

EFFECTIVE SUPPORTS AND EXPERIENCES THAT ADVANCE INCLUSIVE  
POSTSECONDARY EDUCATION FOR STUDENTS WITH INTELLECTUAL AND  
DEVELOPMENTAL DISABILITIES

by

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As members of the Dissertation Committee, we certify that we have read the dissertation prepared by Kirsten Rebecca Lansey titled *Effective Supports and Experiences That Advance Inclusive Postsecondary Education for Students With Intellectual and Developmental Disabilities* and recommend that it be accepted as fulfilling the dissertation requirement for the Degree of Doctor of Philosophy.

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## ABSTRACT

Individuals with intellectual disabilities (ID) have the lowest rates of post-high school education and employment of all disability groups (Migliore, et al., 2009). Inequity in educational and employment outcomes is arguably a result of the scarce opportunities for students with intellectual and developmental disabilities (IDD) to attend college or obtain competitive employment (Grigal & Papay, 2018). Opportunities for students with IDD to attend inclusive postsecondary education (PSE) programs at colleges around the United States have gradually increased since the Higher Education Opportunity Act (P.L. 110-315) passed in 2008. PSE is associated with positive long-term outcomes of students with IDD, including increased competitive employment and self-determination (Moore & Schelling, 2018; Smith et al., 2018). The intent of this three-study dissertation was to identify effective supports and meaningful experiences that advance PSE opportunities for students with IDD.

Peer mentors are college students that support PSE students with IDD to attend courses and complete assignments, develop employment skills, navigate campus, and socialize (Kleinert et al., 2012). Peer mentors reported needing training to support students to improve their social skills and increase their appropriate behavior (Giust & Valle-Riestra, 2017). The first two studies of this dissertation explored the impact of training and coaching on peer mentors' implementation fidelity and generalization of students' behavior plans.

The first study used a nonconcurrent single-subject multiple baseline design across three peer mentor-student pairs to examine the impact of training and coaching with performance feedback on peer mentors' fidelity in implementing function-based intervention plans (FBIP) for students with intellectual disability and autism spectrum disorder. All peer mentors improved their implementation fidelity immediately after being trained and further improved their fidelity



after being coached. One to two coaching sessions were necessary for peer mentors to reach high levels of fidelity in implementing students' FBIP. Students with IDD also increased prosocial behaviors when function-based support was implemented with fidelity.

The second study used a single-subject multiple baseline design to examine the relationship between training and coaching with performance feedback on a postsecondary peer mentor's implementation fidelity and generalization of a student's FBIP across three settings. The peer mentor's implementation fidelity immediately improved across all three settings after receiving initial training. Fidelity in each setting increased further following the coaching specific to that setting. The peer mentor generalized skills taught during coaching to two of the three settings. There was a functional relation between the peer mentor's fidelity and the student's on-task behavior in two of the three settings.

For the final study in this dissertation, semi-structured interviews explored the perspectives of 10 current and recently graduated PSE students with IDD to understand the experiences and supports that contributed to progress towards their self-directed employment, education, and social goals. Students described internship experiences as fundamental to progress towards their employment goals. Internships led to students' learning work skills and preferences, resulting in many students adjusting their employment goals during PSE. Peer mentor support was described as essential for advancing students' goals in all areas. Students relayed that continuing to learn and developing friendships during PSE changed their future.

Results from these studies identify effective experiences and supports that improve skill development and goal progression of PSE students with IDD. Additionally, results reinforce the importance of inclusive PSE options to increase equity in outcomes for individuals with IDD.

## CHAPTER 1: INTRODUCTION

After completing high school students with ID have the lowest rates of education, employment, and preparation for employment of all disability groups (Migliore, et al., 2009). Students with ID are less likely to graduate from high school, be competitively employed, or live independently compared to their high school peers without disabilities (Mock & Love, 2012). Although attempts have been made to improve secondary educational programming, the majority of students with ID exit school without a high school diploma or GED (McFarland et al., 2017) and without skills to continue their education or be competitively employed (Grigal et al., 2011). Grigal and Papay (2018) argue that inequity in educational and employment outcomes is a result of the scarce opportunities for students with ID to attend college or obtain meaningful competitive employment.

Since the Higher Education Opportunity Act (P.L. 110-315) passed in 2008, inclusive PSE at institutions of higher education has emerged as an opportunity for students with IDD to improve their educational and employment outcomes. Universities and colleges are providing students with IDD practical experiences in their community to learn how to live independently and gain skills to be competitively employed (Grigal & Hart, 2010). Enrollment in PSE is positively related to long-term outcomes of students with IDD such as increased starting salaries, employment, and self-determination (Moore & Schelling, 2018; Smith et al., 2018).

Students with IDD need individualized and natural supports to succeed during college. Accreditation standards for PSE programs highly recommend the use of peer support (National Coordinating Center Accreditation Workgroup, 2016). Fellow college students serving as peer mentors are frequently used as natural supports for students with IDD in PSE programs (e.g., Christopher-Allen et al., 2017). Peer mentors support students to engage in courses and complete

assignments, develop employment and social skills, and navigate the college campus (Kleinert et al., 2012).

Challenges exist when training postsecondary peer mentors. Peer mentors come from a variety of academic disciplines often unrelated to special education (e.g., business, biology) and frequently have limited experience interacting with individuals with ID (Carter et al., 2019). Peer mentors also have time constraints due to their academic schedules and often have limited understanding of diverse populations (Giust & Valle-Riestra, 2017). Researchers have found that peer mentors need initial and ongoing training to successfully support students in PSE settings (Culnane et al., 2016; Kleinert et al., 2012). Many PSE programs, however, provide initial peer mentor training with no follow-up training (e.g., Griffin et al., 2016; Jones & Goble, 2012). Peer mentors themselves also report needing ongoing training, particularly to support PSE students to improve their social skills and increase their appropriate behavior (Giust & Valle-Riestra, 2017).

This series of studies focuses on understanding how peer mentors can support students with IDD in college environments. The first two studies examined the effectiveness of training and coaching peer mentors to provide behavior supports. The third study explored the perceptions of students with IDD to understand the PSE experiences and supports that bolstered progress towards their self-directed goals.

Literature on training peer mentors in middle and high school provides the foundational knowledge for training postsecondary peer mentors. Peer support arrangements are an evidence-based practice; peers without disabilities are trained to provide academic and social support to students with IDD (Brock & Huber, 2017; Carter et al., 2011). Middle and high school peer mentors do not, however, implement behavior interventions or supports beyond positive role modeling (Carter et al., 2015). Therefore, training components for peer support arrangements are

not sufficient to train postsecondary peer mentors on behavior interventions for students with IDD.

Research on effective practitioner training can also be used to guide training of postsecondary peer mentors. Behavior skills training is an evidence-based approach to train practitioners to implement individualized behavior supports and interventions (Parsons et al., 2012). The trainer (a) describes the intervention and explains why it is important and when it should be used, (b) models the correct implementation of the intervention, (c) provides an opportunity for the practitioner to practice the intervention, and (d) provides positive and corrective performance feedback (Mueller et al., 2003). Training that includes performance feedback, an evidence-based practice (Fallon et al., 2015), results in improved paraprofessional fidelity of individualized student supports (Brock & Carter, 2017; Brock & Carter, 2013). Performance feedback is most often provided during follow-up coaching sessions in which the coach provides specific critiques on the paraprofessional's accuracy of implementation. Incorporating performance feedback into coaching postsecondary peer mentors may have a similar impact on fidelity.

Functional behavior assessment (FBA) is an evidence-based practice that guides the development of a FBIP. When behavior interventions are effective, there is a functional relation between high implementation fidelity and improved student behavior (Cook et al., 2012). There is compelling evidence that, with effective training, teachers (e.g., Wood et al., 2011) and paraprofessionals (e.g., Walker & Snell, 2017) can implement behavior intervention plans, but researchers have not examined whether postsecondary peer mentors can also implement behavior intervention plans. Using behavior skills training and coaching, postsecondary peer mentors may also be able to implement students' FBIPs with fidelity.

## CHAPTER 2: PRESENT STUDY

The three studies in this dissertation are situated around PSE of students with IDD. The first two studies explored the impact of training and coaching on peer mentors' implementation fidelity and generalization of students' behavior plans. The final study explored the perspectives of PSE students with IDD to understand what experiences and supports contributed to progress towards their self-directed goals. The broad intent of these studies was to identify effective supports and meaningful experiences that advance PSE opportunities for students with IDD.

The first study (Appendix A) will be published in the September 2021 issue of *Education and Training in Autism and Developmental Disabilities*. This study examined the impact of training and coaching with performance feedback on postsecondary peer mentors' fidelity in implementing FBIP for students with ID and autism spectrum disorder. Student behavior was also measured as a corresponding outcome of changes in the levels of implementation fidelity. A nonconcurrent single-subject multiple baseline design across three peer mentor-student pairs was used. All peer mentors' implementation fidelity of students' FBIPs immediately improved after being trained and further improved after being coached. Between one and two coaching sessions were needed to reach completion criteria of 90% implementation fidelity for three consecutive sessions. More variability existed during training conditions compared to coaching conditions. Each peer mentor maintained their implementation level on follow-up. Students decreased challenging behaviors and increased prosocial behaviors when FBIP was implemented with fidelity.

The second study (Appendix B) examined one postsecondary peer mentor's implementation fidelity and generalization of a student's FBIP across settings. Performance feedback has been effective at fostering educators' generalization of support strategies across

different students, environments, times, and situations (Mouzakitis et al., 2015; Stokes & Osnes, 1989) and is likely to also apply to postsecondary peer mentors. Generalization of a student's behavior plan across contexts (e.g., environments, time of day, and situations) are of particular importance in order to prevent the unintentional reinforcement of a student's inappropriate behavior. Further, understanding what kind and how much training is needed for peer mentors to generalize student supports is essential for staff efficiency (e.g., decreased need to train across environments) and student success.

This study examined the relationship between training and setting-specific coaching with performance feedback and a peer mentor's fidelity and generalization across settings of an FBIP. The FBIP was developed for a PSE student with multiple disabilities (i.e., ID, hearing impairment, visual impairment, speech-language impairment). This study also tracked the relationship between the peer mentor's fidelity and the student's on-task behavior. A single-subject multiple baseline design across settings was conducted with one peer mentor-student pair. The peer mentor's implementation fidelity immediately improved in all settings after being trained and further improved in each setting following the coaching specific to that setting. Coaching was needed for the peer mentor to implement the FBIP at high levels of fidelity. The peer mentor generalized skills taught during each coaching session to two of the three settings. As the peer mentor's fidelity improved across settings, the student's on-task behavior also improved in two of the three settings.

The initial intent of the third study in this dissertation was to conduct a single-subject multiple baseline design across peer mentor-student pairs using an efficient train the trainer model. The researcher planned to train a PSE teacher to train and coach peer mentors on

students' FBIPs. However, the third study was changed to a qualitative research design with remote data collection because of the university closure due to COVID.

