Ackles et al., 2012; Adreon & Durocher, 2007), insufficient executive functioning (Longtin, 2014), and difficulties with independent living skills (Hansen, 2011; VanBergeijk et al., 2008).

**Communication and Socialization**

Effective communication can be a substantial barrier for college students with ASD, to the point that faculty noted communication and understanding social cues as a top weakness for their college students with ASD (Gobbo & Schmulsky, 2014). Adequate communication skills are needed to be both academically and socially successful, and deficits with nonverbal cues can
negatively impact the interactions with peers and professors. Conversations where ideas are being shared reciprocally are often difficult for individuals with ASD (Adreon & Durocher, 2007), as this type of conversation requires each person to recognize when the other person would like to contribute to the conversation. Behaviors like avoiding eye contact and difficulties with nonverbal communication can be interpreted as rude.

The classroom is full of barriers for students with ASD. They may have difficulties knowing the proper level of participation for different courses, either interjecting too much in a class or not participating enough (Dillon, 2007), or they may not know when it is appropriate to have use technology such as cell phones or head phones. Cooperative learning activities, group projects, and presentations present additional barriers in the academic class with the need to communicate with peers or talk in front of them (Dente & Coles, 2012; Gobbo & Shmulsky, 2012). Parents of college students with ASD noted their concern with their children’s lack of self-determination skills, which are needed to self-advocate for accommodations in higher education (Morrison et al., 2009). Each of these factors could have a major impact on a student’s sustained success at an IHE, but when combined with one another they serve to act as a large barrier to students with ASD.

Additionally, college students with ASD often feel isolated from other students on campus (Ackles et al., 2013). Many students desire friendships and romantic relationships, but do not have the skills to approach, make, and keep friends (Adreon & Durocher, 2007). These students need help getting engaged in on-campus activities (Taylor & Colvin, 2013), and using language that is appropriate for a setting (Dillon, 2007). They also need to understand if they are being bullied or teased, a situation that their difficulties understanding sarcasm and humor can leave them vulnerable to (Adreon & Durocher, 2007).
Unique Emotional and Behavioral Characteristics

Emotional and behavioral characteristics common with students with ASD can present as barriers to their success at IHEs. Behavioral characteristics include sometimes restricted, intense interests (Adreon & Durocher, 2007), resistance to changes in routines (Cai & Richdale, 2016), and repetitive behaviors (Adreon & Durocher, 2007). Emotionally, young adults with ASD experience higher levels of anxiety and depression than their peers (Cai & Richdale, 2016; Gobbo & Schmulsky, 2014).

**Restricted, intense interests.** Restricted or intense interests can negatively affect how students with ASD interact with their peers and professors. For example, an intense interest may interfere with making friends if the student has little motivation to do something other than that interest (Adreon & Durocher, 2007). It can also be an issue if a student only wants to share information on that topic. Academically, general education requirements may be more difficult if students are not interested in the material (Gobbo & Schmulsky, 2014). Conversely, faculty have noted that in some cases a strong interest gives students passionate interests that he or she can research and share information on, which can be to the benefit of the students with ASD.

**Routines.** One of the biggest changes when making the transition from high school to higher education is the lack of daily and weekly structure. Schedules and routines often change at the postsecondary level, sometimes with very little communication to the students (Adreon & Durocher, 2007). Students’ days can get “thrown off” when a professor cancels class due to an illness or moves that day’s class to a different location, such as the library. Some students rely on the structure of the day to know what comes next on their schedule (e.g., first breakfast, then
history, math comes right after, and so on). When that routine is broken some students do not
know what to do and may miss the rest of that day’s classes.

**Repetitive behaviors.** One of the characteristics of ASD is repetitive behaviors, such as
rocking while sitting and over-blinking (American Psychiatric Association, 2013). When college
students with ASD engage in repetitive behaviors, they tend to stand out in a class or in the
cafeteria (Adreon & Durocher, 2007). These behaviors can impact their peers’ acceptance of
them (Nevill & White, 2011). There are several environments within IHEs where college
students with ASD can be over-stimulated, including large groups, dining halls and large lecture
halls (Ackles et al., 2013), which can increase students’ repetitive behaviors.

**Anxiety and depression.** When interviewed, parents and faculty expressed concern over
the levels of anxiety and depression college students with ASD experienced (Gobbo &
Schmulsky, 2014; Morrison et al., 2009), as did students with ASD (Cai & Richdale, 2016).
This anxiety can also be perceived by others; in one study, faculty noted that students with ASD
tended to experience more anxiety when working in groups or engaging in discussions (Gobbo &
Schmulsky, 2014). They also noticed that some students coped with their anxiety by leaving the
room or focusing on their computers. The concern over anxiety and depression is not just a
perception; VanBergeijk and colleagues (2008) found that young adults with ASD experience
depression and anxiety disorders at higher rates than the general population.

**Executive Function**

“Executive functions are higher order mental abilities governing the capacity to start,
stop, and persist at cognitive, emotional, and behavioral goals” (Gobbo & Shmulsky, 2014,
p. 14). Students with ASD commonly have impairments with their executive functioning. At the
collegiate level, executive functions are used to plan how much time is needed to complete large
projects, determine what materials are needed to study for exams, and to follow through on all assigned tasks. Students with ASD need help with organizing materials for courses, such as study materials, notes, and assignments (VanBergeijk et al., 2008). They also needed help with taking long or large assignments and making them into smaller assignments that are turned in, as well as planning when they will work on assignments or study for exams.

**Independent Living Skills**

There are additional barriers for students who choose to attend a residential IHE and live in a residence hall (Ackles et al., 2013). When living alone, students may miss meals and classes or decide to stay in their own rooms instead of interacting with others (Dillon, 2007). These behaviors can add to feelings of depression and anxiety, which are also co-morbid with ASD (VanBergeijk et al., 2008). Doing laundry, remembering to take showers, and managing medications can add to the stress of attending college. Students may also have a difficult time finding their classrooms or may get lost on large campuses (Dillon, 2007).

**Recommended Services**

Research written on the topic of college students with ASD has been focused on a few major areas: sharing the characteristics of AS or ASD, describing the needs these college students have, and recommending how colleges can support those needs. The previous section outlined barriers college students with ASD experience when transitioning to IHEs. The majority of the recommendations for college students with ASD include gathering and organizing the support from departments spanning IHE, including faculty, Disability Services, counseling services, residence hall staff, orientation, and early arrival programs. This section summarizes the recommendations for each department.
Faculty

Faculty can do much to help students with ASD have a greater chance of success at IHE. It is beneficial for course syllabi to be clear and detailed with descriptions of assignments, when they are due, and when quizzes and exams are scheduled (Gobbo & Shmulsky, 2012). This allows for students to manage their time more effectively and informs individuals who might be working with the students as to what is occurring in the class. Clear syllabi also add predictability to courses, which helps students with ASD feel more comfortable. It is not enough to have a good syllabus and schedule at the beginning of the semester; often changes occur during the semester that should be reflected in an updated syllabus or course schedule. College students with ASD will often miss announcements of changes of assignments or exams, and having it in print allows the students to refer back after class. Having a consistent schedule for each day, week, and semester is also helpful. Gobbo and Shmulsky recommend trying to keep classes predictable. For example, a professor may always start with a specific activity, like a warm-up question, and end with students sharing with a think-pair-share of something they learned that day and what is due the next day.

Time spent in class is not only an academic task but a social activity as well. Faculty can reduce teasing and bullying by starting the semester off with a discussion of differences in social functioning, which would be similar to discussing diversity of races and religions (Gobbo & Shmulsky, 2012). If group work is used in the class, professors should consider designating roles for each member and teaching students how to work in groups. For example, roles can include note taker, fact finder, and presenter. Additionally, class participation can be difficult for students with ASD but is often counted toward the course grade a situation that can greatly inhibit students’ success. Class participation is frequently included in a syllabus with a vague
description of how points are earned; sometimes this just doubles as an attendance grade and other times these points are earned for making comments or having input during the class. Instead of just giving points for comments made in class, Gobbo and Shmulsky (2012) recommend professors allow students to earn points for conversations with their professors during office hours, emails, and comments made on class discussion boards.

**Disability Services**

College students with disabilities have a right to reasonable accommodations under the Americans with Disabilities Act of 1990 (Pillay & Bhat, 2012), and these are coordinated by the Disability Services (DS). Large colleges and universities have a DS office whose responsibility it is to collect and review documentation of disabilities, select the appropriate accommodations, and disseminate the accommodations to faculty members. While the main responsibility for a DS office to the manage accommodations, some offices are able to provide more attention to students and serve as point persons for student and manage peer mentor programs that support students’ transition to their IHE (Ackles et al., 2013).

**Accommodations.** There are many possible accommodations students with ASD can have to increase their success at IHE. It is essential for faculty to work with their Disability Services to ensure their students receive reasonable accommodations that do not alter the requirements or core of the course (Pillay & Bhat, 2012). Students may need alternatives to taking notes in class due to poor fine motor skills or difficulties with processing auditory information (Adreon & Durocher, 2007; VanBergeijk et al., 2008). Extra time for exams may be needed for students who experience a high level of anxiety and a separate room for testing can help limit distractions. Table 2 includes the suggested accommodations for college students with ASD.
Table 2

*Suggested Accommodations*

<table>
<thead>
<tr>
<th>Articles</th>
<th>Accommodations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gobbo &amp; Shmulsky, 2012</td>
<td>Alternatives to presentations</td>
</tr>
<tr>
<td></td>
<td>Working alone instead of a group</td>
</tr>
<tr>
<td></td>
<td>Testing in a quiet room</td>
</tr>
<tr>
<td>VanBergeijk et al., 2008</td>
<td>Taking notes with a laptop</td>
</tr>
<tr>
<td>Adreon &amp; Durocher, 2007</td>
<td>Recording lectures</td>
</tr>
<tr>
<td></td>
<td>Receiving the lecture notes prior to class</td>
</tr>
<tr>
<td></td>
<td>Extra time</td>
</tr>
<tr>
<td>Smith, 2007</td>
<td>Priority course enrollment</td>
</tr>
<tr>
<td></td>
<td>Flexibility with attendance</td>
</tr>
<tr>
<td>Pillay &amp; Bhat, 2012</td>
<td>Reader for exams</td>
</tr>
</tbody>
</table>

**Point person.** Point persons or coaches can play important roles in their students’ experiences transitioning to an IHE (Ackles et al., 2013). For students with ASD, a point person is someone they can meet frequently who can help with time management, getting involved in on-campus events, and communicating with professors and roommates. This person learns a student’s strengths and weaknesses and can help them navigate registering for classes, meeting with advisors, applying and interviewing for part-time work, locating academic help, and getting connected with counseling services. This person is also someone who is often given permission by the student to communicate with one’s parents and who parents can then contact with concerns or questions.

**Counseling Services**

Given the high comorbidity of depression and anxiety in young adults with ASD, it important for them to have access to counseling services (VanBergeijk et al., 2008). Many IHEs have counseling services available for all students, which can help improve students’ success.
VanBergeijk and colleagues (2008) and Pillay and Bhat (2012) recommend the professionals providing the counseling services for students with ASD be trained to provide services that are direct and explicit and to include practice with feedback, like role-playing. In addition to providing recommendation and practicing social interactions, counselors can provide support such as developing plans for medications compliance, working with the student to identify side effects, connecting students who are not yet registered with Disability Services, and helping students develop coping skills for sensory overload and having a more flexible schedule (Pillay & Bhat, 2012).

**Residence Hall**

Many of the students with ASD who venture to IHEs end up living in residence halls. Some of the literature that is focused on helping college students with ASD succeed at IHEs included recommendations for the residence hall staff, such as hall directors and resident assistants (RAs; Ackles et al., 2013; Pillay & Bhat, 2012; Taylor & Colvin, 2013). Pillay and Bhat (2012) and Ackles and colleagues (2013) recommend resident hall staff be trained in the characteristics of college students with ASD, the experiences most students with ASD have at college, and where students can receive additional services. Trainings can help RAs better understand and empathize with students with ASD, which leads RAs to be able to make personal connections with students and help them feel less isolated (Ackles et al., 2013; Pillay & Bhat, 2012). Trainings should include case studies and role-playing to help residence hall staff be better prepared to react to common behaviors exhibited by their residents with ASD; this is especially important for when a student with ASD becomes agitated.

Furthermore, the residence hall environment can be altered to support students with ASD. Visuals, like videos and pictures with explicit expectations, can be used to model and describe
expectations like quiet hours, allowed and not allowed materials, chores, and other norms for the residential halls (Ackles et al., 2013; Taylor & Colvin, 2013). Not only do these changes help the students with ASD, they act as universal designs and can support other residents.

**Orientation**

Orientation is often a requirement for first-year and transfer students. During this time students come on campus, learn facts about their IHE, register for classes, and engage in many activities designed to build school spirit. This experience can be over-stimulating for students with ASD, but simple changes can help students (Taylor & Colvin, 2013). Some colleges have started planning quiet zones where students with ASD can go when there is a lot of noise or large amounts of people, such as pep rallies or when eating in the cafeteria. They are also realizing the amount of information the students receive during orientation can be overwhelming and that many students would benefit from having the information that is presented verbally also provided in written form. For example, for many students it is helpful to have actual pictures and written descriptions of the buildings to help them find where they need to go, especially since there is usually a delay between orientation and returning for classes.

**Early Arrival Programs**

In addition to making changes to orientation, Ackles and colleagues (2013) recommend residential IHE provide programs allowing students with ASD to move into their residence halls early. This extra time gives students an opportunity to develop routines before the school year begins, complete a walk-through of their class schedule, learn how to access on-campus supports, develop a weekly schedule, and meet with Disability Services staff, advisors, and professors. Moving in early also allows students with ASD and their families to avoid the hectic environment of move-in day.
Policy

The ADAAA covers individuals who have an impairment that substantially limits one or more major life activity, have a history of having such an impairment, have an impairment that is in remission, or are regarded as having an impairment (29 C.F.R. § 1630, 2011). Examples of major activities were discussed in Chapter I. To maintain programs that are accessible to students with disabilities, IHEs must provide “reasonable accommodations” (42 U.S.C. § 12182(b)(2)(A)). While the ADAAA requires the documentation of a disability be current, it does not always mean the documentation has to be recent (Disability Rights California, 2013). The focus is for documentation to represent your current abilities and limitations.

The office of DSS at this university follows the ADAAA federal regulations. All students seeking accommodations from their professors must register with DSS. When initiating services, students receive the following information outlining the first step they need to take to register with DSS:

In order to receive accommodations and/or academic adjustments, you will need to identify yourself as a student with a disability, present current documentation addressing your disability, and request any accommodations you will need while at the university. The following steps for initiating disability services will ease the process.

1. Obtain copies of your documentation. While this varies for each disability be sure the documentation includes: diagnosis, how diagnosis was determined (including testing instruments and scores), interpretation of scores, history of disability, limitations of function in academic setting, recommendations of accommodations, and licensure of professional making the diagnosis. The documentation should include a recent evaluation: with in the past 3-5 years. (Disability Services for Students, n.d., p. 1)

During the 2015-16 school year, all students receiving services from the ASC were also registered with DSS; however, this was not required (Autism Services Center, n.d.). Unlike DSS, the ASC does not require proof of a diagnosis of ASD to receive services.
**Applied Research**

Applied research studies build support for interventions to be considered research-based practices (Odom, Collet-Klingenberg, Rogers, & Hatton, 2010). Different combinations of studies can be used as support for an intervention; this combination may be two experimental or quasi-experimental group studies, completed by two independent researchers; at least five single-subject studies, completed by at least three independent researchers; or one experimental or quasi-experimental group study and three single-subject studies. The majority of the literature published on the topic of college students with ASD lacks any application of applied research, i.e., manipulating an independent variable to see if it will reliably have an effect on a dependent variable. These applied studies are not considered evaluations of programs because they each focus on a single intervention, not a program.

Four applied studies have focused on using interventions for college-age students with ASD. Two of the studies (Mason et al., 2012; Pugliese & White, 2014) were included in the literature review completed by Gelbar and colleagues (2014), and two additional applied studies were found during additional searches described above (Koegel et al., 2013; Trammell, 2013). Three of the applied articles looked at improving communication and social skills in college students with ASD (Koegel et al., 2013; Mason et al., 2012; Trammell, 2013), while the fourth article focused on problem solving skills (Pugliese & White, 2014). In all, 15 students were included in the four applied studies with ages ranging from 18 to 26 years.

Overall, the studies had a positive effect on the participants. Mason and colleagues (2012) found the intervention of video modeling increased appropriate eye contact and conversational turn taking, and had some effect on facial expression for their two college students with ASD. Trammell (2013) noted his use of video modeling helped the five students
make “significant progress in recognizing behaviors in the abstract that sent concrete messages to an audience in real time” (p. 185). Koegel and colleagues (2013) found that the weekly meetings had a positive effect on the number of social activities, quality of life, and satisfaction of socialization for their three participants. Pugliese and White’s (2014) use of problem solving training with five college students with ASD was found to only have significant impact on their problem solving scores as measured by the Social Problem Solving Inventory-Revised: Long Form for two of the participants.

The scarcity of research investigating interventions for college students with ASD concurs with the findings of Edwards, Watkins, Lotfizadeh, and Poling (2012). Edwards and colleagues found that only 1.7% of the participants included in studies for interventions were 20 years of age or older.

**Summary**

College students with ASD have unique barriers to retention and program completion at the postsecondary level; services and supports are necessary to build the skills needed to student success. Institutions of higher education are developing and providing services in an attempt to meet these needs, but more attention needs to be made on program evaluation so services can be improved, increasing student retention and success. The purpose of this research is to provide a starting point for program evaluation of services for college students with ASD. The following chapters describe the methodology for the evaluation (Chapter III); share, analyze, and clarify the results (Chapter IV); and provide a summary of the findings, discussing impacts they have on the services, as well as making recommendations for further research (Chapter V).
CHAPTER III

METHODOLOGY

The goal of the CIPP model “is not to prove, but to improve” (Stufflebeam & Shinkfield, 2007); thus, this is the focus of the evaluation of the services being provided for college students with ASD at this IHE. This chapter begins with a discussion of the research foundations for the CIPP evaluation model used to design this study. A description of the individual evaluations and the methods used follows. This description outlines the participant population, instrumentation and data collection, data processing and analysis, and ethical considerations.

Research Foundations

The discipline of program evaluation grew from the desire to determine the effectiveness of programs developed during the Great Depression (Stufflebeam & Shinkfield, 2007). Over the decades, program evaluation has been developed, studied, and refined with many researchers developing their own approaches. Stufflebeam and Shinkfield define “a program evaluation model as an evaluation theorist’s idealized conceptualization for conducting program evaluations” (p. 63). Currently, there are 26 approaches and models to program evaluation grouped into six categories: pseudoevaluations, quasi-evaluations studies, improvement- and accountability-orientation evaluation, social agenda and advocacy, and eclectic evaluation. The authors grouped the approaches and models by analyzing 10 descriptors, which included the main purposes of the evaluation model, who decides the questions being asked, the methods used, and the strengths and weakness of the approach.
The CIPP model is included in the group of approaches focused on improvement- and accountability-oriented evaluation (Stufflebeam & Shinkfield, 2007) and, more specifically, is a decision- and accountability-orientated approach. This type of approach “emphasizes that program evaluation should be used proactively to help improve a program as well as retroactively judge its value” (Stufflebeam & Shinkfield, 2007, p. 198). The CIPP model has the highest rating in regards to its compliance with the Joint Committee on Standards for Educational Evaluation’s *Program Evaluation Standards* (1994), as rated by Stufflebeam and Shinkfield (2007).

**Research Design**

As stated in Chapter I, the CIPP model was chosen for its focus on making improvements to existing programs and determining the program’s worth (Stufflebeam, 2007). The CIPP model for evaluation is made up of four separate evaluation components (Stufflebeam & Shinkfield, 2007). Generically, this type of evaluation asks the following questions: “What needs to be done? How should it be done? Is it being done? Is it succeeding?” (Stufflebeam & Shinkfield, 2007, p. 327). Table 3 provides a summary of the four evaluation components including their objectives, methods of investigation, and their roles in formative evaluation; below is a narrative of each individual evaluation.

**Context Evaluation**

Context evaluations are typically completed prior to the beginning of a project; however, they are still useful for assessing the set of goals and allowing others to gauge the worth in meeting the needs of the program participants. Context evaluations are combined with the input, process, and product evaluations when completed during or after a program has started.
Table 3

*The Four Components of CIPP Evaluation*

<table>
<thead>
<tr>
<th></th>
<th>Context</th>
<th>Input</th>
<th>Process</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective</td>
<td>To define the relevant context, identify the target population and assess its needs, identify opportunities for addressing the needs, diagnose problems underlying the needs, and judge whether program goals are sufficiently responsive to the assessed needs</td>
<td>To identify and assess system capabilities, alternative program strategies, procedural designs for implementing the strategies, budgets, and schedules</td>
<td>To identify or predict defects in the procedural designs or its implementation, provide information for the preprogrammed decisions, and record and judge procedural events and activities</td>
<td>To collect descriptions and judgments of outcomes and relate them to objectives and to context, input, and process information; and to interpret their merit, worth, significance, and probity</td>
</tr>
<tr>
<td>Method</td>
<td>Using such methods as system analysis, survey, document review, secondary data analysis, hearing, interviews, diagnostic tests, and the Delphi technique</td>
<td>Inventorying and analyzing available human and material resources, solution strategies, and procedural designs for relevance, feasibility, cost, and economy; using such methods as literature search, visits to exemplary programs, advocate teams, and pilot trials</td>
<td>Monitoring the activity’s potential procedural barriers and remaining alert to unanticipated barriers, obtaining specified information for programmed decisions, describing the actual process, and continually interacting with and observing the activities of project staff and other stakeholders</td>
<td>By defining operationally and measuring outcome criteria, collecting judgments of outcomes from stakeholders, performing both qualitative and quantitative analyses, and comparing outcomes with assessed needs</td>
</tr>
<tr>
<td>Formative Evaluation</td>
<td>Guidance for identifying needed interventions and choosing and ranking goals (based on assessing needs, problems, assets, and opportunities.)</td>
<td>Guidance for choosing a program or other strategy (based on assessing alternative strategies and resource allocation plans), also for examining the work plan.</td>
<td>Guidance for implementing the operational plan (based on monitoring and judging program activities)</td>
<td>Guidance for continuing, modifying, adopting, or terminating the effort (based on assessing outcomes and side effects)</td>
</tr>
</tbody>
</table>

Adapted from Stufflebeam & Shinkfield, 2007
Input Evaluation

The main goal for input evaluations is to help discover what changes are needed for programs (Stufflebeam & Shinkfield, 2007). Input evaluations are completed by identifying and analyzing other approaches used by similar programs. This provides alternative strategies for addressing goals of the program and prevents the use of strategies that have already been found to be ineffective. Input evaluations are conducted through reviewing the literature, analyzing other programs, and consulting experts.

Process Evaluation

The process evaluation exists to ensure that the program proceeds in the manner that was initially laid out. The main question addressed through process evaluation is, are the planned activities being implemented as planned (Stufflebeam & Shinkfield, 2007). Process evaluations can be completed using data collection instruments, daily logs and calendars, and feedback forms.

Product Evaluation

“A product evaluation should assess intended and unintended outcomes and positive and negative outcomes” (Stufflebeam & Shinkfield, 2007, p. 345). It is recommended that a product evaluation use multiple methods to complete the investigation and gather data from many sources. Often survey and interviews are used to gather feedback from participants.

Services for Students with ASD: Autism Services Center

Services for college students with ASD were started in September of the 2015-16 school year at a public, four-year university in the Midwest. Students who received services during the 2015-16 school year did not know there would be additional services available. Students with ASD who were already registered with the university’s office of Disability Services for Students
(DSS) were informed of the newly created services by emails from or during meetings with DSS staff. Additionally, the ASC coordinator sent an introduction email to the students inviting them to meet with her and learn more about the available support. New students who indicated they identify with having an ASD or AS on their initial form submitted to DSS were scheduled to meet with the ASC coordinator. The amount of services each student received varied depending on their desired need. Students were not required to participate in services but emails were sent regularly providing information of social events, workshops, and asking students to make appointments to discuss their needs.

**Participant Population**

**Students**

The university’s DSS reported 32 students who registered with their office and identified with ASD or Asperger’s syndrome during the 2015-16 school year. The number of students who identify with ASD was likely an underestimation of the actual number of students with ASD who attend an IHE. Information from the National Longitudinal Transition Study-2 (NLTS-2) found about 24% of the young adults enrolled in postsecondary school previously received services while in high school for ASD but did not believe they had a disability, while another 13% believed they did have a disability but chose not to inform their IHE (Newman et al., 2011). There were also initial difficulties identifying the students with ASD due to the past coding system. Prior to September 2014, students with ASD did not have their own code, so they were either coded for emotional/psychological impairment or learning disability. This evaluation included those 32 students as possible participants for the student survey and interview.

All students registered with DSS with ASD or Asperger’s syndrome were sent a series of emails from DSS inviting them to participate in an online survey and interviews. Emails were
sent following the timing recommendations of Dillman, Smyth, and Christian (2009). Three emails were spaced so the first email was sent two weeks before the close of the survey. The second email was sent a week before the survey closed and third was sent the day before the survey closed. Phone calls to students who had not completed the survey were made two days before the survey window closed. Students who completed the survey were invited to include their email address to receive a $10 electronic gift card.

Included in each survey was a question asking if the students would like to learn more about participating in an interview. Additionally, two emails were sent to students inquiring about their interest in learning more about participating in an interview. These emails were spaced two weeks apart. The documents used for recruiting students, survey questions, and the interview protocol are included in Appendices A, B, C, and D.

**Parents**

Parent interaction with IHEs is restricted due to the Family Educational Rights and Privacy Act (FERPA; 20 U.S.C. § 1232g, 2012); however, many students with ASD are encouraged to sign a waiver allowing the DS to communicate with parents. Mitchell and Beresford (2014) found that the families of college students with ASD continued to play crucial roles in the transition to college. Possible parent participants were identified by previous email correspondence and contact with the ASC. The ASC had contact with 12 parents during the 2015 fall and 2016 spring semesters. Parents were invited to complete a survey and interview using the same schedule of contacts that was used for students. The documents used for recruiting parents, survey questions, and the interview protocol are included in Appendices E, F, and G.
Instructors and Staff

Over the course of the 2015 fall and 2016 spring semester, the ASC staff were in contact with many instructors and staff members from the IHE. When there was a contact with either, the ASC staff made note of with whom they interacted. Overall, 12 instructors and 12 staff were invited to participate in the survey and focus groups. Instructors and staff were contacted to gather feedback of the positive and negative outcomes and recommendations for future services from the ASC (Stufflebeam, 2007). Only instructors and staff who worked with the ASC staff were invited to participate in a survey and focus groups. This invitation was completed using the same contact schedule as students and parents. Instructors and staff were invited to participate in a focus group instead of an interview. The documents used for recruiting faculty and staff, survey questions, and the interview protocol are included in Appendices H, I, J, and K.

Context Evaluation

The context evaluation from the CIPP evaluation addressed the following research question: what services are available to college students with ASD since the creation of the ASD services? This question was investigated through student survey and an analysis of the ASC calendar, social media, and website. The ASC has both a Facebook page and Twitter account to help disseminate ASC events, remind students of important IHE deadlines, and share helpful information. Additionally, the ASC website includes similar reminders and notices.

Data Collection

Two survey questions were included on the online survey inquiring of the students' use of the ASC services. The first question asked students to check all the services provided by the ASC and DSS they used, and the second question asked how frequently students used the ASC
services. The researcher also recorded the frequency of activities and events provided by the ASC staff that were listed on the ASC calendar, social media pages, and website.