The purpose of the third study (Appendix C) was to understand how individuals with IDD perceive the impact of their educational experiences on the achievement of their personal goals. National standards for PSE programs stress the importance of student-directed goals that bolster progress toward their educational and long-term employment outcomes (e.g., National Alliance for Secondary Education and Transition, 2005; Grigal et al., 2011). Student-directed goals should dictate their college experiences and prepare them for a meaningful future.

Although national standards exist, there are few opportunities for students with IDD to evaluate how their educational experiences have influenced the achievement of their goals (i.e., Mock & Love, 2012; Wilt & Morningstar, 2020). Excluding individuals with IDD from national surveys (Grigal & Hart, 2010; Paiewonsky, 2011) and research likely leads to ineffective supports, unaddressed barriers, and goals unmet (McDonald & Kidney, 2013). Individualized accommodations are needed to improve research accessibility for individuals with IDD (Claes et al., 2012).

Individualized in-depth semi-structured interviews were conducted with 10 current students and recent graduates of a PSE program who have IDD. The purpose of this qualitative study was to understand the PSE experiences and supports that PSE students perceive as contributing to their self-directed employment, education, and social goals. Further, the study's intent was to understand how students with IDD perceive PSE has affected their goal achievement and changed their future. Major findings revealed that internship experiences were essential for students to progress towards their employment goals. Internships fostered students' learning of work skills and job preferences, resulting in many students adjusting their

employment goals during PSE. In addition, work-related coursework, educator supports, and support during internships from peer mentors advanced students' employment goals. Most students, however, desired more internship experiences that were directly related to their employment goals. Many students expressed that attending the PSE program fulfilled their education goals. Additionally, coursework and peer mentor support for classes contributed to progress towards students' education goals. Developing friendships, social activities, and peer mentor social support advanced progress towards students' social goals. When asked how PSE prepared them for their goals overall, students reiterated the importance of learning about employment and receiving educator and peer mentor support. Finally, students expressed that continuing to learn and developing friendships during PSE changed their future.

As PSE becomes more available for students with IDD there is a need to understand what experiences and supports are effective at improving students' skill development and goal progression. PSE students identified peer mentor support as important for progress towards their employment, education, and social goals. Peer support arrangements are an evidence-based practice in secondary settings (Brock & Huber, 2017) in which peers without disabilities are trained to provide support to students with IDD (Carter et al., 2011). Training and coaching with performance feedback were effective strategies to increase PSE peer mentors' implementation and generalization of students' behavior plans in varying work, educational, and social contexts. To establish postsecondary evidence-based practices, researchers should continue to explore effective strategies to train peer mentors to implement student supports.

All PSE students described internship experiences and subsequent work skills and preferences learned as essential for their goal progression. These findings are consistent with the literature that argues PSE programs lead to students gaining work skills to be competitively



employed (Grigal & Hart, 2010). Further, enrollment in PSE programs is associated with increased competitive employment of students with ID (Smith et al., 2018). Similar to college students without disabilities, PSE students with IDD gain work, educational, and social experiences that allow them to learn new skills and identify personal preferences. PSE for individuals with IDD, however, remains limited due to historical, institutional, and attitudinal barriers to college access (O'Brien et al., 2018). As opportunities to attend PSE increase, so will equity in education and employment outcomes of students with IDD (Grigal & Papay, 2018). Findings from these studies reinforce the importance of inclusive PSE experiences and effective supports for individuals with IDD.

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APPENDIX A:

TRAINING AND COACHING: IMPACT ON PEER MENTOR FIDELITY AND BEHAVIOR  
OF POSTSECONDARY STUDENTS WITH AUTISM AND INTELLECTUAL DISABILITY,

*Education and Training in Autism and Developmental Disabilities*



**Training and coaching: Impact on peer mentor fidelity and behavior of postsecondary students with autism and intellectual disability**

*Education and Training in Autism and Developmental Disabilities*, September 2021 Issue

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### **Abstract**

Students with intellectual and developmental disabilities have more opportunity to attend postsecondary education than ever before. Peer mentors who support these students sometimes need to manage challenging behavior. This study examined the impact of training and coaching with performance feedback on peer mentors' fidelity in implementing function-based intervention plans. A nonconcurrent single subject multiple baseline design across three peer mentor-student pairs was used. All peer mentors improved their fidelity of implementing student behavior plans immediately after being trained and further improved after being coached. One to two coaching sessions were necessary for peer mentors to reach high levels in implementation fidelity. Students also decreased problem behaviors and increased prosocial behaviors when function-based support was implemented with fidelity. Study implications, limitations, and suggestions for future research are presented.

## **Training and Coaching: Impact on Peer Mentor Fidelity and Behavior of Postsecondary Students with Autism and Intellectual Disability**

The Higher Education Opportunity Act (P.L. 110-315), passed in 2008, supports individuals with intellectual disabilities in the transition from high school to meaningful employment. This legislation sparked the development of model demonstration projects focused on making college accessible to students with intellectual disability. Today, nearly 300 inclusive college and university programs are available nationwide. Institutions of higher education are providing students with intellectual and developmental disability (IDD) practical experiences in their community to learn how to live independently and gain skills to be competitively employed (Grigal & Hart, 2010). Enrollment in postsecondary education is positively related to long-term outcomes for students with IDD, such as increased self-determination, higher starting salaries, and obtaining competitive employment (Moore & Schelling, 2018; Smith et al., 2018).

To fully participate and succeed in higher education, students with IDD need natural and individualized supports. Same-aged college students serving as peer mentors are natural supports commonly used in postsecondary education programs (e.g., Carter et al., 2019; Christopher-Allen et al., 2017). Peer mentors support students with IDD to navigate campus, engage in academic courses and complete assignments, and to develop employment, social, and communication skills (Giust & Valle-Riestra, 2017; Kleinert et al., 2012). Standards for establishing postsecondary education programs clearly advocate for the use of peer support (National Coordinating Center Accreditation Workgroup, 2016).

Peer mentors are widely used in postsecondary education. Researchers have found that mentors need preparation prior to supporting students with IDD as well as ongoing training and support (Culnane et al., 2016; Kleinert et al., 2012). However, many postsecondary education

programs for students with IDD provide peer mentors with an initial orientation and little or no follow-up training (e.g., Griffin et al., 2016; Jones & Goble, 2012).

In a recent study, Giust and Valle-Riestra (2017) collected 58 written journal entries over a one-year period from 31 peer mentors from one postsecondary education program. Peer mentors responded to open-ended questions about the program, the student(s) with intellectual disability (ID) whom they supported, and their favorite or least favorite parts about supporting the student(s) with ID. Peer mentors reported needing further training, especially to support students with ID to improve their social skills and increase their appropriate behavior.

Unique challenges of training postsecondary peer mentors exist. Peer mentors can have time constraints (e.g., course schedule), limited knowledge of diverse populations (Giust & Valle-Riestra, 2017), limited knowledge of various academic disciplines (e.g., biology, business), and limited experience interacting with individuals with ID (Carter et al., 2019). Furthermore, postsecondary teachers have the challenge of deciding what topics to prioritize to address the variety of needs of the current students (Giust & Valle-Riestra, 2017). To date, no resources or research provides guidance on what kind or how much training postsecondary peer mentors need to successfully support students who demonstrate inappropriate behaviors.

Literature on training peer mentors in secondary school may provide foundational knowledge for training postsecondary peer mentors. Peer support arrangements are an evidence-based practice (Brock & Huber, 2017) used in K-12 settings in which peers without disabilities are trained to provide academic and social support to students with severe disabilities (Carter et al., 2011). The key elements to implement peer support arrangements include (a) development of an individualized plan for how the student with severe disabilities will participate in activities, (b) training for the peer mentor explaining how to implement specific support strategies during

activities, and (c) facilitation from an adult to ensure the peer mentor and student with severe disabilities work effectively together (Carter et al., 2015). However, secondary peer mentors typically do not support behavior interventions or strategies beyond being a positive role model for the student (Carter et al., 2015). Therefore, the elements needed to implement peer support arrangements are not sufficient to train postsecondary peer mentors on individualized behavior interventions.

Research on effective practitioner training approaches can be used to guide initial attempts at training postsecondary peer mentors. Behavior skills training (BST) is an evidence-based approach (Parsons et al., 2012) in which a trainer (a) provides a description of a strategy and explains why it is important and when it should be used, (b) models correct implementation of the strategy, (c) provides an opportunity for the practitioner to practice the strategy, and (d) offers positive and corrective feedback (Mueller et al., 2003). BST has been used to train practitioners (e.g., care takers, paraprofessionals) to implement individualized strategies to reduce inappropriate behavior (Miles & Wilder, 2009).

Brock and Carter (2013) conducted a systematic review of experimental studies in which paraprofessionals implemented instructional and support strategies with students with ID. Findings indicated that, with effective training, paraprofessionals with varying levels of experience and education were able to effectively implement evidence-based practices. Effective training packages included three of the four behavior skills training elements: (a) description of the strategy, (b) modeling of the strategy, and (c) performance feedback. Additional training elements that were implemented provide a rationale for why the strategy was important, having the paraprofessional role play the strategy, and giving the paraprofessional a fidelity checklist with all the strategy components.

Recently, Brock and Carter (2017) conducted a meta-analysis of 12 group-design studies. They found that training that included modeling and performance feedback resulted in improved paraprofessional fidelity and greater effect sizes. Performance feedback is most often provided during follow-up coaching sessions in which the coach provides specific critiques on the paraprofessional's accuracy of implementation. Through a systematic review of 47 studies containing 169 cases, Fallon et al. (2015) concluded that performance feedback is an evidence-based practice for increasing trainee's fidelity of support strategies.

Functional behavior assessment (FBA) is considered an evidence-based practice that guides the development of a function-based intervention plan (FBIP). When effective interventions are implemented, there is a direct relationship between high implementation fidelity and improvement in student behavior (Cook et al., 2012). FBAs have never been researched in postsecondary education settings with peer mentors who support students with ID. However, there is compelling evidence that, with effective training, teachers (e.g., Wood et al., 2011) and paraprofessionals (e.g., Walker & Snell, 2017) can implement intervention plans to address challenging student behavior. Using a BST approach to train postsecondary peer mentors to implement students' FBIPs may have a similar positive impact on fidelity.

The purpose of this study was to examine the relationship between training and coaching with performance feedback and peer mentors' implementation fidelity of FBIPs for students with autism spectrum disorder and intellectual disability (ASD-ID) participating in an inclusive university-based postsecondary program. This study also tracked student behavior as a corresponding outcome of changes in the levels of implementation fidelity.

## **Method**

### **Participants**

Participants were three peer mentors, three students with ASD, and three postsecondary education teachers.

Jane was a 20-year-old female majoring in education who had one semester of experience as a peer mentor. She supported Zander, a 19-year-old male student in his second year of the postsecondary program whose primary forms of communication were verbalizations and delayed echolalia (e.g., phrases from cartoon shows). Ms. A, Zander's teacher, was 42 years old and was certified as a secondary general education science teacher. She had 17 years of experience as a teacher and two years of experience working for the postsecondary education program.