**Input Evaluation**

The input evaluation looked at what services other programs supporting college students with ASD were providing (Stufflebeam & Shinkfield, 2007). This question was addressed by investigating the existing programs for college students with ASD at other public universities.

**Data Collection**

Data on existing programs for college students with ASD were collected through Internet searches and IHEs’ websites. The researcher completed multiple internet searches for support programs at IHEs using a combination of terms including *autism, ASD, Asperger’s, college, university,* and *higher education.* The searches found a website, College Autism Spectrum (n.d.), dedicated to organizing and sharing information on all the programs for college students with ASD. The researcher used this website and focused on programs provided by other public, four-year IHEs to have a better comparison group. The College Autism Spectrum website was not inclusive of all the programs in the United States; however, the Internet searches helped discover additional programs.

**Data Processing and Analysis**

Information collected from internet searches of ASD programs was organized, summarized, and compared to the current services. This information was used to construct survey, interview, and focus group questions and provide an idea for what alternatives are available for programming. The ASC services were compared to the support provided by other IHEs.
Process and Product Evaluations

The purpose of the process and product evaluations were to ask: to what extent are the current services for college students with ASD meeting their needs, and based on the findings from the other evaluation components, what changes need to be made to services for students with ASD? The data needed for these evaluations were collected through surveys of students, parents, instructors and staff; follow-up interviews with students and parents; and follow-up focus groups with faculty and staff. Additionally, the researcher reviewed existing student data. The instrumentation and data collection for the surveys, interviews and focus groups, and existing student data are below.

Instrumentation and Data Collection

Surveys. The focus of the surveys was to collect the stakeholders’ views of the programs positive and negative outcomes and recommendations future services (Stufflebeam, 2007). Each student, parent, instructor, and staff survey was created and implemented using the recommendations from Dillman et al. (2009). The recommendations for web-survey implementation included personalizing all contacts to potential participants, using multiple contacts, contacting potential participants through another process, and having clear instructions for accessing the survey.

Surveys for each group were created using Qualtrics, an online survey platform (Qualtrics, 2015), while the content of the surveys were generated using information covered in the literature reviews, recommendations from Stufflebeam’s (2007) model checklist, and information gleaned from other ASD programs. All the surveys included many of the same questions designed to collect information as to how well the ASD services met the students’ needs and recommendations for improvements. The student survey was designed with the
expectation that the students with ASD would be less likely to participate in an interview or focus group with someone they do not know (Bejerot, Eriksson, & Mortberg, 2014). Thus, the student survey was twice as long as the other surveys. It also went through a more rigorous development process, which is described below.

**Pilot survey.** Three students with ASD were invited and participated in a pilot test of the student survey. Pilot tests can help ensure individual questions are understood as expected and that the survey system is properly working (Dillman et al., 2009). The pilot test used for this study involved each student individually taking the survey with the researcher, while explaining his or her interpretation of the questions, criticisms, and recommendations for improving the survey (Gall, Gall, & Borg, 2007). The researcher made note of the recommendations and made changes to the survey before sending it out to other potential participants. The students received $20 gift cards for participating in the pilot study. Pilot studies were not completed on the surveys for parents, instructors, and staff due to the scarcity of available participant time and the small participant population; however, these surveys included many of the same questions as the student survey and were included in the student pilot survey.

**Interview and focus groups.** The interviews and focus groups used an ethnographic interview style for collecting information from the participants (Westby, Burda, & Mehta, 2003). With ethnographic interviews, the belief is the participants hold the information and select the information to share. Ethnographic interviews are comprised of descriptive and structural questions. The interview protocols are can be found in Appendices D, G, and K.

Students and parents were offered to complete the interviews on-campus, over the phone, or using video communication, e.g., Skype or FaceTime, depending on what the most convenient method was for the participant. The purpose of the interviews was to expand on the survey
questions and focus on what the two groups felt went well with the ASD services and areas they felt needed improving.

Focus groups were planned for staff and instructors separately with each focus group to be between 6 and 10 participants (Gall et al., 2007). Interviews were planned if there were less than six instructors or staff interested in participating in either group, which was the case for instructors. Participants were invited to participate in either the interview or focus group, not both.

**Data Processing and Analysis**

The online survey software and Excel were used to process the closed-ended survey responses; both programs are able to complete simple descriptive analyses such as percentages, means, and ranges.

All interviews and the focus group were audio-recorded and transcribed. The transcriptions were then broken into statements and coded into themes and categories. This process was completed by the researcher and two graduate students who have knowledge of the provided ASD services. Interrater reliability was conducted using a methodology similar to that used by Hruschka and colleagues (2004), who completed multiple rounds of rating and comparing before rating a larger section of statements. Then the interrater reliability was calculated on the percentage of statements coded the same over the total number of statements.

**Ethical Considerations**

Due to the researcher’s role with the ASC, a doctoral student with experience with leading interviews was recruited to lead the interviews and focus groups. Interviews and the focus group were recorded and transcribed. During the transcription process, names were
removed. To reduce undue pressure to participate, invitations for surveys, interviews, and focus were sent by email by the staff from DSS.

Summary

This study used the CIPP model to evaluate the preliminary services being provided to college students with ASD through the Autism Services Center (Stufflebeam & Shinkfield, 2007). The focus of this evaluation was to investigate the impact the services had on students and how the ASC services could be improved. Students with ASD, their parents, instructors, and staff were recruited to provide feedback on the ASC services. This chapter described how participants would be recruited, discussed the many processes for data collection, and how the data would be analyzed. Chapter IV presents the results from implementing the described methodology.
CHAPTER IV
RESULTS

The purpose of this study was to formatively evaluate the support provided by the Autism Services Center using the CIPP evaluation model (Stufflebeam & Shinkfield, 2007). This evaluation was completed with the focus on improving the services moving forward. The following four broad questions guided the evaluation:

Context: What services are available to college students with ASD since the creation of the Autism Services Center?

Input: What alternative services are available to add for college students with ASD?

Process: To what extent are the current services for college students with ASD meeting their needs?

Product: Based on the findings from the other evaluation components, what changes need to be made to services for students with ASD?

Chapter III outlined the methodology used to recruit participants, as well as collect and analyze the data used to evaluate the current ASD services. This chapter presents the results that were collected and analyzed. These results are presented using narrative, tables, and figures, and are organized in the following nine sections:

1. A description of the survey response rate and demographics of the students, parents, instructors, and staff who completed the online surveys.

2. A description of the analysis of qualitative data used for interviews and the focus group.
3. The results of the analysis of the ASC calendar, social media pages, and website and student survey responses exploring the services provided by the ASC and their frequency of use by students.

4. The results of internet searches for alternative services provided by other IHE with a comparison to the ASC services.

5. A comparison of current and pre-ASC students based on student retention rates, GPA, and percentage of credits completed.

6. An illustration of the enrollment of students with ASD at this IHE.

7. The results from student, parent, instructor, and staff survey questions regarding their satisfaction with the ASC services.

8. The results from student, parent, instructor, and staff survey questions collecting feedback on the services provided by the ASC.

9. The results from the follow-up interviews and focus group regarding their satisfaction and recommendations for the ASC.

**Survey Response Rate**

The context, process, and product evaluations included data from the surveys, interview, and focus groups completed for this study. Overall, the survey response rate was 79.4% for all four surveys. Individual response rates for each survey are reported with the description of survey demographics. Currently, there are no set norms for determining what is considered an acceptable response rate (Baruch, 1999). Baruch points out that it is commonly accepted that a response rate of 0.7 or 0.8 “should raise no objection” (p. 422).
Additionally, students and parents were invited to participate in an interview to expand on the information they provided in the survey, while instructors and staff were invited to participate in a focus group with either other instructors or other staff members.

Seven staff members expanded on their survey information. Six participated in a focus group; one staff member was not able to attend, and was offered a separate interview, which he completed. There were not enough instructors interested in participating in a focus group for it to proceed, so the option to complete interviews was offered. Three parents and two instructors completed follow-up interviews. No students completed a follow-up interview.

**Survey Demographics**

**Students**

Table 4 presents the information from the demographic questions from the student surveys. The 32 students registered with DSS with ASD were invited to complete the student survey; there were 23 students who completed the survey and one who started but did not complete, for a response rate of 75%. The mean age of the student participants, based on the 17 students reporting their age, was 23.1 years (SD 8.3 years); however, once the age of a graduate student was removed the mean age went down to 21.1 (SD 2.4). Female participants were slightly more likely to respond to the invitation to the survey. Of the students registered with DSS for ASD, 68.7% were male and 32.3% were female. The students represented many programs and departments across the IHE.
Table 4

*Student Survey Demographics*

<table>
<thead>
<tr>
<th>Category</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>14</td>
<td>60.9</td>
</tr>
<tr>
<td>Female</td>
<td>9</td>
<td>39.1</td>
</tr>
<tr>
<td>Degree in Pursuit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate</td>
<td>21</td>
<td>91.3</td>
</tr>
<tr>
<td>Master’s</td>
<td>2</td>
<td>8.7</td>
</tr>
<tr>
<td>Doctorate</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Transfer Student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>7</td>
<td>30.4</td>
</tr>
<tr>
<td>No</td>
<td>16</td>
<td>69.6</td>
</tr>
<tr>
<td>Number of Undergraduate Credits Complete</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 – 25 (Freshman)</td>
<td>4</td>
<td>19.1</td>
</tr>
<tr>
<td>26 – 55 (Sophomore)</td>
<td>4</td>
<td>19.1</td>
</tr>
<tr>
<td>56 – 87 (Junior)</td>
<td>4</td>
<td>19.1</td>
</tr>
<tr>
<td>88+ (Senior)</td>
<td>6</td>
<td>28.6</td>
</tr>
<tr>
<td>Graduated</td>
<td>3</td>
<td>14.3</td>
</tr>
<tr>
<td>Program of Study</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounting</td>
<td>2</td>
<td>10.0</td>
</tr>
<tr>
<td>Literature</td>
<td>1</td>
<td>5.0</td>
</tr>
<tr>
<td>Psychology</td>
<td>3</td>
<td>15.0</td>
</tr>
<tr>
<td>Statistics</td>
<td>1</td>
<td>5.0</td>
</tr>
<tr>
<td>Engineering</td>
<td>3</td>
<td>15.0</td>
</tr>
<tr>
<td>Social Work</td>
<td>1</td>
<td>5.0</td>
</tr>
<tr>
<td>Business</td>
<td>3</td>
<td>15.0</td>
</tr>
<tr>
<td>University Curriculum</td>
<td>3</td>
<td>15.0</td>
</tr>
<tr>
<td>Physics</td>
<td>1</td>
<td>5.0</td>
</tr>
<tr>
<td>Music</td>
<td>1</td>
<td>5.0</td>
</tr>
<tr>
<td>Graphic Design</td>
<td>1</td>
<td>5.0</td>
</tr>
<tr>
<td>Residence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residence Hall</td>
<td>11</td>
<td>47.8</td>
</tr>
<tr>
<td>On-campus Apartment</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Off-campus Apartment</td>
<td>6</td>
<td>26.1</td>
</tr>
<tr>
<td>Home with Family</td>
<td>5</td>
<td>21.7</td>
</tr>
<tr>
<td>Home with Roommate or self</td>
<td>1</td>
<td>4.4</td>
</tr>
</tbody>
</table>

Note. N changed with each characteristic due to number of responses.
Parents

Twelve parents were invited to complete the survey; nine parents completed the survey for a response rate of 75%. All parents who responded to the survey were mothers of the students with ASD. Four of the mothers reported their children started at the IHE in fall 2015, two reported their children started in 2011, and one reported her child started in 2013; two of the mothers did not provide information on when their child started at the IHE.

Instructors and Staff

Table 5 presents the information from the demographic questions from both the staff and instructor surveys. All 12 of the staff invited to complete the survey did so for a 100% response rate and 10 of 12 instructors responded for a rate of 83%. Staff who completed the survey have been at the IHE from 2 to 37 years, with an average of 12.1 years (SD 11.4). Instructors who completed the survey have been at the IHE for an average of 6.8 years (SD 5.9).

Table 5

<table>
<thead>
<tr>
<th>Instructor Departments</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>3</td>
<td>33.3</td>
</tr>
<tr>
<td>English</td>
<td>2</td>
<td>22.2</td>
</tr>
<tr>
<td>Medieval Institute</td>
<td>2</td>
<td>22.2</td>
</tr>
<tr>
<td>Psychology</td>
<td>1</td>
<td>11.1</td>
</tr>
<tr>
<td>Geosciences</td>
<td>1</td>
<td>11.1</td>
</tr>
<tr>
<td>Instructor Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time Instructor</td>
<td>6</td>
<td>66.7</td>
</tr>
<tr>
<td>Part-time Instructor</td>
<td>2</td>
<td>22.2</td>
</tr>
<tr>
<td>Graduate Assistant</td>
<td>1</td>
<td>11.1</td>
</tr>
<tr>
<td>Staff Departments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office of Admissions</td>
<td>6</td>
<td>60.0</td>
</tr>
<tr>
<td>Advising</td>
<td>2</td>
<td>20.0</td>
</tr>
<tr>
<td>Honors College</td>
<td>1</td>
<td>10.0</td>
</tr>
<tr>
<td>Disability Services for Students</td>
<td>1</td>
<td>10.0</td>
</tr>
</tbody>
</table>

Note. N changed with each characteristic due to number of responses.
Analysis of Qualitative Data

As discussed in Chapter III, data gleaned from the interviews and focus group were coded into themes and categories. To attempt to reduce the subjectivity of coding the interview and focus group data, the researcher and two graduate students completed interrater agreement implementing the methodology used by Hruschka and colleagues (2004). Before rating randomly selected statements, the researcher and graduate students independently rated a group of 15 statements to calibrate their understanding of the categories and address any questions or confusions. There were two rounds of trial ratings to get the triad to an interrater agreement of at least an 80% agreement. Then all three individuals rated a randomly selected sample of 25% of the statements independently. Poling, Methot, and LeSage (1995) recommend interrater agreement to be calculated for at least 25% of the total data collected. The given categories were compared and an exact agreement interrater agreement was calculated using the number of items coded as being the same over the total number of statements. Ninety-one statements were coded during the final round with 78 statements having agreement for an interrater agreement of 85.7%.