Heather was a 21-year-old female majoring in education who had one year of experience as a peer mentor. She supported Alex, a 19-year-old male student in his first year of the program whose primary forms of communication were one-to four-word speech and immediate echolalia. Ms. B, Alex's teacher, was 29 years old and certified as a learning behavior specialist. She had seven years of experience as a teacher and was newly hired to work for the postsecondary program.

Sofia was a 20-year-old female majoring in education who had three years of experience as a peer mentor. She supported José, a 21-year-old male student in his first year whose primary form of communication was short phrases and immediate echolalia. Ms. C., José's teacher, was 43 years old and was certified as a special education teacher, primary general education teacher, and principal. She had 15 years of experience as an educator and one year of experience working for the postsecondary education program.

Zander, Alex, and José were all diagnosed with ASD by a multidisciplinary team and were included in the 1% of students who qualify to take the state's alternate assessment based on severe cognitive impairment. See Table 1 and 2 for additional participant information.

## Setting

This study was conducted at an inclusive two-year postsecondary education program housed at a public research university. The university, located in a mid-sized city in the southwestern United States, enrolled approximately 45,000 students. Thirty-six undergraduate peer mentors supported students with intellectual and/or developmental disability (IDD) during their time on campus. Undergraduates who were interested in becoming peer mentors were first interviewed by a postsecondary education teacher who decided if the undergraduate was a good match for the program given their background experience, maturity, and willingness to learn. Accepted peer mentors were provided a full day training prior to the start of the semester to learn about the program and how to best support students. Throughout the semester, peer mentors received two evaluations and completed online quizzes and discussion posts. Peer mentors who supported students in class or at an internship also received an additional hour of training during the semester on how to be an academic coach or job coach.

The postsecondary program enrolled a total of 25 students with IDD, divided among first year ( $n=11$ ) and second year ( $n=14$ ) students. High school students with IDD in surrounding school districts were eligible to apply to the postsecondary program during their senior year. Accepted students were dually enrolled at their high school and at the university as non-degree seeking undergraduates. All students were fully included; they audited college courses, participated in work-based internships and campus life activities, and were supported by a variety of peer mentors.

To recruit peer mentor participants, the postsecondary teachers first collaboratively identified students with ASD-ID who demonstrated challenging behavior and would benefit from individualized support. One of the students was their own guardian so the researcher obtained



signed consent in the presence of the student's postsecondary education teacher to verify student comprehension. The consent form used simple age appropriate text paired with visual supports. Two students were not their own guardians. In these cases, a consent form was sent home and a legal guardian provided signed consent. Each of the students then provided assent prior to participating in the study. Postsecondary teachers informed the researcher of the setting where each student's challenging behaviors occurred most often and identified the peer mentor who supported the student in that setting. After obtaining student consent, the researcher then contacted each peer mentor and obtained signed consent.

The specific setting where data were collected was unique to each dyad. Jane and Zander's setting was at Zander's work-based internship at a warehouse below the student cafeteria. The warehouse was a large space with metal shelving to store large boxes of food, drink, and supplies. The warehouse had an office area at the entrance with three desks where management worked. Heather and Alex's setting was an open outdoor seating area with metal tables and chairs located next to a vehicle pick-up and drop-off roundabout and the student cafeteria. Sofia and José's setting was the same outdoor seating area and directly inside the student cafeteria. The indoor cafeteria area had approximately 10 tables with four to six chairs at each. All peer mentor training and coaching sessions occurred in private offices or classrooms at the university.

## **Design**

An A-B-C-C' nonconcurrent (Harvey et al., 2004) multiple baseline across participants (peer mentor-student dyads) was used to determine the effect of training and coaching on peer mentors' implementation fidelity of student behavior plans. A nonconcurrent design was needed because of delay in teacher referral and in obtaining informed consent from guardians and

students. At the start of the semester, postsecondary teachers identified Alex and Zander as having the greatest need for individualized behavior support. Postsecondary teachers did not come to a consensus on a third student at that time. Jane and Zander were the first pair to participate in the study because of a delay in informed consent from Alex. Data collection for Heather and Alex began after consent was obtained on Day 9 of data collection. Later in the semester, the postsecondary teachers collaboratively decided that José needed individualized support after noticing an increase in challenging behavior. Data collection for Sofia and José began on Day 17.

Once informed consent was obtained, the researcher completed a FBA and developed a FBIP for each student. Intervention elements of each students' behavior plan were used to develop a checklist to assess peer mentors' implementation fidelity. Baseline data were collected on peer mentors' implementation fidelity of the students' behavior plans prior to receiving any training (A). Following baseline, the researcher trained each peer mentor on how to implement the FBIP components for the student they supported (B). If peer mentors did not reach the completion criteria of three consecutive sessions of 90% fidelity or higher after the initial training, the researcher coached the peer mentors (C). The researcher continued to coach the peer mentors until they reached the completion criteria (C'). Peer mentors transitioned to maintenance conditions when they met the completion criteria and remained there until the end of the academic semester.

### ***Function-Based Intervention Plan***

The researcher conducted a FBA for each student to identify their challenging behavior and determine its function(s). Each students' postsecondary teacher and supporting peer mentor were interviewed using the *Preliminary Functional Assessment Survey* (Dunlap et al., 1993). The

survey included questions about the student's behaviors and possible alternative causes (e.g., hunger), reinforcers, antecedents, and consequences. Students were observed three times for a minimum of 15 min in the environment in which the challenging behavior was most likely to occur. Data were collected on the antecedents and consequences for each occurrence of the identified behavior(s). Descriptive data were entered into the *Function Matrix* (Umbreit et al., 2007) to determine whether each student engaged in the behavior to access or escape attention, tangibles, or sensory stimuli.

An intervention plan was developed for each dyad using on the *Function-Based Intervention Decision Model* (Umbreit et al., 2007) All interventions included (a) adjusting the antecedent conditions to set the occasion for the target behavior to be eliminated and to increase the likelihood that the replacement behavior would occur, (b) providing positive reinforcement for the replacement behavior, and (c) withholding the consequence that previously reinforced the target behavior (Umbreit et al., 2007).

**Jane and Zander.** Zander's target behavior was off-task behavior, defined as engaging in tasks other than his assigned internship tasks. Off-task behaviors included walking or running away from his work area, standing in a corner, sitting away from his work area, lying on the floor, and going into the bathroom for more than five minutes at a time. The function of Zander's off-task behavior was to escape non-preferred activities at the warehouse. The replacement behavior, on-task behavior, was defined as engaging in assigned internship tasks, specifically, putting away boxes and drinks, stocking shelves, and unpacking groceries.

As part of the intervention, a visual schedule was developed using a three-ring binder and laminated cards with text and pictures, each representing a task (e.g., "Go to work," "Restock drinks"). Zander's schedule was assembled by securing the appropriate task cards to the front of

the folder in order. Extra task cards were kept inside the folder. A small white board and dry erase marker, and GymBoss Interval Timer and Stopwatch were secured inside the folder. Zander's function-based intervention elements are presented in Table 3 – Jane's Fidelity Checklist.

**Heather and Alex.** Alex's target behavior was self-injurious behavior (SIB), defined as hitting both of his closed fists to his head repeatedly. Alex's SIB occurred in response to the presence of specific students in the postsecondary program and children. He demonstrated this behavior to access attention from the peer mentor to inform her that he wanted the student or child to leave the area. Alex's replacement behavior was pointing to or reading from a visual and text communication card or using verbal speech to express his feelings or wants.

Alex's expressive speech was limited, and he did not have a tangible communication system. An individualized communication card with "wants" (e.g., high-five, deep breaths, listen to music) on one side and "feelings" (e.g., happy, confused, mad) on the other was developed to help Alex express himself. The card was laminated and had velcro to secure it to the back of his cell phone, which was in his pocket for easy accessibility. An extra communication card was in his backpack, and one was given to Heather. Alex's intervention elements are described in Table 3 – Heather's Fidelity Checklist.

**Sofia and José.** José's target behaviors were socially inappropriate behaviors, which included yelling or singing loudly to his music, repeating the same word or phrase multiple times in a row, and walking or running after individuals to engage in conversation. The function of José's behaviors was to access attention from individuals in the environment. The replacement behaviors were socially appropriate behaviors, which included speaking or singing in a volume-appropriate voice for the environment, stating words and phrases once, and waving at people.

Four text and visual social stories were developed: “I talk in a quiet voice,” “I sing in a whisper,” “I say things one time,” and “I wave at people, not run.” Each story targeted a specific socially inappropriate behavior, identified the feelings of José or other people, and provided a replacement behavior. The set of social stories were printed, kept in sheet protectors, and secured together. José and Sofia’s each had a set of the four social stories in their backpacks. José’s intervention elements are described in Table 3 – Sofia’s Fidelity Checklist.

### **Data Collection and Analysis**

Opportunities for data collection for Jane and Zander occurred on Mondays, Wednesdays, and Friday. Data collection for Heather and Alex occurred on Mondays and Wednesdays. Data collection for Sofia and José occurred on Mondays, Tuesdays, and Thursdays.

### ***Peer Mentor Implementation Fidelity***

The fidelity checklists are presented in Table 3. The checklist for Jane had nine elements; the checklists for Heather and Sofia each had seven elements. Each element on each fidelity checklist was measured for accuracy using a 0-4 Likert scale (0 = not implemented, 4 = implemented with 100% accuracy). Descriptive anchors were provided for scores of zero, two, and four to increase consistency and interobserver agreement. Not all fidelity checklist elements occurred in every observation. The elements that did not occur were not scored and not included as part of the total possible points for that observation. Fidelity was calculated by summing the earned scores of each applicable element and dividing by the total possible points and multiplying that result by 100% to yield a percentage. Results were graphically displayed for visual analysis to consider level, trend, variability, immediacy of effect, and overlapping data in determining whether a functional relation existed. Means and standard deviations were also calculated across study conditions.

### ***Student Behavior***

Whole-interval recording was used to track Zander's on-task behavior. An occurrence was recorded if he was on-task for the entire 30-s interval, and a non-occurrence was recorded if he was off-task at any point within the interval. Data were analyzed by calculating the percentage of intervals on-task divided by the total number of intervals (Kazdin, 2011). Means and ranges were then calculated across study conditions.

For Alex, frequency recording was used to track each occurrence of SIB and each use of the communication card or verbal speech. An occurrence was recorded if there was an opportunity (e.g., a child came into the environment) and either the target behavior or replacement behaviors occurred. Data were analyzed by counting the total number of occurrences of the target and replacement behaviors in each 15-min session. Means were also calculated across study conditions.

Partial interval recording was used to track the occurrence or non-occurrence of José's socially appropriate and inappropriate behavior. Observations lasted 15 min and each interval lasted 30-s. If the target or replacement behavior did not occur within the interval, the interval was not included in calculating his percentage of appropriate behavior. Data were analyzed by calculating the total number of intervals for each of the appropriate and inappropriate behaviors, divided by the total number of intervals in which he demonstrated those behaviors. Means and ranges were then calculated across study conditions.