Six major themes emerged from the analysis of the interviews and focus group. These themes were student barriers to transitioning, ASC activities, parents, instructors, recommendations, and views of the ASC and IHE. Within each theme, smaller more specific categories surfaced. A table organizing these themes, categories, and one selected example for each category illustrating the category the can be found in Appendix L. Data collected through this analysis will be discussed later in this chapter in connection with parent, instructor, and staff satisfaction with and recommendations for the ASC.
Context Evaluation

A context evaluation for a program after it has started looks to discover the current services being provided (Stufflebeam & Shinkfield, 2007). This part of the CIPP evaluation addresses that the research question, what services are available at this IHE to college students with ASD since the creation of the Autism Services Center? An analysis of the ASC calendar, social media pages, and website was conducted and student survey responses were summarized.

Autism Services Center Events

An investigation of the ASC calendar, social media pages, and website provided information on the services the ASC provided to its students with ASD and other activities during the fall 2015 and spring 2016 semesters. It is important to note that the calendar had only meetings and events; it lacked any record of phone calls and emails made to students, parents, staff, and instructors unless it was a scheduled phone meeting. Table 6 displays the frequency of meetings and events. A review of the ASC calendar revealed that staff were meeting with seven students on a weekly basis, four regularly, and two more than weekly. Information gathered from the ASC’s Facebook page, revealed the ASC collaborated with five registered student organizations to host social events.

Student Survey

Twenty students responded to a survey question inquiring about the services they used; 45% of the students met regularly with ASC staff, 25% of the students received support with attending meetings with professors, 20% of students received support meeting with staff, and 30% had a DSS peer mentor. Students also used accommodations and met with DSS staff. Another survey question asked students to select the frequency in which they accessed ASC services. Figure 1 shows the students’ self-report for frequency they used the ASC services.
Table 6

*ASC Meetings and Events for Fall 2015 and Spring 2016*

<table>
<thead>
<tr>
<th>Name of Event or Meeting</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student meeting</td>
<td>244</td>
</tr>
<tr>
<td>Peer mentor meeting</td>
<td>21</td>
</tr>
<tr>
<td>Meeting with IHE department</td>
<td>20</td>
</tr>
<tr>
<td>Meeting with instructor</td>
<td>8</td>
</tr>
<tr>
<td>Meeting with Parents</td>
<td>13</td>
</tr>
<tr>
<td>Social event</td>
<td>12</td>
</tr>
<tr>
<td>Workshops</td>
<td>5</td>
</tr>
<tr>
<td>Outreach events</td>
<td>26</td>
</tr>
</tbody>
</table>

*Figure 1. Frequency of students accessing ASC services.*
Input Evaluation

The second part of a CIPP evaluation, the input evaluation, looks at how services should be provided (Stufflebeam & Shinkfield, 2007). For this study, the input evaluation addresses the research question, what alternative services are available to add for college students with ASD? The results of the internet searches for alternative services provided by other IHE are summarized. The ASC services are compared to these results.

Alternative ASD Services

Supports at IHEs for college students with ASD are growing more prevalent (Gobbo & Schulsky, 2012). Often, these programs include details of their services and supports on their websites. Table 7 contains the 17 public, four-year IHEs with programs for students with ASD, a summary of the services they provide, and the cost to the students. Overall, these programs provide supports in the areas of academics, independent living, social, and employment skills. Additionally, many of the programs provide the same services to support their students. Common services included: a one-credit college course for a grade, regular check-in meetings, peer and faculty mentors, required supervised study sessions, weekly workshops for study, social, and career-readiness skills, communication with parents, and planned social events.

While many universities have the same programming, some provide more support. For example, University of Alabama has program staff who are always on call in case of an emergency, University of Arkansas promises 15 to 20 hours a week with program staff, and Eastern Michigan University and California State University, East Bay provide in-class support through peer “shadows.”
Table 7

*Public Four-Year Institutions of Higher Education (IHE) Providing Services to College Students with ASD*

<table>
<thead>
<tr>
<th>IHE</th>
<th>Cost per Semester</th>
<th>Services Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austin Peay State University</td>
<td>$2,500</td>
<td>One-credit course, regular check-in meetings, peer and faculty mentors, required study sessions</td>
</tr>
<tr>
<td>California State University, East Bay</td>
<td>Level 1 $5,880</td>
<td>All levels include bi-weekly social activities, weekly social group, weekly academic skills group, student time and organizational management program. Level 1 also includes 10 weeks of full in-class support and daily check-ins Level 2 includes 6 weeks of full in-class support, then 4 weeks of partial support, daily check-ins Level 3 includes 2 weeks of full in-class support, daily check-ins Level 4 includes weekly check-ins</td>
</tr>
<tr>
<td>Eastern Illinois University</td>
<td>$2,500</td>
<td>Peer mentor, social skills groups, required study sessions, social events, trained RAs, early move-in date, independent-living skills training, regular parent communication Limited to 15 students</td>
</tr>
<tr>
<td>Eastern Michigan University</td>
<td>$4,400 - $8,000</td>
<td>In-class support, mentors, help communicating with faculty, required study sessions, students live in the same wing of a residence hall, social events, workshops on healthy and safe adult relationships. Limited to 21 student, expanding to 30 students</td>
</tr>
<tr>
<td>George Mason University</td>
<td>$3,200</td>
<td>Peer mentor, monthly social events, weekly academic support, workshops and groups for career-readiness, social, and academic skills.</td>
</tr>
<tr>
<td>Grand Valley State University</td>
<td>$0</td>
<td>Peer mentor program, peers and mentors live in the same wing of a residence hall</td>
</tr>
<tr>
<td>Indiana University of Pennsylvania</td>
<td>Unknown</td>
<td>One-credit course each semester, required study sessions, peer and faculty mentoring, weekly check-in meetings</td>
</tr>
<tr>
<td>Marshall University</td>
<td>$4,500</td>
<td>Person-centered Planning, skill building groups, regular communication with professors</td>
</tr>
<tr>
<td>Rutgers University</td>
<td>$3,500</td>
<td>Peer mentors, social events, weekly check-in meetings, planning and preparing for employment, parent workshops</td>
</tr>
<tr>
<td>University of Alabama</td>
<td>$3,000</td>
<td>Weekly academic support, weekly social skills sessions, weekly check-ins, regular communication with parents, help students find post-college jobs, regular contact with residential life staff, program staff on call for emergencies</td>
</tr>
</tbody>
</table>
Table 7—Continued

<table>
<thead>
<tr>
<th>IHE</th>
<th>Cost per Semester</th>
<th>Services Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Arkansas&lt;sup&gt;k&lt;/sup&gt;</td>
<td>$5,000</td>
<td>Direct contact with program staff (15 to 20 hours/week), academic support from academic coaches, social skills support and classes, support with independent living, help with communicating with professors, planning and preparing for employment</td>
</tr>
<tr>
<td>University of Connecticut&lt;sup&gt;l&lt;/sup&gt;</td>
<td>Track I $3,600</td>
<td>Open to any UCONN student (does not have to have a disability), Track I: student meets with strategy instructor 3 hours a week, Track II: student meets with strategy instructor 1 hour a week, Meetings can focus on time management and organization, study and social skills, self-advocacy, planning and preparing for employment</td>
</tr>
<tr>
<td>University of Tennessee Chattanooga&lt;sup&gt;m&lt;/sup&gt;</td>
<td>$2,500</td>
<td>One-credit course, weekly academic/life coaching, peer and faculty mentor, required study sessions</td>
</tr>
<tr>
<td>Texas Tech University&lt;sup&gt;n&lt;/sup&gt;</td>
<td>$5,000</td>
<td>Coordinate services and supports, monthly Wraparound Team meetings</td>
</tr>
<tr>
<td>West Chester University&lt;sup&gt;o&lt;/sup&gt;</td>
<td>$0</td>
<td>Individual meetings for skill building, group sessions (1 to 3 each week), *Funding for program is currently provided by the WCU Office of the Provost and the Pennsylvania State System of Higher Education (PASSHE) Office of the Executive Vice Chancellor</td>
</tr>
<tr>
<td>Western Kentucky University&lt;sup&gt;p&lt;/sup&gt;</td>
<td>$5,000</td>
<td>Single dorm room (for the shared price), required study sessions, peer mentor, social events, mental health counselor on staff</td>
</tr>
<tr>
<td>Wright State University&lt;sup&gt;q&lt;/sup&gt;</td>
<td>Year 1 $500</td>
<td>Year 1: Weekly coaching (5 hours per week), Year 2 and 3: Weekly coaching (2 hours per week), vocational consulting Year 4: Weekly coaching (1 hour per week), weekly vocational support (1 hour per week) *Services started in 2005; by 2012 there were over 100 students with ASD registered with WSU’s Disability Services (makes up 20% of the students registered with WSU’s Disability Services).</td>
</tr>
</tbody>
</table>

Services Comparison

During the fall 2015 and spring 2016 semesters, The ASC provided some of the same services other IHEs provided to their students. Similar services provided included: regular check-in meetings, parent communication, and planned social events. The ASC staff also frequently met with instructors and staff from other IHE departments. The ASC did not have its own peer mentor program but worked with the DSS peer mentors to support them working with any students with ASD. The ASC provided five workshops during the fall and spring semester, but not on a weekly basis. All the services provided by the ASC and other IHEs align with the recommendations from the literature for supporting college students with ASD.

Process and Product Evaluations

The bulk of this study focused on the process and product parts of the CIPP evaluation by asking, to what extent are the current services for college students with ASD meeting their needs? The process and product evaluations investigate the questions, are programs doing what was planned and is it successful (Stufflebeam & Shinkfield, 2007). To address these questions, the researcher compared current and pre-ASC student data, analyzed results from student, parent, instructor, and staff survey questions regarding their satisfaction with the ASC services and collecting feedback on the services provided by the ASC, and analyzed the results from the follow-up interviews and focus group regarding their satisfaction and recommendations for the ASC. These findings are presented below.

Current and Pre-ASC Student Data

Graduation rates, retention rates, GPA, and percentage of credits completed are common ways IHEs measure student success (Hagedorn, 2006). The ASC has not been providing support to students with ASD for a enough time to state it has an impact on graduation rates; however, its
possible impact on retention rates, GPA, and percentage of credits completed is below. Current and pre-ASC student data were also used to track the number of students with ASD enrolled at this IHE for each year since the 2005-06 school year; this information is presented after academic success.

**Retention.** Figure 2 displays the retention rates for four groups of first-year, non-transfer students, a common way of measuring retention (Hagedorn, 2006). The retention rate for first-year, non-transfer students with ASD prior to the ASC was similar to the retention rate for all first-year, non-transfer students at this IHE, which was similar to the national average for first-year, non-transfer students from like-IHEs (Office of Institutional Research, 2015). The retention rate for the first-year, non-transfer students with ASD for the 2015-16 school year had a retention rate of 90%. It should be noted that, in this case, looking at first-year non-transfer students is an imperfect measure, but one of the only ones feasible. This subgroup makes up a very specific subset of students with ASD who attend the university: those who both identify with ASD, and who have notified DSS or the ASC in order to receive services. These factors could explain why the subset of non-transfer first year students with ASD were already achieving a similar metric to the overall level of student success at the university.

Table 8 summarizes the outcomes for all students at this IHE registered with DSS with ASD for the 2015-16 school year. Only two of the 32 students with ASD who attended this IHE did not return for the 2016-17 academic year due to transferring to a different IHE or leaving postsecondary education altogether. There were five students who graduated with their undergraduate degree, but at this point in the services it is not possible to say to what extent the ASC services had on these students graduating.
Table 8

Student Outcomes from 2015-16 to 2016-17

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduated</td>
<td>5</td>
<td>15.6</td>
</tr>
<tr>
<td>Returned to IHE</td>
<td>25</td>
<td>78.1</td>
</tr>
<tr>
<td>Transferred to Different IHE</td>
<td>1</td>
<td>3.1</td>
</tr>
<tr>
<td>Left at the end of the year, did not transfer</td>
<td>1</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Note. N = 32.

Academic success. In addition to first-year, non-transfer retention, it is possible to look at academic success in other terms, such as GPA and credits completed. Both GPA and percentage of credits completed factor into a student’s ability to receive financial aid (Western Michigan University Student Financial Aid, 2016). Students must maintain at least a 2.00
cumulative GPA and pass a minimum of 67% of their credit hours they attempt to be eligible for financial aid. Table 9 displays these data for the last five years. Students who were first-year, non-transfer students were grouped by their first semester at the IHE. A weighted GPA was calculated for each group by taking the sum of the grade points earned for each credit and dividing it by the total credits taken within the year. The percentage of credits completed was calculated for the whole group by taking the sum of the credits completed and dividing it by the sum of the credits attempted.

Table 9

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Students</td>
<td>5</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Credits Completed</td>
<td>148</td>
<td>84</td>
<td>152</td>
<td>98</td>
<td>214</td>
</tr>
<tr>
<td>Credits Attempted</td>
<td>172</td>
<td>114</td>
<td>179</td>
<td>147</td>
<td>239</td>
</tr>
<tr>
<td>% of Credits Passed</td>
<td>86.1%</td>
<td>73.7%</td>
<td>84.9%</td>
<td>66.7%</td>
<td>89.6%</td>
</tr>
<tr>
<td>Weighted GPA</td>
<td>2.87</td>
<td>2.51</td>
<td>3.09</td>
<td>2.87</td>
<td>3.01</td>
</tr>
</tbody>
</table>

**Enrollment.** At the beginning of the fall 2015 school year there were no records of the number of students at the IHE for a specific category (e.g., visual impairment, learning disability, ASD) at a certain time, making it difficult to identify trends in enrollment for students with ASD. This information was also difficult to recreate due to the old systems that were in place prior to September 2014. In September 2014, DSS switched over to an online system for keeping track of the students registered with its office. The documentation proving a student has a disability is now scanned and uploaded into this system. Prior to the online system, all documents and notes from meetings were kept in filing cabinets and managed through an in-house system; DSS is
required to keep these records for 10 years after the students leave the IHE. Compounding the difficulty, prior to September 2014, students with ASD did not have their own category, so they were typically placed in the category of emotional/psychological impairment or learning disability.

At the beginning of the spring 2016 semester, the researcher and two graduate students sorted through each student hard file and analyzed the documents of those students coded for emotional/psychological impairment or learning disability. Students with documents stating the student had ASD were noted. Figure 3 shows the trend of students with ASD enrolled at this IHE starting with the academic year of 2005-06 to 2016-17. The trend has been steadily increasing over the last 11 years, with an overall increase of 500%.

![Figure 3. Number of students with ASD starting at this IHE between AY 2005-06 and 2016-17.](image-url)
Satisfaction with ASC Services

Three survey questions were asked of the students, parents, instructors, and staff to investigate their satisfaction with the ASC services. All groups were asked, to provide an overall satisfaction with the ASC services and if they would recommend the ASC to other students with ASD. Students and parents were then asked to rate their satisfaction with how the ASC services helped students with common areas of difficulties for students with ASD. Lastly, instructors and staff were asked to rate the ASC staff in their timeliness in responding to emails, fostering communication between students and staff, and providing recommendations for working with college students with ASD. The results from these survey questions are below.

Recommendation and overall satisfaction. Overall, 50 students, parents, instructors, and staff responded to a free-response survey question asking if they would recommend the ASC to others with ASD. Most, or 80%, responded they would recommend the services, 4% responded they would not, and 16% responded with N/A or unknown, with some participants explaining they did not have enough information about other programs to make a decision. The responses for recommendations were similar to the responses for overall satisfaction with the ASC services. When asked to rate the overall services from the ASC, all but five rated the support as excellent or good for a satisfaction rating of 78.2%. Figure 4 displays the summary of responses for overall satisfaction for the four groups surveyed.
Parent and student satisfaction. Parents and students were asked to provide ratings for how they felt the services did in supporting students with meeting their academic and social needs, living more independently, communicating with professors, and managing their time better. Figure 5 includes the students’ responses, while Figure 6 provides the parents’ responses. The ASC received the highest ratings (a combined percentage of ratings of excellent or good) from parents and students for its ability to meet students’ academic needs (88.9%) and help students communicate with their professors (88.5%). Satisfaction with the ASC meeting students’ social needs was slightly lower with 87.0% of the parents and students rating the support as excellent or good. Services that helped students live more independently were rated as excellent or good by 81.0% of the parents and students. Only students rated the extent that the ASC services helped them better manage their time, which received an approval rating of 87.5%.
Figure 5. Student ratings of ASC services.

Figure 6. Parent ratings of ASC services.

**Instructor and staff satisfaction.** Figure 7 summarizes the survey responses from instructors and staff who provided a rating or their satisfaction with their interactions with the
ASC staff. All instructors and staff rated timeliness in responding to emails and fostering communication between students and instructors or staff as either excellent or good. Providing recommendations for working with college students with ASD had a lower satisfaction rating of 85%.

![Diagram showing ratings of ASC services](image)

**Figure 7.** Instructor and staff ratings of ASC services.

**Other Survey Feedback**

The final purpose of the surveys was to gather recommendations for the ASD services moving forward. This information was collected through a question asking students and parents to rate the importance of individual services provided by the ASC. Additionally, three open-ended questions asked participants from all four groups to identify the services they thought were most beneficial, identify changes they would like to see made to the services, and name workshops, events, or services they would like to see. These findings are summarized below.
Importance

Students and parents rated eight services provided by the ASD on a scale of extremely important to not important at all. The percentage of students and parents who rated each service as extremely important is displayed in Table 10. The services that received the most ratings as extremely important by students included meeting with advisors, preparing to meet with advisors, and skills workshops. Meetings with ASC staff, ASC support with professor meetings, and time management and organization were also picked often. Communication with parents and ASC social events were selected the least. Parents generally felt more of the services were extremely important. This was true for all the services except for preparing to meet with and meeting with advisors. All parents believed social skills/communication workshops were extremely important.

Table 10

Student and Parent Rating of Importance

<table>
<thead>
<tr>
<th>Service</th>
<th>Extremely Important</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Students</td>
</tr>
<tr>
<td>Meeting with ASC Staff</td>
<td>47.6%</td>
</tr>
<tr>
<td>ASC Support with Professor Meetings</td>
<td>47.6%</td>
</tr>
<tr>
<td>Communication with Parents</td>
<td>22.2%</td>
</tr>
<tr>
<td>Skills Workshops (i.e., resume building, interview skills)</td>
<td>50.0%</td>
</tr>
<tr>
<td>Social skills/communication workshops</td>
<td>40.0%</td>
</tr>
<tr>
<td>Preparing to meet with advisors</td>
<td>61.9%</td>
</tr>
<tr>
<td>Meeting with advisors</td>
<td>65.0%</td>
</tr>
<tr>
<td>ASC social events</td>
<td>25%</td>
</tr>
</tbody>
</table>
Most Beneficial

Each survey (student, parent, instructor, and staff) included an open-ended question asking the participant what ASC services they found most beneficial. The services listed are organized in Table 11. For all groups, meeting with the ASC staff was the most common response. Additionally, students noted accommodations almost as frequently, social functions were the second most frequently listed services by parents, and staff and instructors thought the services that addressed communication, whether it be with students, families, or staff, were beneficial.

Table 11

*Student, Parent, Instructor, and Staff Views of Most Beneficial Services*

<table>
<thead>
<tr>
<th>Service</th>
<th>Number of Times Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td></td>
</tr>
<tr>
<td>Meetings with ASC staff</td>
<td>11 out of the 20</td>
</tr>
<tr>
<td>Accommodations</td>
<td>9 out of 20</td>
</tr>
<tr>
<td>Meetings or communicating with staff and instructors</td>
<td>4 out of 20</td>
</tr>
<tr>
<td>Workshops</td>
<td>1 out of 20</td>
</tr>
<tr>
<td>Parents</td>
<td></td>
</tr>
<tr>
<td>Meetings with ASC staff</td>
<td>5 out of 8</td>
</tr>
<tr>
<td>Social Functions</td>
<td>4 out of 8</td>
</tr>
<tr>
<td>Accommodation</td>
<td>2 out of 8</td>
</tr>
<tr>
<td>Skill Building</td>
<td>2 out of 8</td>
</tr>
<tr>
<td>Instructors and Staff</td>
<td></td>
</tr>
<tr>
<td>Meetings with ASC staff</td>
<td>10 out of 16</td>
</tr>
<tr>
<td>Communication</td>
<td>4 out of 16</td>
</tr>
</tbody>
</table>

*Note.* Some participants listed more than one service.
**Recommended Changes**

The recommended changes in services from students, parents, instructors, and staff are organized in Table 12. Students most frequently replied with N/A or no changes needed; however, other responses included requests for more events, more ways to connect with others, and for the office to have more authority. Parents also voiced their desire to see more social events and opportunities to work on building social skills. Another parent wished to see more training on campus for instructors. The staff and instructors’ responses agreed with this parent; many stated they would like to see more training on communicating, teaching, and identifying students with ASD.

Table 12

*Student, Parent, Instructor, and Staff Recommended Changes*

<table>
<thead>
<tr>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
</tr>
<tr>
<td>More social events</td>
</tr>
<tr>
<td>Help with connecting with other students</td>
</tr>
<tr>
<td>Office have more authority</td>
</tr>
<tr>
<td>Parents</td>
</tr>
<tr>
<td>More social events</td>
</tr>
<tr>
<td>Social skills training</td>
</tr>
<tr>
<td>More training for instructors</td>
</tr>
<tr>
<td>Instructors and Staff</td>
</tr>
<tr>
<td>More training for instructors</td>
</tr>
<tr>
<td>More training for advisors</td>
</tr>
</tbody>
</table>

The responses for the types of workshops, events, or services each group would like to see in the future supported the changes to services they would like to see. The staff and instructors overwhelming requested more training. The responses from students and parents
were more varied; these are organized in Table 13. The more common request was for more workshops on building social skill and different social events.

Table 13

*Future Workshops, Events, or Services Requested by Students and Parents*

<table>
<thead>
<tr>
<th>Service</th>
<th>Number of Times Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent living skills</td>
<td>2</td>
</tr>
<tr>
<td>Social skills</td>
<td>6</td>
</tr>
<tr>
<td>Varied social events</td>
<td>4</td>
</tr>
<tr>
<td>Resume and interview</td>
<td>2</td>
</tr>
<tr>
<td>Self-advocacy</td>
<td>2</td>
</tr>
<tr>
<td>Time management</td>
<td>2</td>
</tr>
<tr>
<td>Tutoring</td>
<td>2</td>
</tr>
<tr>
<td>Professionalism</td>
<td>2</td>
</tr>
</tbody>
</table>

**Interviews and Focus Group**

As discussed earlier in this chapter, six staff participated in a focus group and one staff member, three parents, and two instructors completed interviews. The responses to interviews and focus group mirrored those from the online surveys; this was expected since all the parents, instructors, and staff also completed the survey. This section discusses the results from the follow-up interviews and focus group, analyzing the information regarding the participants’ satisfaction with services and recommendations for the ASC.

**Satisfaction**

Only one question on all the interview and focus group protocols specifically asked about participants’ satisfaction of the ASC services; this question asked if the participant would recommend the ASC to other college students with ASD. All participants responded that they
would recommend the services. Satisfaction with the services emerged through a few categories, such as statements for praise for the ASC (40 statements), statements of student success (47 statements), and comments on the skills of the ASC staff (18 statements). There were no statements made indicating dissatisfaction with the services; however, there were recommendations for services in the future.

**Recommendations**

Parents, instructors, and staff were asked to provide suggestions for changes they would like to see made to the services. Four categories—more outreach, more training, more resources, and a need for the program—emerged from the theme of recommendations when sorting the responses. The need of more outreach was the most commonly made recommendation with 17 statements. Staff and instructors noted more departments needed to learn about the ASC to know that the services for students and support for instructors and staff were there. The need for more training for staff and instructors was the second most recommended change with 10 statements. All groups wanted to see instructors and staff learn more about how to work with college students with ASD. Staff and parents noted that training would have a big impact on campus culture and building a community for individuals with ASD. All groups recognized that the ASC has a small staff (one full-time staff personnel and, at times, one or two graduate assistants), the need for more resources (8 statements) for the ASC was discussed. Those who participated pointed out that this population is growing and the ASC needed resources to continue to support these students. Lastly, parents, instructors, and staff made 17 statements in regards to the need of the ASC services.
Summary

In Chapter IV, the researcher presented the findings from the four components of the CIPP evaluation. This evaluation draws upon many sources of information, such as existing student records, program descriptions of other ASD services, student, parent, instructor, and staff surveys, staff focus groups, and staff, parent, and instructor interviews. Data from these sources were presented using figures, tables, and narratives to organize, summarize, and describe the results.

Chapter V provides an overview of the study, a summary of the results, and a discussion of the proposed changes for future services. A discussion of the limitations of the project and suggestions for future projects will be included.
CHAPTER V
DISCUSSION

This chapter will cover an overview of the study and provide a discussion of the results, after which the proposed changes for future services at the ASC will be discussed. The chapter will conclude with a discussion of the limitations of the project and suggestions for future projects will be included.

Overview of the Study

The overall purpose of this study was to discover to what extent the ASD services provided by the ASC were helping students with ASD at a public, four-year university. A formative evaluation using the CIPP model was used to collect data from students with ASD, their parents, staff, and instructors using online surveys, interviews, a focus group, and review of existing student documents. Chapter four reviewed the results from the data and connected them to the first three overarching research questions:

Context: What services are available to college students with ASD since the creation of the Autism Services Center?

Input: What alternative services are available to add for college students with ASD?

Process and Product: To what extent are the current services for college students with ASD meeting their needs?

This chapter will bring together the results of the individual evaluation components (context, input, process, and product) to discuss what changes need to be made to services for students with ASD?
Summary of Results

Based on the results of the data analysis, the six findings described below surfaced:

1. An analysis of other IHEs providing services to college students with ASD revealed that many provide weekly workshops focused on improving social, study, and career-readiness skills, which is something the ASC did not have in place.

2. A comparison of current and pre-ASC students’ academic success showed an improvement in the retention rate for first-year, non-transfer students who received support. Additionally, that group of students had the highest percentage of completion of attempted credits (89.6% out of 239 credits) when compared with the last five years. They also had the second highest combined and weighted GPA with a 3.01.

3. An illustration of the enrollment of students with ASD at this IHE revealed that there has been a dramatic increase in the number of students with ASD enrolled over the course of the last 10 years.

4. The ASC services received an overall satisfaction rating of 78.2%, and 80% of those responding stated they would recommend the ASC to college students with ASD. The results from student, parent, instructor, and staff survey questions and follow-up interviews and focus group regarding their satisfaction with the ASC services highlighted that the majority of those who receive services from or interact with the ASC are satisfied with the ASC.

5. Meeting with the ASC staff was the most beneficial service for students as reported by students, parents, instructors, and staff via survey questions and responses during interviews and the focus group. Other top rated services that were listed were social
events and communication between the ASC and parents, staff, instructors, and students.

6. More training for instructors and staff on working with college students with ASD and more social events, social opportunities, and social skills training were the most frequent recommended changes to the ASC services that emerged from the survey, interviews, and the focus group responses.

Proposed Improvements

The results of the CIPP evaluation highlight that all groups feel the ASC services are at their best when they support students with ASD academically. Nearly 90% of the parents and students rated the ASC’s ability to meet students’ academic needs as excellent or good. The increase in the retention rate and percentage of completed attempted credits by first-year, non-transfer students supports this view. Often the academic support occurs during the meetings with the ASC staff when the staff is able to help students build their skills in time management, task completion, organization, and find additional help, such as tutoring. These meetings with the ASC staff were rated as the most beneficial service for students by all the groups. Even with this high level of satisfaction with academic support, mandatory weekly study/homework tables for students who fail a course the previous semester or has a GPA that drops below 2.5 could increase student academic success.