### **Study Conditions**

This study was conducted over the course of 13 weeks and included 33 days of data collection. During that time, peer mentors were exposed to the following conditions: baseline, training, coaching, and maintenance.

***Baseline (A)***

Peer mentors had no prior knowledge of the intervention elements during baseline conditions; they provided support as usual. Baseline lasted five days for Jane, three for Heather, and four for Sofia.

***Training (B)***

The researcher met with each peer mentor after baseline to train them on how to implement the student's FBIP elements. The training protocol incorporated effective training elements identified by Brock and Carter (2013) and Darch et al. (2014). The researcher (a) described each behavior intervention element, (b) explained what was expected of the peer mentor and their role in the intervention, (c) explained why the intervention was chosen for the student based on the function of their behavior, (d) explained how the intervention would help the student immediately and in the future, (e) modeled the intervention through role-play, (f) had the peer mentor role-play the intervention, and (g) asked them if they had questions. Each training session lasted 30-60 min. Data were collected on the peer mentors' fidelity following the training until a stable pattern emerged through visual analysis of graphed data. None of the mentors reached the completion criteria, so all peer mentors transitioned to coaching conditions.

***Coaching (C-C')***

The same researcher coached the peer mentors on their implementation of specific intervention elements. The researcher selected the two to three intervention elements from the peer mentor fidelity checklists that had the lowest accumulative Likert ratings during training conditions. The coaching protocol incorporated effective coaching elements to support implementation of evidence-based practices identified by Snyder et al. (2015). The researcher (a) asked open-ended, reflective question(s) about the peer mentors' implementation, (b) provided

positive feedback on specific examples of correct implementation, (c) offered specific constructive feedback on peer mentors' implementation, (d) suggested two to three areas of improvement, (e) role-played or video modeled the correct implementation of selected areas of improvement, (f) offered specific suggestions for each area of improvement, and (g) asked if the mentor had any questions.

The researcher used video recordings of the peer mentors implementing the intervention elements with students as examples for the coaching. The researcher first showed peer mentors at least one video recording from training conditions of them correctly implementing intervention element(s) and explained specifically what they did well. Then, the researcher showed peer mentors a video recording of them incorrectly implementing intervention element(s). Together, they discussed why it was incorrect and what they should do instead. Coaching sessions lasted between 30-60 min. Data were collected on the peer mentor's fidelity until a stable pattern emerged through visual analysis of graphed data. Jane reached completion criteria after receiving two coaching sessions. The second coaching session followed the same protocol described above but was individualized based on their performance during the prior coaching condition. The areas of improvement targeted the two intervention elements that had the lowest accumulative Likert ratings during the first coaching condition. Heather and Sofia reached completion criteria after receiving one coaching session.

### ***Maintenance***

Once peer mentors reached completion criteria, they transitioned to maintenance conditions where they no longer received coaching. Maintenance data were taken once per week until the end of the academic semester. Maintenance data were taken on two days for Jane and Heather, and on one day for Sofia.



## **Procedural Fidelity and Interobserver Agreement**

A training checklist and a coaching checklist were developed that included the seven protocol components described above. All sessions were video recorded and viewed by a second researcher who assessed the researcher's fidelity in providing training or coaching. The researcher followed the Training Checklist and Coaching Checklist during all sessions with 100% accuracy.

A second researcher collected interobserver agreement (IOA) data on peer mentors' fidelity and students' behavior for at least 33% of sessions in each study condition. IOA for peer mentor fidelity was assessed for each intervention element on the peer mentors' fidelity checklist. An agreement was counted when the researchers scored the peer mentor within one point on the 0-4 Likert scale. Agreement was calculated by dividing the number of agreements by the total number of elements (seven or nine), then multiplying the result by 100%. During baseline conditions, IOA averaged 100% for Jane, 66.7% for Heather, and 85% for Sofia. During training conditions, IOA averaged 100% for Jane, 91.65% for Heather, and 94.65% for Sofia. During the first coaching conditions, IOA averaged 100% for Jane and Heather, and 94.45% for Sofia. During the second coaching condition for Jane, IOA averaged 100%. Finally, during maintenance conditions, IOA averaged 100% for Jane and Heather, and 96.7% for Sofia.

Student behavior IOA occurred when the researchers recorded identical occurrence or nonoccurrence. The level of agreement was calculated by dividing the number of agreements by the total number of opportunities for Alex, or intervals for José and Zander, and then multiplying the result by 100% (Kazdin, 2011). During baseline conditions, IOA averaged 100% for Zander, Alex, and José. During training conditions, IOA again averaged 100% for Zander, Alex, and José. During the first coaching condition, IOA averaged 96.7% for Zander, 100% for Alex, and

83.35% for José. IOA averaged 100% for Zander during the second coaching condition. During maintenance condition, IOA averaged 100% for Zander and Alex, and 75% for José.

### **Social Validity**

Social validity data on the interventions were collected from each students' primary postsecondary education teacher and participating peer mentor. An adapted version of the Intervention Rating Profile - 15 was used (Martens & Witt, 1982). & The intent of all 15 questions remained; however, the wording of some questions was adjusted to reflect the students (e.g., replaced "child" with "individual") and setting (e.g., replaced "classroom" with "university"). Each question was rated using a Likert scale (1-Strongly Disagree; 5 -Strongly Agree), which produced a score out of 75 possible points. The rating profile included questions about the social acceptability and appropriateness of the intervention, and if it was warranted and effective (Martens & Witt, 1982).

### **Results**

This study explored the impact of training and coaching on three peer mentors' fidelity in implementing student behavior support plans. Data are presented in Figure 1. Changes in both level and trend of peer mentor implementation fidelity occurred immediately following the training and coaching conditions. More variability existed during training conditions compared to subsequent coaching conditions. Variability decreased for all peer mentors during the first coaching condition. No overlapping data existed across conditions for Heather and Sofia. Jane had two overlapping data points between training and the first coaching condition.

Jane's mean implementation fidelity during baseline was 16.72% ( $SD = 6.78$ ). After training, Jane's mean fidelity increased to 68.75% ( $SD = 15.25$ ). After the first coaching session, her mean fidelity increased to 83.33% ( $SD = 7.43$ ). After the second coaching session, Jane's

mean fidelity increased further to 97.6% ( $SD = 2.08$ ). Jane's fidelity was 100% ( $SD = 0$ ) during two maintenance days.

Heather's mean implementation fidelity during baseline was 13.87% ( $SD = 9.64$ ). After receiving training, her fidelity increased to a mean of 84.18% ( $SD = 5.43$ ). Heather's mean fidelity increased to 98.33% ( $SD = 2.89$ ) after coaching. Fidelity remained high at 97.5% ( $SD = 3.54$ ) during two maintenance days.

Sofia's mean implementation fidelity during baseline was 24.83% ( $SD = 3.8$ ). After training, her fidelity increased to a mean of 68.33% ( $SD = 12.26$ ). After coaching, Sofia's fidelity increased further to a mean of 94.38% ( $SD = 6.57$ ). Sofia's fidelity remained high at 93.8% during one maintenance day.

Student behavior was also measured as a corresponding outcome. Zander went from an average of 20% on-task behavior (range = 0-40%) during baseline to an average of 73.88% (range = 53.3-88.9%) during training. During the first coaching condition, his on-task behavior averaged 56.1% (range = 30-75%) and increased to 78.6% (range = 66.7-96.7%) during the second coaching. Zander's on-task behavior averaged 95% (range = 90-100%) during two maintenance days.

Alex did not demonstrate SIB or the replacement behavior during baseline. Alex demonstrated SIB once during training ( $M = 0.2$ ) and did not use his communication card at all. After the coaching condition, Alex did not engage in SIB, but used his communication card once ( $M = 0.33$ ). During two maintenance days, there were no incidents of SIB, and Alex again used his communication card once.

José went from an average of 61.8% socially appropriate behavior (range = 43.7-80%) during baseline to an average of 91.98% (range = 86.4-95.8%) during training, and 93.65%

(range = 88.2-100%) during coaching. José's socially appropriate behavior was 100% during one maintenance day.

Social validity assessments using the adapted IRP-15 were positive. Zander's teacher (Ms. A) scored a 73 and Jane scored a 71. Alex's teacher (Ms. B) scored a 73 and Heather scored a 73. José's teacher (Ms. C) scored a 73 and Sofia scored a 73.

## **Discussion**

### **Implications**

This study examined the relationship between training and coaching with performance feedback and peer mentors' fidelity in implementing FBIPs for students with autism spectrum disorder and intellectual disability (ASD-ID) participating in an inclusive university-based postsecondary program. This study also tracked student behavior as a corresponding outcome of changes in the levels of implementation fidelity. Each peer mentor immediately increased their level of fidelity after being trained. However, all peer mentors required one or two additional coaching sessions in order to reach completion criteria. Each mentor maintained their implementation level on follow-up. Changes in the levels of implementation fidelity by the peer mentors co-occurred with study conditions. All peer mentors' fidelity increased immediately after being trained and increased further immediately after being coached. Findings suggest a functional relation between study conditions and peer mentor implementation fidelity. This finding is novel for postsecondary peer mentors but is consistent with prior research suggesting that, with training, teachers (e.g., Wood et al., 2011) and paraeducators (e.g., Walker & Snell, 2017) can effectively implement students' function-based intervention plans.

Variability in peer mentors' implementation fidelity occurred during the training conditions and decreased during the first coaching conditions. It is likely that peer mentors

needed to be trained on how to implement behavior plans on more than one occasion and possibly through multiple means (e.g., video self-evaluation). These findings support prior research suggesting that coaching with performance feedback is an effective professional development approach to increase educator's fidelity at implementing student behavior plans (Fallon et al., 2015).

All of the peer mentors needed coaching to implement students' behavior plans at a high level of fidelity. Jane needed two coaching sessions to reach completion criteria, whereas Heather and Sofia needed only one. Additional coaching for Jane may have been needed because of the complexity of Zander's behavior plan. Jane's fidelity checklist had nine elements compared to seven for Heather and Sofia. In this regard, it should be noted that the overall amount of training and coaching required for each peer mentor was minimal, especially considering the dramatic improvement seen in their levels of fidelity.

Student behavior was simultaneously measured as a corresponding outcome. Across study conditions, Zander and José's behavior improved as Jane and Sofia's level of implementation fidelity increased. These findings parallel previous research that found when effective interventions are implemented, there is a direct relationship between high implementation fidelity and improvement in student behavior (Cook et al., 2012).

The relationship between Alex's behavior and Heather's increased fidelity was not as clear, likely because Alex's SIB was infrequent and occurred only if a trigger happened to be present in the immediate environment. Even so, Alex's began to use the communication card after training and in subsequent study conditions.

### **Limitations**

Certain limitations should be noted. A nonconcurrent multiple baseline design was necessary because of delays in teacher referral and in obtaining informed consent from guardians and students. Although not as strong as concurrent designs, researchers have argued that nonconcurrent designs are legitimate (Harvey et al., 2004; Kennedy, 2005). Additional support derives from the substantial and immediate change in peer mentors' fidelity between baseline and intervention conditions. Heather and Sofia had no overlapping data points between baseline and intervention; Jane had only two between training and the first coaching condition.

A second limitation is that Alex did not demonstrate SIB during baseline. However, he also did not demonstrate the replacement behavior during baseline. Reports from postsecondary teachers clearly justified the need for Alex to receive individualized behavioral support. Student behavior was tracked as a corresponding outcome in this study and was not considered when making decisions to transition between study conditions. The research team did, however, deem it unethical to withhold intervention longer than three days during baseline because of the nature of Alex's behavior and the potential harm to Heather.

Maintenance data were collected for only one-to-two weeks because of the end of the academic year. Future research should extend over longer periods to determine whether additional coaching is needed to maintain high fidelity long-term. Generalization of fidelity across settings and to other students was not assessed due to the necessary individualization of each behavior plan. Future research should assess peer mentor's ability to generalize a student's behavior plan across settings when the behavioral function is the same. Finally, future studies should remove the researcher from the role of trainer and coach, and instead address the development of a sustainable model in which postsecondary teachers can provide the training for peer mentors to support students in higher education.

**Table 1*****Peer Mentor Demographic Data***

Name	Age	Gender	Ethnicity	Race	Study Year	Major	PM	Years with People with Disabilities
Heather	21	F	Not Latinx	White	Junior	Educ	1	6
Sofia	20	F	Not Latinx	White	Junior	Educ	3	2
Jane	20	F	Not Latinx	White	Junior	Educ	0.5	9

*Note.* PM= Peer Mentor; Educ= Education.

**Table 2*****Student Demographic Data***

Name	Age	Gender	Ethnicity	Race	Year in Program	Disability Category	ID – Alter. Assessment
Alex	19	M	Latinx	Multi	1 <sup>st</sup>	ASD	Yes
José	21	M	Latinx	White	1 <sup>st</sup>	ASD	Yes
Zander	19	M	Not Latinx	White	2 <sup>nd</sup>	ASD	Yes

*Note.* ASD= Autism Spectrum Disorder; ID= Intellectual Disability.

**Table 3*****Peer Mentors' Fidelity Checklists***

Jane's Fidelity Checklist
<ol style="list-style-type: none"> <li>1. Arrival: Prompt student to take out and assemble schedule.</li> <li>2. Start Internship: Continue demand to select one snack and give folder to supervisor. Ensure there are "break" cards after each task and "done" card at the end of schedule.</li> <li>3. Bathroom: Continue demand for student to get access card and start timer. Prompt student to transition after timer goes off.</li> <li>4. Breaks: Continue demand for student to set timer (5 minutes) and get part of snack. Continue demand to transition after timer goes off.</li> <li>5. On Task: Provide verbal praise or a high five at each natural pause within task.</li> <li>6. On Task: Break down activity into smaller tasks.</li> <li>7. Off Task: Reference visual schedule, provide simple verbal cues, and/or write simple text on the whiteboard to continue demand to work.</li> <li>8. Off Task: Withhold touch and praise.</li> <li>9. End: Remind student to get remaining snack and drink when tasks are complete.</li> </ol>
Heather's Fidelity Checklist
<ol style="list-style-type: none"> <li>1. Arrival: Prompt student to select a seat far from trigger students and children.</li> <li>2. Engagement: Engage in conversation at least once every 2 min.</li> <li>3. Choices: Offer choices of activities to do together or independently each time student stops engaging in an activity.</li> <li>4. Triggers: Ask student how he is feeling or what he needs if (a) he shows signs of frustration (staring at trigger) or (b) the trigger students or children come into the environment.</li> <li>5. Card or Verbal Speech: Verbally acknowledge communication. Follow through if student makes a request and conditions allow.</li> <li>6. Target Behavior: Withhold verbal speech and eye contact. Provides a gestural cue to use card.</li> <li>7. Teach Behavior: Acknowledge that student's behavior is to express how he feels but is not a good way to express oneself. Instead, prompt student to use card or speak to express himself and explain how to use card. Read card and talk about what words mean.</li> </ol>
Sofia's Fidelity Checklist
<ol style="list-style-type: none"> <li>1. Review: Upon arrival or prior to an activity occurring, review applicable social story with student.</li> <li>2. Intermittent Reinforcement: Engage in conversation at least once every 2 min when student is appropriate.</li> <li>3. Appropriate talk with the PM: Provide attention and social interaction with the student.</li> <li>4. Appropriate talk with Others: Praise and identify specific social element done correctly.</li> </ol>



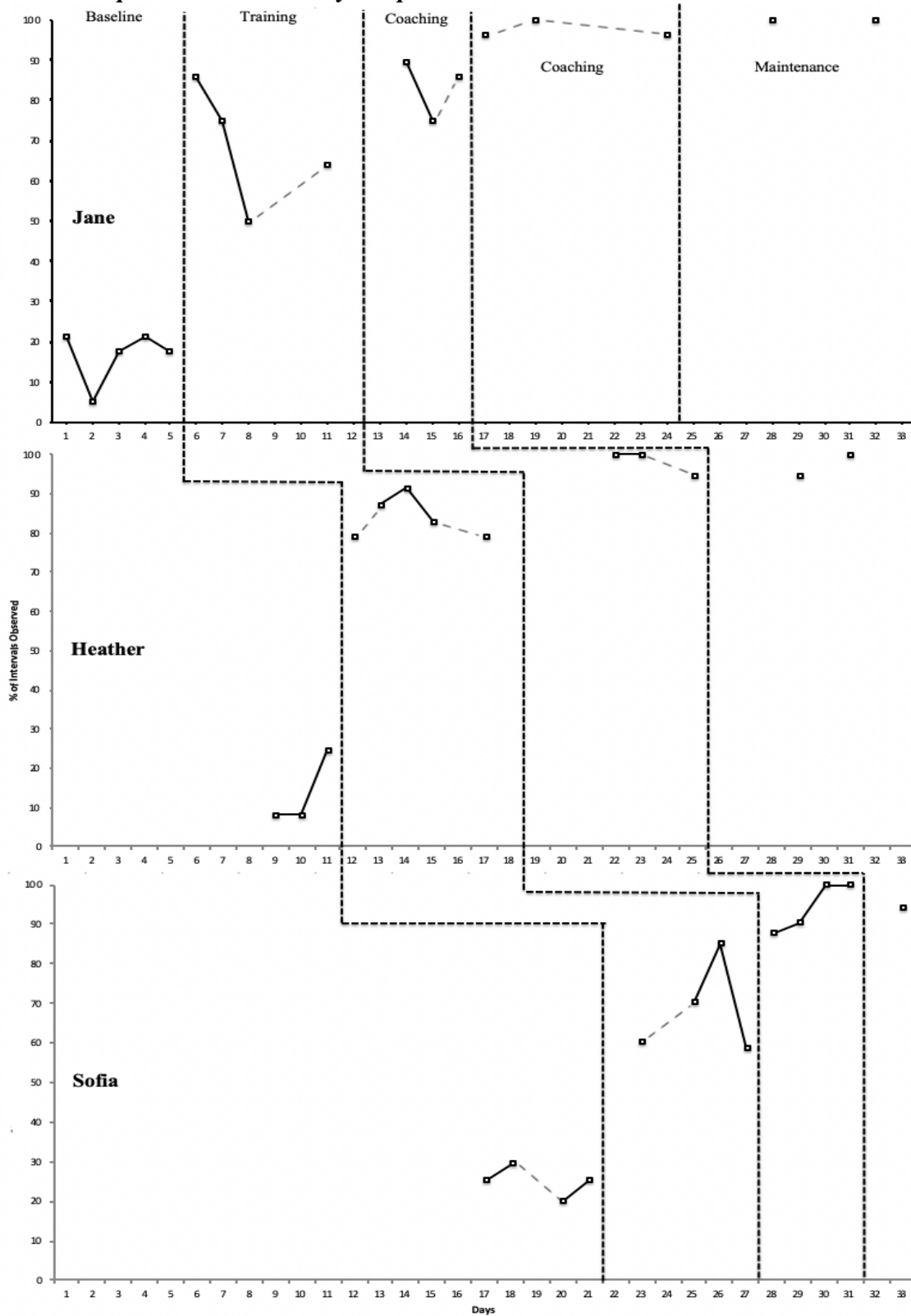
5. Inappropriate with the PM: Ignore target behavior. Provide as little attention as possible; identify appropriate behavior.

6. Inappropriate with Others: As soon as possible, prompt student to identify appropriate behavior and what he should do instead.

7. Loud Speech to Self: Provide as little verbal speech and attention as possible (e.g., gesture); identify appropriate behavior.

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**Figure 1**  
*Peer Mentor Implementation Fidelity Graph*



*Note.* This figure illustrates each peer mentor’s implementation fidelity by conditions.

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APPENDIX B:  
POSTSECONDARY PEER MENTORSHIP: EFFECTS OF TRAINING AND COACHING  
ON FIDELITY AND GENERALIZATION



**Postsecondary peer mentorship: Effects of training and coaching on fidelity and  
generalization**

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### **Abstract**

Peer mentors are natural supports for students with intellectual disabilities who attend postsecondary education programs. A single-subject multiple baseline design was used to examine the relationship between training and coaching with performance feedback and a peer mentor's implementation fidelity and generalization of a student's function-based intervention plan across settings. The peer mentor's implementation fidelity immediately improved in all settings after being trained and further improved in each setting following the coaching specific to that setting. The peer mentor generalized skills taught during coaching to two of the three settings. There was a functional relation between the peer mentor's fidelity and student's on-task behavior in two of the three settings.

## **Postsecondary Peer Mentorship: Effects of Training and Coaching on Fidelity and Generalization**

The Higher Education Opportunity Act of 2008 (P.L. 110-315) ignited the development of programs that made higher education accessible for students with intellectual disabilities (ID) in over 300 college and university programs across the United States. Students with ID can attain academic and social success in higher education when provided appropriate supports and high expectations (Uditsky & Hughson, 2012). Further, participation in postsecondary education leads to improved long-term outcomes, such as obtaining competitive employment and increasing self-determination (Moore & Schelling, 2018; Smith et al., 2018).

Same-aged peer mentors most often support students with ID in postsecondary education programs (e.g., Christopher-Allen et al., 2017). Peer mentors are typically undergraduate students from various academic disciplines and levels of experience (Carter et al., 2019). They support students with ID to participate in academic classes and complete assignments, socialize with their peers, navigate the campus, and develop work skills (Kleinert et al., 2012). However, little is known about how much or what kind of training they need to implement and generalize student supports. Many postsecondary programs provide an initial orientation but little or no follow-up training (e.g., Griffin et al., 2016; Jones & Goble, 2012). Peer mentors report needing further training, particularly to support students with ID to improve their social skills and increase their appropriate behavior (Giust & Valle-Riestra, 2017).