Over the course of the fall 2015 and spring 2016 semesters, the ASC provided only five workshops (one on study skills and two each for resume and interview skills). Most of the other IHEs providing services to college students with ASD have weekly workshops to build social, study, and career-readiness skills. One of the most common recommendations from parents was to provide more workshops focused on social skills. The ASC’s ability to meet students’ social
needs was still rated well with 87% of the students and parents rating it as excellent or good; however, it is recommended that the ASC provides one social skills and one study skills workshop each month.

Students rated preparing to meet with advisors and support with meeting with advisors as the two most important services the ASC provides. All the instructors and staff rated the ASC as excellent or good in fostering communication between students and instructors and staff; however, these two groups would like to see more trainings be offered to help them better work with college students with ASD. They would like to see the ASC come to department meeting to share information, provide in-person trainings for how best to communicate and teach students with ASD, and possibly develop an on-line module containing this type of information. Taking this feedback into consideration, it is recommended that the ASC first reaches out to academic departments with the highest enrollment of students with ASD to offer to provide some information, suggestions, and training to instructors and staff. Additionally, the ASC should contact other service departments, such as advising and counseling services, to do the same.

Lastly, the most frequent recommended change from students was to add different social events and opportunities. To best plan events that the currently enrolled students with ASD are interested in, it is recommended that a student advisory committee be created. This committee could help set up an online discussion forum for college students with ASD, gauge what events students would like to attend, and help organize events. Additionally, the committee itself would act as a type of social activity for the students.

**Discussion**

Young adults with ASD are attending IHEs more than ever before (Smith, 2007); however, the transition from high school to an IHE can be difficult for these students (Pillay &
Bhat, 2012), and without support many will leave college without completing their degrees (Cai & Richdale, 2016). Often the accommodations provided by the ADAAA are not enough to address the barriers preventing students with ASD from successfully completing their academic programs. In response to the growing prevalence and awareness of needs, many IHEs are developing programs that provide additional support for college students with ASD (Hansen, 2011), though the number is still drastically deficient.

While college students with disabilities as a whole have had the right to accommodations since 1973 with Section 504 of the Rehabilitation Act (Pub. L. No. 93-112), services for college students with ASD have only been around for the last 15 years. All the research published on students’ need for services and program recommendations were published after 2001. Additionally, the internet searches for other IHEs providing services to college students with ASD found only 17 other public, four-year IHE in the United States, two of which are in the same state as this IHE. Many of the programs are as new as the ASC.

Many DS offices are experiencing an increase enrollment of students with disabilities without receiving more staff to support these students. For example, at this university, the number of students registered with this DSS has increased from 400 students to over 1,000 in the last five years. During this time, the staffing has stayed the same. This increase means the DSS staff has less time to support its students. During the focus group, one of the DSS staff explained that they just did not have the time or training to help students with ASD, so ultimately, many of them did not succeed. Since the creation of the ASC and services for students with ASD, not only do students receive support from the ASC, they also receive better support from DSS because of the relationship between the ASC and DSS. The ASC staff work with the DSS peer mentors who have mentees with ASD to answer questions, provide recommendations, and
brainstorm ways to help the mentees. Additionally, DSS was able to provide an early move in program for first-year and transfer students for the first time prior to the fall 2016 semester due to the planning of the ASC coordinator. This program helped 25 students get comfortable with the campus, meet the DSS and ASC staff and peer mentors, and receive recommendations prior to the start of the busy fall semester.

Regardless of the impact the ASC services and the positive satisfaction, the ASC services are at risk of ending due to the grant funding the ASC ending. The ASC will most likely have to begin charging students who need the support a semester fee. This is how many programs operate. Figure 8, displays the 17 public, four-year universities and the amount they charge for services each semester; some universities are listed more than once because they offer different levels of support for different costs. The reality is these fees act as a barrier for students who cannot afford them; these students will receive accommodations from ADAAA, but no additional support. For families who can afford to pay for the additional support, they are paying for services where the effectiveness remains unknown since evaluations of these services have not been published.

The purpose of this study was to evaluate the extent to which the ASC services helped its students with ASD, as well as to inform decisions about possible changes to services; however, it also provided a framework of evaluation for other IHEs. Designing an evaluation can be overwhelming; however, it is possible to implement evaluations from the beginning of services. Then, once an evaluation system is in place, it can be used each semester or year to update the results and help inform program decisions. If the ASD program does not have anyone who is comfortable with developing the evaluation of services, there are often graduate students who
need projects to complete for practicums, including students completing masters in evaluation or organizational business management.

Figure 8. ASD programs by semester fees.

White and colleagues (2011) pointed out that a lack of evaluation of the services being provided by IHEs could lead to young adults with ASD not meeting their full potential because service providers could potentially be utilizing less effective interventions than those that would lead to optimal levels of success. To reiterate Longtin’s (2014) call to action, it is time to stop restating the need for services and start conducting evaluations to determine what services provide the most benefit to student success.
Limitations

Prior to the study, the risk of researcher bias was identified as a limitation due to the researcher’s role with the ASC. The use of an internal formative evaluation does bring the benefit of the evaluator having a strong understanding of the program (Lambur, 2008). The research design attempted to reduce the effects of research bias by having DSS staff send out the invitations for the online survey, interviews, and focus groups, hiring a doctoral student not connected to the ASC conduct the interviews and focus group, and conducting interrater agreement with two graduate students familiar with the ASC services. Despite the attempts to reduce the amount of bias, it is unknown how much of an effect there was as the result using an internal evaluator.

Another limitation known before the study began was the small size of the participant groups. However, the focus of this study was an evaluation of the ASC services, for which knowledge of the services was needed to participate. The small participant numbers limited used the use of statistical analysis of academic success. The hope is the model can be used moving forward and more analyses can be completed as the group sizes increase.

As the study continued a couple additional limitations became evident; these involved the types of survey responses and confusion with services. While survey response rates were strong at 79.4% (Baruch, 1999), the two students who left the IHE without graduating did not complete the online survey, nor did their parents. This increases the error from non-response since this evaluation lacked input from these students and parents who may have had a different view of the services. Additionally, students who used the services often were more likely to respond. This allows for a clearer picture of the views of the current students, but it does not provide as
much insight to what services students with ASD who are not currently using services would like.

The second limitation that emerged from the surveys and interviews was confusion between the ASC and DSS. For example, in response to the survey question for changes in services, one student stated he or she would like “more testing rooms, as well as better testing environments (quieter).” This type of accommodation is controlled by DSS and out of the control of the ASC. During an interview, an instructor recommended having “the DSS folks come and kind of just say, here are a couple of things, a little 10-minute PowerPoint of some of the things they’ve done and success stories.” It is unknown how much of the feedback come from the student, parent, instructor, and staff’s views of DSS instead of the ASC.

**Recommendations for Further Research**

As pointed out by Edwards and colleagues (2012), very little has been published focusing on young adults with autism, this included those attending IHEs. More studies on the effectiveness of interventions need to be completed with this population to form the start of evidence-based practices for college students with ASD. Possible areas of need include navigating a campus, self-advocacy, getting involved in campus activities, and forming and keeping relationships, including those with significant others.

At the same time, programs providing services to this population need to evaluate the effectiveness of their supports and publish them. This practice would help improve all the programs around the county by allowing IHEs to learning from other programs. As programs grow and more students use the services, it may be possible to look at the effects of different levels of services or different combination of services to better understand which components have the biggest impact on student success.
Lastly, now that more individuals with ASD are pursuing degrees at IHEs it is important to look at employment outcomes for these students. Programs should keep record of where their graduates are employed, how long it takes them to get a full time job after they graduate, and if the graduate gets a job in the field of their degree.

**Summary**

This study discovered to what extent the ASD services helped college students with ASD, as well as what changes need to be implemented to improve the support provided. Preliminary academic data suggest the services are having a positive effect on retention, GPA, and credits completed. Additionally, most of the students, parents, staff, and instructors were satisfied with the services provided by the ASC and would recommend the services to another student with ASD. The formative evaluation supports the continuation of services and identified the need for more instructor and staff training and different social activities for the students with ASD.
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Individuals with Disabilities Education Improvement Act, 34 C.F.R. § 300 et seq.


Section 504 of the Rehabilitation Act Regulations of 2000, 34 C.F.R. § 104 *et seq.*


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Appendix A

Pilot Email for Students with ASD
Dear Student,

We have begun the process of evaluating the services students with autism spectrum disorder and Asperger’s syndrome received this year at Western Michigan University. Information from this evaluation study will be used to inform decisions made on the services that will be provided in the future.

This project will also serve as the dissertation requirements of an Ed.D for Kourtney Bakalyar, the Autism Services Center’s coordinator.

You are being invited to participate in a pilot study of the survey that will be used to collect information from college students with ASD who received services this year. If you decide to participate in this study, you will complete the online survey while explaining your understanding of the questions to Kourtney. You will also be able to provide criticisms and recommendations for improving the survey. It will take approximately an hour to complete. In appreciation of your time, you will receive a $20.00 Target gift card upon completion of the survey.

Your decision to learn more about this project will not affect your services in any way. If you decide to participate you can change your mind, quit, withdraw, or not reply to questions even after you have agreed to participate.

If you are interested in learning more, please contact Kourtney Bakalyar (kourtney.k.bakalyar@wmich.edu).

Thank you for your consideration,

Kourtney

--

Kourtney Bakalyar, Coordinator
Autism Services Center
Western Michigan University
(269) 387-4349
Appendix B

Recruitment Emails for Students with ASD
Subject Line: Seeking Participants for an Evaluation of ASD Services

Dear Student,

You are invited to participate in a research project entitled "A Formative Evaluation of a Program Providing Supports to College Students with Autism Spectrum Disorder" designed to evaluate the services provided to Western Michigan University students with autism spectrum disorder.

The study is being conducted by Dr. Sarah Summy and Kourtney Bakalyar, MA from Western Michigan University’s Department of Special Education and Literacy Studies and the Autism Services Center (ASC). This research is being conducted as part of the dissertation requirements for Kourtney Bakalyar, the ASC coordinator.

This survey is comprised of 28 multiple choice, descriptive, and free response questions and will take approximately 10 minutes to complete. Please click on the link below to go to the survey website (or copy and paste the survey link into your browser). The survey will be open for two (2) weeks.

In appreciation of your time, you will receive a $10.00 Amazon electronic gift card upon completion of the survey; an email address will be needed for you to receive the gift card, but will not be connected with your responses.

Survey Link:

Your replies will be confidential. When you begin the survey, you are consenting to participate in the study. If you do not agree to participate in this research project simply do not access the survey link. If, after beginning the survey, you decide that you do not wish to continue, you may stop at any time. You may choose to not answer any question for any reason. If you have any questions prior to or during the study, you may contact Sarah Summy (269-387-5943), Kourtney Bakalyar (269-387-4349), the Human Subjects Institutional Review Board (269-387-8293) or the vice president for research (269-387-8298).

This study was approved by the Western Michigan University Human Subjects Institutional review Board (HSIRB) on (data of approval).

Participating in this survey online indicates your consent for use of the answers you supply.
Interview Recruitment Emails for Students with ASD

Subject Line: Evaluation of ASD Services: Seeking Interview Participants

Dear Student,

You are invited to participate in a research project entitled "A Formative Evaluation of a Program Providing Supports to College Students with Autism Spectrum Disorder" designed to evaluate the services provided to Western Michigan University students with autism spectrum disorder. If you decide to participate in this study, you will be asked a series of questions in a one-on-one interviews focused on your experiences. Interviews will last between a half hour to an hour depending on the amount of information and experiences each participant wants to share and will be conducted over the phone, videoconferencing, or face-to-face. There will only be one interview scheduled during a time convenient for you.

The study is being conducted by Dr. Sarah Summy and Kourtney Bakalyar, MA from Western Michigan University’s Department of Special Education and Literacy Studies and the Autism Services Center (ASC). This research is being conducted as part of the dissertation requirements for Kourtney Bakalyar, the ASC coordinator.

Your decision to learn more about this project will not affect your services in any way. Interviews will be completed with a WMU graduate student not connected with the Autism Services Center and your responses will be connected to a pseudonym to increase confidentiality. If you decide to participate you can change your mind, quit, withdraw, or not reply to questions even after you have agreed to participate. If you are interested in learning more, please contact Kourtney Bakalyar (kourtney.k.bakalyar@wmich.edu).
Appendix C

Students with ASD Survey
Demographic Questions

You are invited to participate in a research project entitled “A Formative Evaluation of a Program Providing Supports to College Students with Autism Spectrum Disorder” designed to evaluate the services provided to Western Michigan University students with autism spectrum disorder.

The study is being conducted by Dr. Sarah Summy and Kourtney Bakalyar, MA from Western Michigan University’s Department of Special Education and Literacy Studies and the Autism Services Center (ASC). This research is being conducted as part of the dissertation requirements for Kourtney Bakalyar, the ASC coordinator.

This survey is comprised of 28 multiple choice, descriptive, and free response questions and will take approximately 40 minutes to complete.

In appreciation of your time, you will receive a $10.00 Amazon electronic gift card upon completion of the survey; an email address will be needed for you to receive the gift card, but will not be connected with your responses.

Your replies will be confidential. When you begin the survey, you are consenting to participate in the study. If you do not agree to participate in this research project simply do not access the survey link. If, after beginning the survey, you decide that you do not wish to continue, you may stop at any time. You may choose to not answer any question for any reason. If you have any questions prior to or during the study, you may contact Sarah Summy (269-387-5943), Kourtney Bakalyar (269-387-4049), the Human Subjects Institutional Review Board (269-387-8253) or the vice president for research (269-387-8296).

This study was approved by the Western Michigan University Human Subjects Institutional review Board (HSIRB) on July 26, 2016.