Functional behavior assessment is an evidence-based practice that guides the development of a function-based intervention plan (FBIP). When effective FBIPs are implemented, there is a direct relationship between high implementation fidelity, or the degree that an intervention is implemented as intended (Breitenstein et al., 2010), and improvement in

student behavior (Cook et al., 2012). Lansey et al., (in press) examined the relationship between training and coaching with performance feedback and postsecondary peer mentors' implementation fidelity of FBIPs for students with ID and autism spectrum disorder. The authors' trained peer mentors using behavior skills training (Parsons et al., 2012) during which they (a) described the FBIP, explained why it was important and when each element of the FBIP should be used, (b) modeled the correct implementation of the FBIP, (c) provided opportunities for the peer mentors to practice implementing the FBIP, and (d) provided follow-up coaching sessions where peer mentors received performance feedback on their implementation of the FBIP. Results revealed that peer mentors' fidelity of students' FBIP immediately improved after the initial training and increased even further after being coached. Between one and two coaching sessions with performance feedback were needed for peer mentors to reach consistently high levels of fidelity.

Coaching is intended to be interactive and reflective, where a coach provides feedback that supports and encourages an educator to self-assess and adjust their implementation (Winton et al., 2008). Performance feedback is often provided during follow-up coaching sessions where the coach provides specific positive and constructive feedback on an educator's implementation. Performance feedback is an evidence-based practice for increasing an educators' implementation fidelity of supports (Fallon et al., 2015). In addition to performance feedback, coaching may include open-ended, reflective questions about the educator's implementation, collaborative identification of specific areas of improvement, and modeling of the correct implementation of supports (Snyder et al., 2015).

Performance feedback has also been effective at fostering educators' generalization of support strategies across different environments, students, times, and situations (Stokes & Osnes,

1989). Although researchers have explored the generalization of educators' fidelity when implementing behavior plans (e.g., Duncan et al., 2013; Coffee & Kratochwill, 2013; Riley-Tillman & Eckert, 2001), only one study has incorporated performance feedback into the training. Mouzakitis, Coddling, and Tryon (2015) found that written performance feedback added to teacher's self-monitoring was required to achieve and maintain high fidelity of student behavior plans for three of four participating teachers. All four teachers also generalized implementation fidelity from one student's behavior plan to a second student with a similar behavior plan while self-monitoring and, for three participants, receiving written performance feedback. Furthermore, as all four teacher's implementation fidelity increased for the first student, it also increased for the second student (Mouzakitis et al., 2015).

Performance feedback as a means to increase generalization of implementation fidelity is likely to also be beneficial to postsecondary peer mentors. However, it remains unknown whether postsecondary peer mentors can generalize student supports across settings, students, or stimulus conditions. Understanding what kind and how much training is needed for peer mentors to generalize student supports is essential for program efficiency (e.g., decreased need to train across environments), and peer mentor and student success.

The purpose of this study was to examine the relationship between an initial training and subsequent setting-specific coaching with performance feedback, and a peer mentor's implementation fidelity and generalization across settings of an FBIP for a student with multiple disabilities participating in an inclusive university-based postsecondary program. This study also tracked the relationship between the peer mentor's implementation fidelity and the student's behavior across settings.

## **Method**

## **Participants**

Participants were one peer mentor and one student with multiple disabilities, including ID. The peer mentor participant, Erin, was a 20-year-old white female. She was in her Junior year of college majoring in Education. Erin had one semester of experience as a peer mentor in the program, three years of experience working with individuals with disabilities as a paid employee, and ten years of experience being personally involved (e.g., friends, family) with individuals with disabilities.

The student participant, Juliana, was an 18-year-old Latina female in her first year of the postsecondary program. Her disability label was multiple disabilities, including moderate intellectual disability, visual impairment, hearing impairment, and speech-language impairment. Juliana was motivated to socialize with her peers and struggled with high demands (e.g., class assignments).

## **Settings**

This study was conducted in an inclusive postsecondary education program housed at a public four-year university. The university has approximately 45,000 students and is located in a mid-sized city in the southwest United States. A total of thirty undergraduate college students serving as peer mentors supported 18 students with ID; they supported these students to attend courses, complete course assignments, and participate in work-based internships and campus life activities. College students interested in being peer mentors were required to submit their resume and interview with postsecondary educators. The postsecondary educators were four certified special or general education teachers working at the university to support the students with ID. Peer mentors had to participate in a full-day orientation where they learned about the program, and concepts and strategies that fostered independence of students in the program including least

dangerous assumption and dignity of risk. During the semester peer mentors received two evaluations from the postsecondary educators. They were also required to complete three online modules during the semester (i.e., core values, roles, and responsibilities, and wait time and prompting hierarchy) and complete corresponding quizzes or discussions.

Eighteen students with ID were enrolled in the postsecondary program: 6 first-year, 11 second-year, and one third-year. Seniors in high school with ID who attended nearby school districts were eligible to apply to the postsecondary program. Accepted students were dually enrolled at their high school and the university as non-degree seeking students. Students in the program were fully included at the university; they audited college courses, participated in internships, and attended campus-life activities.

To recruit a peer mentor participant for this research study, the postsecondary educators first identified a student who demonstrated inappropriate behavior across multiple settings and would benefit from individualized support. After obtaining signed consent for the student to participate in the study, the postsecondary educators then informed the researcher of the settings in which the student frequently demonstrated inappropriate behaviors and the peer mentor who supported the student during those times. The researcher then contacted the peer mentor and obtained signed consent for their participation in the study.

The researcher collected data on the peer mentor fidelity and student behavior across three settings: Vocabulary, Class, and Internship Transition. Vocabulary occurred in a small computer lab with 10 desktop computers that lined two walls of the room, and one 6-person table at the back of the room next to a large whiteboard. Class occurred in a large collaborative learning classroom for 150 students with table groupings for four people. Course content was typically projected on large screens in the middle of the room as well as on TV monitors

throughout the space. Internship Transition occurred when Juliana walked from the computer lab where vocabulary occurred to the bathroom to change her shirt for her internship, and then to her internship. All described locations were in the same building on campus. Each of the peer mentor training and coaching sessions also occurred in a private office in the same building.

### **Design**

An A-B-C-C'-C'' multiple baseline across settings was used to determine the effect of training and coaching on the peer mentor's implementation fidelity and generalization of the student's behavior plan. The student's behavior was tracked simultaneously across the three settings.

Once informed consent was obtained, the researcher completed a comprehensive functional behavior assessment to determine the function of Juliana's behaviors across settings and then developed an FBIP. The intervention elements of Juliana's FBIP were used to develop a checklist to assess the peer mentor's implementation fidelity (Table 1). Baseline data were collected on Erin's implementation fidelity of Juliana's FBIP before receiving any training (A). Following baseline, the researcher trained Erin on how to implement the FBIP components but did not provide guidance as to how to implement the FBIP in specific settings (B). The researcher then coached Erin on how to implement the FBIP in the Vocabulary setting (C), followed by coaching related to the Class setting (C'), and finally coaching related to the Internship Transition setting (C'').

### ***Function-Based Intervention Plan***

The researcher conducted a comprehensive functional behavior assessment to identify Juliana's inappropriate (i.e., target) behaviors and determine their function(s) in each of the settings. The researcher observed Juliana two or three times in each setting for a minimum of 15



minutes per observation. A-B-C (antecedent – behavior – consequence) data were collected during each observation. Three of Juliana’s postsecondary educators were interviewed as well as her peer mentor, Erin, using the *Preliminary Functional Assessment Survey* (Dunlap et al., 1993). The survey included questions about Juliana's behaviors, antecedents, consequences, and reinforcers. Descriptive data from observations and interviews were entered into the *Function Matrix* (Umbreit et al., 2007) to determine if Juliana engaged in the target behaviors to access or escape activities, attention, or sensory stimulation. The function of Juliana’s behaviors were the same across all three settings: to escape non-preferred activities.

Juliana’s target behavior was off-task behavior, defined as engaging in tasks other than her scheduled academic or internship related tasks. Off-task behaviors included walking, running, or sitting away from the work area, using her tablet or phone for non-related tasks, and going to the bathroom for more than 5 minutes. Occasionally Juliana’s behavior escalated to yelling, cursing, and/or pushing peer mentors.

The replacement behavior was on-task behaviors, defined as engaging in academic tasks or internship preparation and transition. For Vocabulary, on-task behavior included writing, typing, drawing, speaking about, watching Erin or watching a video about academic vocabulary. For Class, on-task behavior included listening to (i.e., watching) the speaker, watching projected content (i.e., video, PowerPoint), writing notes or in-class assignments, and talking to peers about content related to the class. For Internship Transition, on-task behavior included walking to the bathroom, taking 5 minutes or less to change into her work shirt, picking up personal belongings from the computer lab, and walking to the internship site.

Using the *Function-Based Intervention Decision Model* (Umbreit et al. 2007) a behavior intervention was developed for Juliana that included three method elements. First environmental

conditions were adjusted to increase the likelihood of on-task behavior and eliminate the likelihood of off-task behavior. In this case, Erin supported Juliana to reference her visual schedule before transitions, allowed Juliana to transition to her internship independently, offered choices instead of direction, adapted course content, and integrated systematic breaks into tasks. Second, positive reinforcement was provided for on-task behavior. In this case, Erin provided verbal praise or a high-five at each step or natural pause when Juliana was on-task. Third, the consequence that previously reinforced off-task behavior was withheld. In this case, Erin ignored Juliana's off-task behavior and immediately and positively redirected to what Juliana should be doing (see details of behavior plan in Table 1; Umbreit et al., 2007). Upon completion, the FBIP was reviewed by a Board Certified Behavior Analyst.

As part of the FBIP Juliana and Erin were each given a tablet. On each tablet was a scheduling app with visuals, voice output, "now" and "then" markers, and the options to check-off activities once completed. The researcher prepared the tablet for Juliana by embedding her schedule in the scheduling app, turned off alerts from all apps except for the scheduling app, removed apps that were known to be used to escape activities, and enlarged the tablet's text.

### **Data Collection and Analysis**

Data was collected over 26 days during one academic semester. Opportunities for data collection occurred on Mondays, Wednesdays, and Fridays. All observations and training and coaching sessions were video recorded.

### ***Peer Mentor Implementation Fidelity***

Using Juliana's FBIP, the researcher created a checklist to track Erin's implementation fidelity of each of eight elements (Table 1) of the plan. Each element on the fidelity checklist was measured for accuracy using a Likert rating scale (0 = not implemented, 4 = implemented

with 100% accuracy). Each element included descriptive anchors for scores zero, two, and four to increase consistency and interobserver agreement. If there was no opportunity for a fidelity checklist element to occur, the element was not scored, nor included in the total possible points for that observation. Erin's implementation fidelity was calculated by summing the scores of all applicable elements, dividing that sum by the total possible points, and multiplying by 100 to yield a percentage (Kazdin, 2011). Means and standard deviations were also calculated across study conditions.