Participating in this survey online indicates your consent for use of the answers you supply.

What is your gender?

- Female
- Male

How old are you?

[Blank]

What degree are you in the process of working toward or recently completed?

- Undergraduate
- Master's
- Doctorate

What semester and year did you begin at WMU?

Example: Fall 2014

[Blank]
Did you transfer from another college or university?

- Yes, if yes, list the colleges and/or universities you attended before WMU?
- No

If you transferred from another college or university, why?
Select all that apply.

- To complete undergraduate degree
- Had limited success at first college or university
- Other, please specify

If you are an undergraduate, approximately how many credits have you completed?

- 0 - 25 credits
- 26 - 55 credits
- 56 - 87 credits
- 88+ credits
- Graduated

What is your program of study or major?

Where did you live this past academic year?

- Residence Hall
- On-campus apartment
- Off-campus apartment
- Home with family
- Home with roommate or self

Past Services:
Respond to the following two questions using your experiences at WMU prior to the Autism Services Center. These services were typically provided by Jayne Fraley-Burgett or Dorothy Fancher.

Approximately, how frequently did you use the services provided by Disability Services for Students (DSS)?

- More than weekly
- Weekly
- Monthly
- Once a semester
- Once
- Never
What services provided by DSS did you use prior to this school year?
Check all that apply
☐ Testing Accommodations
☐ Lecture Accommodations
☐ Met with Jayne or Dorothy
☐ Support with meeting with professors
☐ Support with meeting with other WMU staff
☐ DSS Peer Mentor
☐ Other, please list:

Current Services:
Respond to the following questions using your experiences from the fall 2015 and spring 2016 semesters. These services were often provided by Kourtney, Hugo, or Kellie.

Approximately, how frequently did you use the services provided by the Autism Services Center (ASC)?
More than weekly ☐ Weekly ☐ Monthly ☐ Once a semester ☐ Once ☐ Never ☐

What services provided by DSS/ASC did you use this school year?
Check all that apply
☐ Testing Accommodations
☐ Lecture Accommodations
☐ Regular meetings with Kourtney
☐ Met with Jayne or Dorothy
☐ Support with meeting with professors
☐ Support with meeting with other WMU staff
☐ DSS Peer Mentor
☐ Other, please list:

Did you meet with the ASC staff regularly?
☐ Yes; if yes, what was most helpful outcome of these meetings?
☐ No; if no, why not?

Did you ever attend any of the ASC sponsored social events?
☐ Yes
☐ No

If you did not attend any of the ASC sponsored social events, why?
What social events would you be interested in participating in?

________________________________________________________________________

How would you rate your overall satisfaction with the ASC services?

Excellent  Good  Average  Poor  Terrible

________________________________________________________________________

How would you rate the ASC services with helping you:

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<tr>
<th></th>
<th>Excellent</th>
<th>Good</th>
<th>Average</th>
<th>Poor</th>
<th>Terrible</th>
<th>Not applicable</th>
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<tbody>
<tr>
<td>meet your academic needs</td>
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<td>meet your social needs</td>
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<td>live more independently</td>
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<td>communicate with your professors</td>
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<td>better manage your time</td>
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How would you rate the importance of the following services?

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<th>Service</th>
<th>Extremely important</th>
<th>Very important</th>
<th>Moderately important</th>
<th>Slightly important</th>
<th>Not at all important</th>
<th>Not applicable</th>
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<tr>
<td>Meetings with ASC staff</td>
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<td>ASC support with professor meetings</td>
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<td>Communication with parents</td>
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<td>Skills workshops (i.e., resume building, interview skills)</td>
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<td>Social skills/communication workshops</td>
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<td>Preparing to meet with advisors</td>
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<tr>
<td>Meeting with advisors</td>
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<td>ASC social events</td>
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<tr>
<td>Time management and organization</td>
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________________________________________________________________________

The following questions help us plan for future services for student with ASD.

________________________________________________________________________

What ASC services did you find most beneficial?

________________________________________________________________________

What changes would you make to the services provided by ASC?

________________________________________________________________________
What services do you wish were available when you were a first-year student?

Are there any workshops, events, or services you would like to see in the future?

What have been your biggest barriers in transitioning to WMU?

How did you learn about the Autism Services Center?
- Email from the ASC
- WMU sponsored event
- High School Staff (e.g., teacher or counselor)
- Social Media (e.g., Facebook or Twitter)
- The Autism Services Center website
- College or Resource Fair
- WMU’s Disability Services for Students
- Other, please list

Would you recommend the ASC to other students with ASD?

What other information would you like to provide to help plan future services at WMU?

Please provide your email if you are interested in providing additional information about the services you received.
Thank you for completing this survey and providing information to help us provide better services in the future. If you would like to receive a $10.00 gift card, please enter your email address below."
Appendix D

Students with ASD Interview Protocol
• How old are you?
• What degree are you in the process of attaining or recently completed? (Undergraduate, Master's, Doctorate)
• What semester and year did you begin at WMU? Example: Fall 2014
• Did you transfer from another college or university?
• If you are an undergraduate, what year are you (first-year, sophomore, junior, senior…)?
• What is your program of study or major?
• Where did you live this past academic year? (Residence Hall, On-campus apartment, Off-campus apartment, Home with family, Home with roommate or self)

• Tell me about your transition to college? What was difficult? What was easy?
  o Academics
  o Taking care of yourself
  o Interacting with peers
  o Interaction with professors
  o Making friends
  o Taking care of college responsibilities like meeting with advisors and registering for classes

• Tell me about the services you received from the Autism Services Center this year?

• What were some ways the services helped you this year?

• What are some changes you would like to see made to the services provided in the future?

• If only a few services were available, what services did you find were most important to your experience at WMU?

• Would you recommend the WMU ASC to other college students with autism or Asperger’s? Why or Why not?
Appendix E

Recruitment Emails for Parents of Students with ASD
Subject Line: Seeking Participants for an Evaluation of ASD Services

Dear Parent,

You are invited to participate in a research project entitled "A Formative Evaluation of a Program Providing Supports to College Students with Autism Spectrum Disorder" designed to evaluate the services provided to Western Michigan University students with autism spectrum disorder. You are being contacted to participate in this survey because of your cooperation with the Autism Services Center this year. Your input is very important and will be used in deciding how services are provided for students with ASD in the future at WMU.

The study is being conducted by Dr. Sarah Summy and Kourtney Bakalyar, MA from Western Michigan University’s Department of Special Education and Literacy Studies and the Autism Services Center (ASC). This research is being conducted as part of the dissertation requirements for Kourtney Bakalyar, the ASC coordinator.

This survey is comprised of 14 multiple choice, descriptive, and free response questions and will take approximately 10 minutes to complete. Please click on the link below to go to the survey website (or copy and paste the survey link into your browser). The survey will be open for two (2) weeks.

Survey Link:

Your replies will be confidential. When you begin the survey, you are consenting to participate in the study. If you do not agree to participate in this research project simply do not access the survey link. If, after beginning the survey, you decide that you do not wish to continue, you may stop at any time. You may choose to not answer any question for any reason. If you have any questions prior to or during the study, you may contact Sarah Summy (269-387-5943), Kourtney Bakalyar (269-387-4349), the Human Subjects Institutional Review Board (269-387-8293) or the vice president for research (269-387-8298).

This study was approved by the Western Michigan University Human Subjects Institutional review Board (HSIRB) on (data of approval).

Participating in this survey online indicates your consent for use of the answers you supply.
Subject Line: Evaluation of ASD Services: Seeking Interview Participants

Dear (insert name of parent),

You are invited to participate in a research project entitled "A Formative Evaluation of a Program Providing Supports to College Students with Autism Spectrum Disorder" designed to evaluate the services provided to Western Michigan University students with autism spectrum disorder. If you decide to participate in this study, you will be asked a series of questions in a one-on-one interviews focused on your experiences. Interviews will last between a half hour to an hour depending on the amount of information and experiences each participant wants to share and will be conducted over the phone, videoconferencing, or face-to-face. There will only be one interview scheduled during a time convenient for you. Interviews will be completed prior to the end of the summer II 2016 semester.

The study is being conducted by Dr. Sarah Summy and Kourtney Bakalyar, MA from Western Michigan University’s Department of Special Education and Literacy Studies and the Autism Services Center (ASC). This research is being conducted as part of the dissertation requirements for Kourtney Bakalyar, the ASC coordinator.

Interviews will be completed with a WMU graduate student not connected with the Autism Services Center and your responses will be connected to a pseudonym to increase confidentiality. If you decide to participate you can change your mind, quit, withdraw, or not reply to questions even after you have agreed to participate. If you are interested in learning more, please contact Kourtney Bakalyar (kourtney.k.bakalyar@wmich.edu).
Appendix F

Parent Survey
Demographic Questions

You are invited to participate in a research project entitled "A Formative Evaluation of a Program Providing Supports to College Students with Autism Spectrum Disorder" designed to evaluate the services provided to Western Michigan University students with autism spectrum disorder.

The study is being conducted by Dr. Sarah Summy and Kourtney Bakalyar, MA from Western Michigan University’s Department of Special Education and Literacy Studies and the Autism Services Center (ASC). This research is being conducted as part of the dissertation requirements for Kourtney Bakalyar, the ASC coordinator.

This survey is comprised of 14 multiple choice, descriptive, and free response questions and will take approximately 10 minutes to complete.

Your replies will be confidential. When you begin the survey, you are consenting to participate in the study. If you do not agree to participate in this research project simply do not access the survey link. If, after beginning the survey, you decide that you do not wish to continue, you may stop at any time. You may choose to not answer any question for any reason. If you have any questions prior to or during the study, you may contact Sarah Summy (269-387-5943), Kourtney Bakalyar (269-387-4346), the Human Subjects Institutional Review Board (269-387-6293) or the vice president for research (269-387-3299).

This study was approved by the Western Michigan University Human Subjects Institutional review Board (HSIRB) on July 26, 2016.

Participating in this survey online indicates your consent for use of the answers you supply.

What is your relationship to the WMU student receiving services from the Autism Services Center?
- Mother
- Father
- Guardian

What semester and year did your child begin at WMU?
Example: Fall 2014

Did your child transfer from another college or university?
- Yes; if yes, from where did he or she transfer and why?
- No

What is your child studying at WMU?

Current Services:
Respond to the following questions using your experiences from the fall 2015 and spring 2016 semesters.
These services were often provided by Kourtney, Hugo, or Kellie.
How frequently did your child use the services provided by the Autism Services Center (ASC)?

- More than weekly
- Weekly
- Monthly
- Once a semester
- Once
- Never

Did your child meet with the ASC staff regularly?
- Yes
- No

How would you rate your overall satisfaction with the ASC services?
- Excellent
- Good
- Average
- Poor
- Terrible

How would you rate the ASC services with:

<table>
<thead>
<tr>
<th>Service</th>
<th>Excellent</th>
<th>Good</th>
<th>Average</th>
<th>Poor</th>
<th>Terrible</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>meeting your child's academic needs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>meeting your child's social needs</td>
<td></td>
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<tr>
<td>helping your child live more independently</td>
<td></td>
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<tr>
<td>helping your child communicate with their professors</td>
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</tbody>
</table>

How would you rate the importance of the following services?

<table>
<thead>
<tr>
<th>Service</th>
<th>Extremely important</th>
<th>Very important</th>
<th>Moderately important</th>
<th>Slightly important</th>
<th>Not at all important</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meetings with ASC staff</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASC support with professor meetings</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Communication with parents</td>
<td></td>
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<tr>
<td>Skills workshops (i.e., resume building, interview skills)</td>
<td></td>
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</tr>
<tr>
<td>Social skills/communication workshops</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preparing to meet with advisors</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meeting with advisors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASC social events</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What ASC services did you find most beneficial to your child?


What changes would you make to the services provided by the ASC?


Are there any workshops, events, or services you would like to see in the future?
What have been your child’s biggest barriers in transitioning to WMU?

Would you recommend Western Michigan University and the ASC to other families with a student with ASD?

Please provide your email address if you are interested in providing additional information about the services your child received.
Appendix G

Parent Interview Protocol
What is your relationship to the WMU student receiving services from the Autism Services Center?

What semester and year did your child begin at WMU? Example: Fall 2014

Did your child transfer from another college or university?

What is your child studying at WMU?

Tell me about the barriers you have seen students with autism spectrum disorder experience when making the transition to college.
  - Academics
  - Taking care of themselves
  - Interacting with peers
  - Interaction with professors
  - Making friends
  - Taking care of college responsibilities like meeting with advisors and registering for classes

Tell me about the experience interacting with the Autism Services Center this year?

What are some ways you believe the services helped your child this year?

What are some changes you would like to see made to the services provided in the future?

If only a few services were available for students with ASD, what services provide the most benefit to your child with ASD?

Would you recommend the WMU ASC to other families with college students with autism or Aspergers? Why or Why not?
Appendix H

Recruitment Emails for Staff and Instructors
Subject Line: Seeking Participants for an Evaluation of ASD Services

Dear WMU Instructor and Staff,

You are invited to participate in a research project entitled "A Formative Evaluation of a Program Providing Supports to College Students with Autism Spectrum Disorder" designed to evaluate the services provided to Western Michigan University students with autism spectrum disorder. You are being contacted to participate in this survey because of your cooperation with the Autism Services Center this year. Your input is very important and will be used in deciding how services are provided for students with ASD in the future at WMU.

The study is being conducted by Dr. Sarah Summy and Kourtney Bakalyar, MA from Western Michigan University’s Department of Special Education and Literacy Studies and the Autism Services Center (ASC). This research is being conducted as part of the dissertation requirements for Kourtney Bakalyar, the ASC coordinator.

This survey is comprised of 11 multiple choice, descriptive, and free response questions and will take approximately 5 minutes to complete. Please click on the link below to go to the survey website (or copy and paste the survey link into your browser). The survey will be open for two (2) weeks.