### ***Student Behavior***

Momentary time sampling was used to measure Juliana's on-task behavior. An occurrence was recorded if Juliana was on-task at the end of the 20-second interval. A nonoccurrence was recorded if Juliana was off-task at the end of the 20-second interval. Each observation lasted 10 minutes for a total of 30 intervals. Data were analyzed for each observation by obtaining a percentage of on-task intervals to total intervals (Kazdin, 2011). Means and ranges were then calculated across study conditions.

## **Study Conditions**

### **Baseline (A)**

Erin had no prior knowledge of intervention elements during baseline conditions and provided support as usual. Baseline conditions across all three settings lasted 11 days.

### **Training (B)**

The researcher trained Erin on how to implement the seven elements of Juliana's FBIP. During this initial training, the researcher (a) described each behavior intervention element, (b) explained what was expected of the peer mentor and their role in the intervention, (c) explained why the intervention was chosen for Juliana based on the function of her behaviors, (d) explained

how the intervention would help Juliana immediately and in the future, (e) modeled the intervention through role-play, (f) had the peer mentor role-play the intervention, and (g) asked them if they had questions (Lansey et al., in press). The initial training was intended to mirror an in-service professional development. Broad examples were used to describe how Erin should implement Juliana's FBIP (e.g., "You should acknowledge Juliana's behavior every time she is on-task with a 'good job!' or high-five, for example"). No information was provided to Erin about how she should implement the behavior plan in specific settings. The training session lasted 75 minutes. Following training, data was collected on Erin's fidelity across all three settings until a stable pattern emerged, through visual analysis of graphed data.

Although Erin's implementation fidelity increased during training conditions, Juliana's on-task behavior remained low during the training condition. After consulting a Board Certified Behavior Analyst, the researcher added an eighth element to Juliana's FBIP and Erin's fidelity checklist: "Transitioning Off Device" (Table 1). This element was introduced to Erin during the first coaching session and her fidelity of this element was measured across all coaching conditions.

### **Coaching on Vocabulary (C)**

The researcher randomly selected the order in which each setting-specific coaching condition would occur: Vocabulary, Class, Internship Transition. The researcher adhered to the following coaching protocol: (a) asked open-ended, reflective question(s) about Erin's implementation, (b) provided positive feedback on specific examples of correct implementation, (c) offered specific constructive feedback on Erin's implementation, (d) suggested two areas for improvement, (e) role-played or video modeled the correct implementation of selected areas of

improvement, (f) offered specific suggestions for each area of improvement, and (g) asked if they had any questions (Lansey et al., in press).

During each coaching session, the researcher showed at least one video recording of Erin correctly implementing the intervention with Juliana to provide specific positive feedback. The researcher also showed video recordings of Erin incorrectly implementing the intervention with Juliana to provide specific constructive feedback. The two intervention elements with the lowest accumulative Likert ratings during Vocabulary in the previous training condition were selected for improvement. The selected areas of improvement for coaching on Vocabulary were Element 5: On-Task and Element 7: Off-Task (see Table 1). The researcher provided specific guidance on how Erin should support Juliana with vocabulary, including switching off between vocabulary words and preferred activities, and incorporating Juliana's preferences while doing vocabulary (e.g., video recording herself saying the word and its meaning). Vocabulary coaching lasted 36 minutes.

### **Coaching on Class (C')**

Following Vocabulary, the researcher coached Erin during Class using the same coaching protocol. The researcher showed at least one video recording of Erin correctly implementing the intervention with Juliana to provide specific positive feedback. The researcher also showed video recordings of Erin incorrectly implementing the intervention with Juliana to provide specific constructive feedback. The selected areas of improvement were the two intervention elements with the lowest accumulative fidelity during Class in the previous Vocabulary coaching condition: Element 4: Content and Element 5: On-Task. The researcher provided specific feedback on how Erin should support Juliana during Class, including strategies to adapt the class content and involve the student. The Class coaching session lasted 29 minutes.

### **Coaching on Internship Transition (C’)**

The researcher then coached Erin on her implementation of the intervention during Internship Transition conditions using the same protocol described above. Similar to the previous conditions, the researcher showed video recordings of Erin correctly implementing the intervention with Juliana to provide specific positive feedback. The researcher also showed video recordings of Erin incorrectly implementing the intervention with Juliana to provide specific constructive feedback. The areas of improvement selected based on the lowest accumulative fidelity during Internship Transition in the previous Class coaching condition were Element 7: Off-Task and Element 8: Transitioning Off Device. The researcher provided specific guidance on how Erin should implement the intervention during Internship Transition, including modeling packing up and leaving for work. The Internship Transition coaching session lasted 22 minutes.

### **Procedural Fidelity and Interobserver Agreement**

All training and coaching sessions were video recorded and observed by a second researcher who assessed the primary researcher’s implementation fidelity of the training and coaching protocols described above. The primary researcher implemented the training and each coaching session with 100% accuracy.

A second researcher took interobserver agreement (IOA) data on Erin’s implementation fidelity and Juliana’s behavior for a minimum of 33.3% of sessions in each condition. IOA data for Erin’s implementation fidelity was collected on each applicable element of the fidelity checklist. An agreement was counted when both researchers scored Erin within one point on the 5-point (0-4) Likert scale. The agreement was calculated by dividing the number of researcher agreements by the total number of elements and then multiplying the result by 100 to yield a percentage. If an element did not occur during a session it was not included in the total number

of elements. IOA for Erin's fidelity was 95.88% during baseline (A; 36.51% of sessions), 92.92% during initial training conditions (B; 40.12% of sessions), 95.24% during Vocabulary coaching conditions (C; 33.33% of sessions), 77.5% during Class coaching conditions (C'; 33.33% of sessions), and 100% during Internship Transition coaching conditions (C''; 33.33% of sessions).

Agreement for Juliana's behavior was counted when both researchers marked occurrence or nonoccurrence for the interval. The agreement was calculated by dividing the number of agreements by the total number intervals and then multiplying the result by 100 to yield a percentage. IOA for Juliana's behavior was 96.08% during baseline (A; 36.51% of sessions), 95.83% during initial training conditions (B; 40.12% of sessions), 91.18% during Vocabulary coaching conditions (C; 33.33% of sessions), 91.67% during Class coaching conditions (C'; 33.33% of sessions), and 96.67% during Internship Transition coaching conditions (C''; 33.33% of sessions).

### **Social Validity**

Erin and Juliana's primary postsecondary educator both completed an adapted version of the Intervention Rating Profile – 15 (Martens & Witt, 1982). The survey assessed if the behavior intervention was warranted, effective, and appropriate. Questions were adapted to reflect the age of the participants (e.g., replaced "child" with "person") and the postsecondary setting (e.g., replaced "classroom" with "university"). Erin and the postsecondary educator rated 15 statements using a Likert scale (1-Strongly Disagree; 6 -Strongly Agree) which yielded a score out of 90 possible points.

## **Results**

This study explored the impact of training and coaching on a peer mentor's implementation fidelity of a student's FBIP across three settings, and the corresponding impact on the student's on-task behavior. Data are displayed graphically in Figure 1. Changes in level and trend of Erin's implementation fidelity occurred immediately following the training and the coaching. No overlapping implementation fidelity data existed across baseline and training conditions. Erin had one overlapping data point between training and Vocabulary coaching conditions, two overlapping data points between training and Class coaching conditions, and no overlapping data points between training and Internship Transition coaching conditions.

### **Training**

Following training, Erin's mean implementation across all settings increased from 22.25% (range = 20%-23.7%) during baseline to 47.08% (range = 43.75%-50%) and remained stable.

Juliana's mean on-task behavior across settings during baseline was 12.91% (range = 8.15%-16.65%). Following training, Juliana's mean on-task behavior remained low at 16.11% (range = 6.67%-24.16%) across settings.

### **Vocabulary**

Erin's mean implementation fidelity during the Vocabulary baseline was 23.7% ( $SD = 6.35$ ). During the training condition, Erin's mean implementation fidelity increased to 47.5% ( $SD = 7.39$ ). During the Vocabulary coaching condition, Erin's mean fidelity increased to 63.49% ( $SD = 6.98$ ). Erin's mean implementation fidelity increased further to 84.92% ( $SD = 7.28$ ) during the Class coaching condition. During the Internship Transition coaching condition, Erin's fidelity during Vocabulary increased further to 94.79% ( $SD = 2.08$ ). Erin's implementation fidelity during Vocabulary increased immediately after receiving coaching during Class and Internship



Transition. These results suggest Erin generalized the skills she learned during other setting-specific coaching sessions to the Vocabulary setting.

Juliana's mean on-task behavior during Vocabulary went from 8.15% ( $SD = 9.26\%$ ) during baseline to 17.5% ( $SD = 17.72$ ) during training. During the Vocabulary coaching condition, Juliana's on-task behavior remained low at 16.67% ( $SD = 16.67$ ) but increased to 64.44% ( $SD = 6.32$ ) during the Class coaching condition, and to 80.91% ( $SD = 8.36$ ) during the Internship Transition coaching condition.

### **Class**

Erin's mean implementation fidelity during baseline was 20% ( $SD = 4.08$ ). During the training condition, Erin's mean fidelity increased to 43.75% ( $SD = 4.79$ ). During the Vocabulary coaching condition, her mean fidelity decreased slightly to 39.58% ( $SD = 3.61$ ). Erin's mean implementation fidelity increased slightly during the Class coaching condition to 52.08% ( $SD = 10.63$ ) and remained stable at 53.33% ( $SD = 7.64$ ) during the Internship Transition coaching condition. Erin's implementation fidelity during Class did not increase after receiving Vocabulary or Internship Transition coaching. These results suggest that the skills Erin learned during other setting-specific coaching sessions were not generalized to the Class setting.

Juliana's mean on-task behavior during baseline was 16.65% ( $SD = 6.92$ ) and increased to 24.16% ( $SD = 16.63$ ) during the training condition. Juliana's mean on-task behavior during Class increased to 33.37% ( $SD = 14.56$ ) during the Vocabulary coaching condition and remained similar at 38.89% ( $SD = 24.12$ ) during the Class coaching condition. During the Internship Transition coaching condition, Juliana's mean on-task behavior during Class increased to 46.94% ( $SD = 6.26$ ).

### **Internship Transition**

Erin's mean Internship Transition implementation fidelity during baseline was 23.06% ( $SD = 5.32$ ). During training conditions, Erin's mean fidelity during Internship Transition increased to 50% ( $SD = 5$ ). Erin's mean implementation fidelity during Internship Transition further increased during the Vocabulary coaching condition to 71.13% ( $SD = 0.42$ ). During the Class coaching condition, Erin's fidelity slightly increased to 79.05% ( $SD = 3.66$ ) and remained stable during the Internship Transition coaching condition at 83.89% ( $SD = 0.96$ ). Erin's Internship Transition implementation fidelity increased immediately after receiving Vocabulary and Class coaching. These results suggest that Erin generalized skills learned during other setting-specific coaching sessions to the Internship Transition setting.