Survey Link:

Your replies will be confidential. When you begin the survey, you are consenting to participate in the study. If you do not agree to participate in this research project simply do not access the survey link. If, after beginning the survey, you decide that you do not wish to continue, you may stop at any time. You may choose to not answer any question for any reason. If you have any questions prior to or during the study, you may contact Sarah Summy (269-387-5943), Kourtney Bakalyar (269-387-4349), the Human Subjects Institutional Review Board (269-387-8293) or the vice president for research (269-387-8298).

This study was approved by the Western Michigan University Human Subjects Institutional review Board (HSIRB) on (data of approval).

Participating in this survey online indicates your consent for use of the answers you supply.
Subject Line: Evaluation of ASD Services: Seeking Focus Group Participants

Dear (insert name of instructor or staff),

You are invited to participate in a research project entitled "A Formative Evaluation of a Program Providing Supports to College Students with Autism Spectrum Disorder" designed to evaluate the services provided to Western Michigan University students with autism spectrum disorder. If you decide to participate in this study, you will be asked a series of questions in a focus group with other WMU instructors or staff members worked with the Autism Services Center staff this past year. Focus groups will last between an hour and hour and half depending on the amount of information participants want to share. Efforts will be made to schedule the focus group during a time convenient for all members. Focus groups will be completed prior to the end of the summer II 2016 semester.

The study is being conducted by Dr. Sarah Summy and Kourtney Bakalyar, MA from Western Michigan University’s Department of Special Education and Literacy Studies and the Autism Services Center (ASC). This research is being conducted as part of the dissertation requirements for Kourtney Bakalyar, the ASC coordinator. Focus groups will be completed with a WMU graduate student not connected with the Autism Services Center and your responses will be connected to a pseudonym to increase confidentiality. If you decide to participate you can change your mind, quit, withdraw, or not reply to questions even after you have agreed to participate. If you are interested in learning more, please contact Kourtney Bakalyar (kourtney.k.bakalyar@wmich.edu).
Appendix I

Instructor Survey
Demographic Questions

You are invited to participate in a research project entitled "A Formative Evaluation of a Program Providing Supports to College Students with Autism Spectrum Disorder" designed to evaluate the services provided to Western Michigan University students with autism spectrum disorder.

The study is being conducted by Dr. Sarah Summy and Kourtney Bakalyar, MA from Western Michigan University's Department of Special Education and Literacy Studies and the Autism Services Center (ASC). This research is being conducted as part of the dissertation requirements for Kourtney Bakalyar, the ASC coordinator.

This survey is comprised of 11 multiple choice, descriptive, and free response questions and will take approximately 5 minutes to complete.

Your replies will be confidential. When you begin the survey, you are consenting to participate in the study. If you do not agree to participate in this research project simply do not access the survey link. If, after beginning the survey, you decide that you do not wish to continue, you may stop at any time. You may choose to not answer any question for any reason. If you have any questions prior to or during the study, you may contact Sarah Summy (269-387-5943), Kourtney Bakalyar (269-387-4346), the Human Subjects Institutional Review Board (269-387-8290) or the vice president for research (269-387-8290).

This study was approved by the Western Michigan University Human Subjects Institutional review Board (HSIRB) on July 26, 2019.

Participating in this survey online indicates your consent for use of the answers you supply.

What department do you teach for?

How many years have you been teaching at WMU?

What best describes your relationship with WMU?

- Full-time instructor
- Part-time instructor
- Graduate Assistant

Current Services:
Respond to the following questions using your experiences from the fall 2015 and spring 2016 semesters. These services were often provided by Kourtney, Hugo, or Kellie.
How many times did you communicate with someone from the Autism Services Center (ASC)?
Communications can include emails, phone conversations, and face-to-face conversations.

- 0
- 1
- 2
- 3
- 4+

How would you rate your overall satisfaction with the ASC services?

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Good</th>
<th>Average</th>
<th>Poor</th>
<th>Terrible</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

How would you rate the ASC services with:

<table>
<thead>
<tr>
<th>timeliness in responding to emails</th>
<th>Excellent</th>
<th>Good</th>
<th>Average</th>
<th>Poor</th>
<th>Terrible</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fostering communication between students and instructors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>providing recommendations for working with college students with ASD</td>
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<td></td>
</tr>
</tbody>
</table>

What ASC services did you find were most beneficial to student academic success?

What services could the ASC provide that would help students with ASD have more academic success?

Are there any workshops or events you would like to see the ASC provide for instructors in the future?

Would you recommend Western Michigan University and the ASC to families with a student with ASD?

Please provide your email address if you are interested in learning more about participating in a focus group to expand on what you thought went well with the ASD services this year and changes you would like to see made in the future.
Appendix J

Staff Survey
Demographic Questions

You are invited to participate in a research project entitled "A Formative Evaluation of a Program Providing Supports to College Students with Autism Spectrum Disorder" designed to evaluate the services provided to Western Michigan University students with autism spectrum disorder.

The study is being conducted by Dr. Sarah Sunmy and Kourtney Bakalyar, MA from Western Michigan University's Department of Special Education and Literacy Studies and Autism Services Center (ASC). This research is being conducted as part of the dissertation requirements for Kourtney Bakalyar, the ASC coordinator.

This survey is comprised of 10 multiple choice, descriptive, and free response questions and will take approximately 5 minutes to complete.

Your replies will be confidential. When you begin the survey, you are consenting to participate in the study. If you do not agree to participate in this research project simply do not access the survey link. If, after beginning the survey, you decide that you do not wish to continue, you may stop at any time. You may choose to not answer any question for any reason. If you have any questions prior to or during the study, you may contact Sarah Sunmy (269-387-5943), Kourtney Bakalyar (269-387-4349), the Human Subjects Institutional Review Board (269-387-8203) or the vice president for research (269-387-8298).

This study was approved by the Western Michigan University Human Subjects Institutional review Board (HSIRB) on July 28, 2018.

Participating in this survey online indicates your consent for use of the answers you supply.

In which department do you work?

How many years have you been working for WMU?

Current Services:
Respond to the following questions using your experiences from the fall 2015 and spring 2016 semesters. These services were often provided by Kourtney, Hugo, or Kellie.

How many times did you communicate with someone from the Autism Services Center (ASC)?
Communications can include emails, phone conversations, and face-to-face conversations.

- 0
- 1
- 2
- 3
- 4+

How would you rate your overall satisfaction with the ASC services?
How would you rate the ASC services with:

<table>
<thead>
<tr>
<th>Timeliness in responding to emails</th>
<th>Excellent</th>
<th>Good</th>
<th>Average</th>
<th>Poor</th>
<th>Terrible</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fostering communication between student and WMU employees</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Providing recommendations for working with college students with ASD</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

What ASC services did you find were most beneficial to student success at WMU?

What services could the ASC provide that would help students with ASD have more success?

Are there any workshops or events you would like to see the ASC provide for WMU staff in the future?

Would you recommend Western Michigan University and the ASC to families with a student with ASD?

Please provide your email if you are interested in learning more about participating in a focus group to expand on what you thought went well with the ASD services this year and changes you would like to see made in the future.
Appendix K

Focus Group Protocol for WMU Instructors/Staff
• Instructors:
  o What department do you teach for?
  o How many years have you been teaching at WMU?
  o What best describes your relationship with WMU? (Full-time instructor, Part-time instructor, Graduate Assistant)

• Staff:
  o In which department do you work?
  o How many years have you been working for WMU?

• Tell me about the barriers you have seen students with autism spectrum disorder experience when making the transition to college.
  o Academics
  o Taking care of themselves
  o Interacting with peers
  o Interaction with professors
  o Making friends
  o Taking care of college responsibilities like meeting with advisors and registering for classes

• Tell me about the experience interacting with the Autism Services Center this year.

• What are some ways you believe the services helped students with ASD this year?

• What are some changes you would like to see made to the services provided in the future?

• If only a few services were available for students with ASD, what services provide the most benefit to you and your students with ASD?

• Would you recommend the WMU ASC to college students with autism or Asperger’s? Why or Why not?
Appendix L

Themes and Categories Used in Qualitative Analysis
## Themes and Categories Used in Qualitative Analysis

<table>
<thead>
<tr>
<th>Theme</th>
<th>Category</th>
<th>Example Response from Interview and Focus Group Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Barriers to Transitioning</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managing independence</td>
<td></td>
<td>the biggest hurdle is the freedom that college has over a high school setting.</td>
</tr>
<tr>
<td>Deal lack of routine</td>
<td></td>
<td>The students on the spectrum don't have a routine set yet.</td>
</tr>
<tr>
<td>Handling transitions</td>
<td></td>
<td>So it was just getting adjusted to that was hard.</td>
</tr>
<tr>
<td>Self-Disclosure</td>
<td></td>
<td>Sometimes the student doesn't let us know that they're on the spectrum, and it's certainly their choice as to what they do.</td>
</tr>
<tr>
<td>Self-care</td>
<td></td>
<td>or tell you to take a shower</td>
</tr>
<tr>
<td>Getting overwhelmed</td>
<td></td>
<td>because she really can't be in a crowded room.</td>
</tr>
<tr>
<td>Navigating campus</td>
<td></td>
<td>they don't know where to go for classes,</td>
</tr>
<tr>
<td>College responsibilities</td>
<td></td>
<td>because these scholarships required things that even a person without disabilities would be confused about.</td>
</tr>
<tr>
<td>Academic issues</td>
<td></td>
<td>And he would tell me, sure, I understood. From what I saw, it looks like I don't really need-- missing most of this class won't really hurt me. I understood what you did. But then when it came to test time it was very, very low performance.</td>
</tr>
<tr>
<td>Executive function</td>
<td></td>
<td>He missed class, but then he would show up in maybe the last 10 minutes.</td>
</tr>
<tr>
<td>Social Interactions</td>
<td></td>
<td>Because they don't know how to communicate, so there's a tendency to cut themselves off.</td>
</tr>
<tr>
<td>Classroom Behaviors</td>
<td></td>
<td>I understood the issues in the sense that he was acting out in class and doing things that I saw as a disruption and things that were definitely not right,</td>
</tr>
<tr>
<td>Comorbidity</td>
<td></td>
<td>I think the reading problems were a real barrier for him-- isolating.</td>
</tr>
<tr>
<td><strong>ASC Activities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working one-on-one with students</td>
<td></td>
<td>So they give him a schedule, and he actually knows where he's going, and what he's doing, and what the assignments are, and so on, and to hang on to his syllabus, and things like that.</td>
</tr>
<tr>
<td>Point person</td>
<td></td>
<td>certainly providing a safe place for them to go for help,</td>
</tr>
<tr>
<td>Training</td>
<td></td>
<td>I have learned so much about what I can do to be more effective in working with these students.</td>
</tr>
<tr>
<td>Parents</td>
<td>Communication with IHE departments</td>
<td>and then she accompanied this particular student to his advising appointment,</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Working with DSS</td>
<td>So it has made a big difference in [DSS] caseload.</td>
<td></td>
</tr>
<tr>
<td>Communication with parents</td>
<td>once they hit 18, we don't know in terms of FERPA what we can say and what we can't say to the parents.</td>
<td></td>
</tr>
<tr>
<td>Comfort to parents</td>
<td>For me, at least from my perspective in the Admissions Office, it's a peace of mind.</td>
<td></td>
</tr>
<tr>
<td>Parent push</td>
<td>We were trying to push him to go and see you guys more.</td>
<td></td>
</tr>
<tr>
<td>Instructors</td>
<td>Communication with instructors</td>
<td>And then they help create liaisons with professors,</td>
</tr>
<tr>
<td>Instructor lack of understanding of ASD</td>
<td>I didn't at first make the connection that that was autism despite that very blatant display.</td>
<td></td>
</tr>
<tr>
<td>Instructor cooperative</td>
<td>But I think especially one of our base concerns is making sure faculty accommodate.</td>
<td></td>
</tr>
<tr>
<td>Instructor push back</td>
<td>So getting some of the faculty on board, I think, is a challenge.</td>
<td></td>
</tr>
<tr>
<td>Recommendations</td>
<td>More training</td>
<td>But I think that the more we train ourselves, we can better handle individual situations,</td>
</tr>
<tr>
<td>More resources</td>
<td>the center could be very effective if it had more resources and could do more outreach on autism.</td>
<td></td>
</tr>
<tr>
<td>More outreach</td>
<td>And I think we could do a lot more outreach as an institution to make sure faculty understand that and why those accommodations are being put in place.</td>
<td></td>
</tr>
<tr>
<td>Need for the program</td>
<td>I've seen what happens when students don't have that support.</td>
<td></td>
</tr>
<tr>
<td>Views of the ASC and the IHE</td>
<td>Student success</td>
<td>And that was just within that six, seven months, night and day behavior and positive outcomes.</td>
</tr>
<tr>
<td>ASC praise</td>
<td>I am very grateful for the folks in this office</td>
<td></td>
</tr>
<tr>
<td>Staff skills</td>
<td>able to very professionally navigate some very challenging situations.</td>
<td></td>
</tr>
<tr>
<td>Building a community for ASD</td>
<td>They're not the only one. There's going to be a community here.</td>
<td></td>
</tr>
<tr>
<td>Campus culture</td>
<td>but also we create a culture of awareness of really normalization that this is something that we do understand.</td>
<td></td>
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Appendix M

Human Subjects Institutional Review Board Approval Letter
Date: July 26, 2016

To: Sarah Summy, Principal Investigator
    Kourtney Bakalyar, Student Investigator for dissertation

From: Amy Naugle, Ph.D., Chair

Re: HSIRB Project Number 16-07-13

This letter will serve as confirmation that your research project titled “An Formative Evaluation of a Program Providing Supports to College Students with Autism Spectrum Disorder” has been approved under the expedited category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note: This research may only be conducted exactly in the form it was approved. You must seek specific board approval for any changes in this project (e.g., you must request a post approval change to enroll subjects beyond the number stated in your application under “Number of subjects you want to complete the study”). Failure to obtain approval for changes will result in a protocol deviation. In addition, if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

Reapproval of the project is required if it extends beyond the termination date stated below.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: July 25, 2017