Juliana's mean on-task behavior during baseline was 13.94% ( $SD = 5.61$ ) and remained low during the training condition at 6.67% ( $SD = 6.67$ ). During the Vocabulary coaching condition, Juliana's on-task behavior during Internship Transition increased to 52.5% ( $SD = 31.82$ ). During the Class coaching condition, Juliana's mean on-task behavior during Internship Transition decreased to 28.87% ( $SD = 7.68$ ) further decreased during the Internship Transition coaching condition to 17.77% ( $SD = 5.07$ ).

### **Social Validity**

Social validity scores using the Intervention Rating Profile – 15 were positive. Erin scored 83 out of 84 possible points and the postsecondary educator scored 87 out of 90 possible points. Erin wrote "N/A" as a response to one statement which asked if this intervention was consistent with those she had previously used in the university setting. These six points were removed from her total possible points.

### **Discussion**

This study examined the relationship between training and coaching with performance feedback and a peer mentor's implementation fidelity and generalization across settings of an FBIP developed for a student with multiple disabilities attending an inclusive postsecondary education program. This study also tracked the relationship between the peer mentor's fidelity and the student's on-task behavior across settings.

Erin's level of implementation fidelity immediately increased after training in all three study conditions. Her fidelity in each condition increased further following the coaching specific to that condition. Results suggest a functional relationship between training and coaching, and Erin's implementation fidelity. Erin's implementation fidelity increased slightly during training conditions but remained stable around 50% across settings ( $M = 47.08\%$ ; range = 43.75%-50%). Coaching was necessary for Erin to implement Juliana's FBIP at a high level of fidelity. These results are consistent with prior research suggesting that with training and coaching, postsecondary peer mentors can successfully implement students' FBIP with high fidelity (Lansey et al., in press). These findings are also consistent with research suggesting that follow-up coaching is needed to increase educators' and peer mentors' fidelity of implementing students' behavior plans (Fallon et al., 2015; Lansey et al., in press).

Although coaching was setting-specific and focused on different skills, Erin's fidelity immediately increased in the Vocabulary and Internship Transition settings after receiving coaching in other settings. Results suggest that Erin was able to generalize the skills taught during each coaching session to the Vocabulary and Internship Transition settings. These findings imply that some postsecondary peer mentors might only require one to two coaching sessions to implement students' behavior plans with high fidelity across multiple settings.

Erin's fidelity did not increase during Class after receiving coaching during Vocabulary or Internship Transition. During Class, Erin was expected to implement Element 4: Content, which required her to adapt content on-the-spot. Her focus on adapting the class content may have restricted her ability to implement Element 5: On Task (coached during Class and Vocabulary) and Element 7: Off-Task (coaching during Vocabulary and Internship Transition) with consistency. Erin was also expected to implement Element 4: Content during Vocabulary; however, because Juliana ate lunch before Vocabulary, Erin was able to prepare adaptations in advance and consequently focus on responding to Juliana's on- and off-task behavior. Additional coaching in the Class or embedding time for Erin to prepare class adaptations in advance was likely needed to increase her implementation fidelity in this setting.

Juliana's on-task behavior was simultaneously measured across study conditions. As Erin's fidelity increased across study conditions in Vocabulary and Class settings, so did Juliana's on-task behavior. These findings are consistent with prior research that found when postsecondary peer mentors implement effective interventions with high fidelity, students' behavior also improves (Lansey et al., in press). Juliana's on-task behavior improved only slightly in the Internship Transition setting as Erin's fidelity increased across conditions. A competing contingency of socializing with friends likely existed during the Internship Transition setting. Although Juliana's on-task behavior to change for work improved as Erin's fidelity increased, Juliana refused to transition to work after changing to socialize in the computer lab with friends who consistently arrived at that time.

### **Limitations**

The FBIP did not address Juliana's competing contingency of socializing with friends in the computer lab prior to her transition to Internship Transition. This competing contingency

likely caused Juliana's on-task behavior to remain low during her transition to Internship Transition, as Erin's implementation fidelity increased. Adjustments to the FBIP, such as systematic breaks to socialize with friends during Juliana's Internship Transition, should have been made to improve Juliana's on-task behavior in this condition.

A second limitation is that this study was conducted with only one peer mentor-student pair. Evidence of functional relations would have been stronger if demonstrated across multiple peer mentor-student pairs. The researcher was replicating study conditions with a second peer-mentor-student pair in the subsequent academic semester; however, this study ended due to the university's closure because of COVID-19.

A third limitation is that social validity data were not collected from Erin on the acceptability and effectiveness of the researcher training and coaching protocols to improve implementation fidelity. Social validity assessment of training methods would allow trainers to select procedures that trainees favor and, in turn, are more likely to result in higher trainee implementation fidelity (Strohmeier et al., 2014).

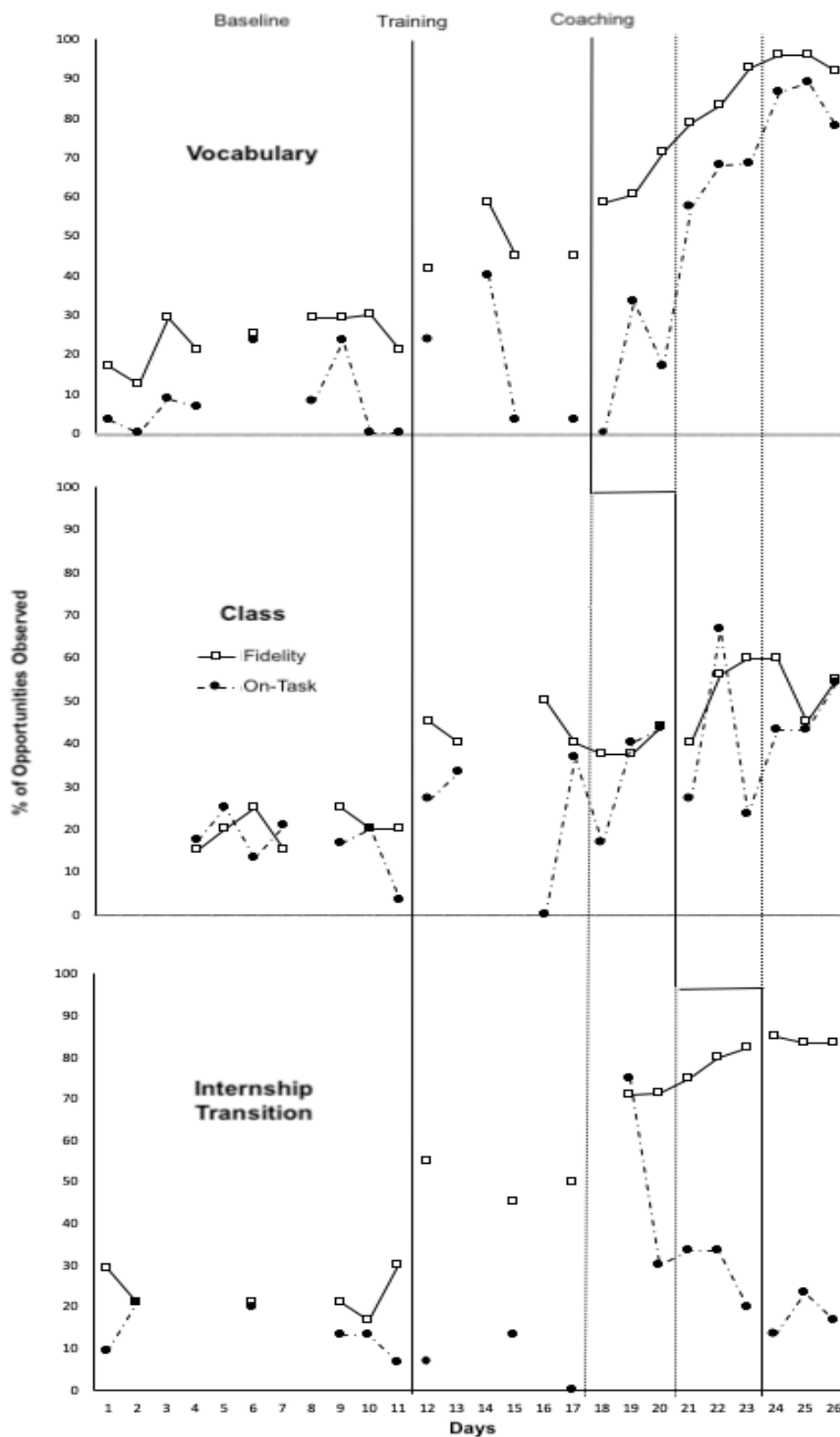
**Table 1*****Peer Mentor's Implementation Fidelity Checklist***


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Erin's Fidelity Checklist
<ol style="list-style-type: none"> <li>1. Transitions: Before each transition, the student references her schedule.</li> <li>2. Independence: Allows the student to be completely independent in changing for work and walking to work.</li> <li>3. Choices: Provide choices instead of direction.</li> <li>4. Content: a) focus on 1-2 topics or words; b) use strategies such as audio recording, images, and videos, writing or drawing, and sorting; c) referencing background knowledge, d) systematic breaks (switching between non-preferred and preferred activities).</li> <li>5. On-Task: Each step / natural pause provide praise (e.g., high-five, "nice work!")</li> <li>6. Off-Task: Ignore / don't acknowledge the off-task behavior.</li> <li>7. Off-Task: Immediately and positively continue the demand of being on-task by redirecting to what the student should be doing.</li> <li>8. Transition Off Device: If the student is on a device when supposed to be on-task:               <ul style="list-style-type: none"> <li>• "If you ____ (e.g., do one vocab word), then you can use device afterward"</li> <li>• Provide choices of where to put away the device</li> <li>• Provide 30 seconds of wait time</li> </ul> </li> </ol>
<p><i>Continue if the student does not choose to put the device away:</i></p> <ul style="list-style-type: none"> <li>• Provide choices again AND state the consequence of having to give the device to a postsecondary educator for the rest of day if the student does not choose</li> <li>• Provide 30 seconds of wait time</li> </ul>
<p><i>Continue if the student does not choose to put the device away:</i></p> <ul style="list-style-type: none"> <li>• Group text staff with the device (e.g., "phone") and your location.</li> </ul>

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**Figure 1**  
**Peer Mentor Implementation Fidelity and Student Behavior Graph**



*Note.* This figure illustrates Erin's fidelity and Juliana's on-task behavior by conditions.

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APPENDIX C:  
POSTSECONDARY EXPERIENCES AND SUPPORTS THAT ADVANCE GOALS OF  
STUDENTS WITH INTELLECTUAL AND DEVELOPMENTAL DISABILITIES

**Postsecondary experiences and supports that advance goals of students with intellectual  
and developmental disabilities**

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### **Abstract**

Inclusive postsecondary education (PSE) programs at institutions of higher education are emerging as opportunities for individuals with intellectual and developmental disabilities (IDD) to progress towards their personal goals. The purpose of this qualitative study was to understand the PSE experiences and supports that current and recently graduated students with IDD perceive as contributing to their self-directed employment, education, and social goals. Further, this study explored how students perceive PSE has affected achievement of their goals and impacted their future. Findings from interviews with 10 students with IDD revealed that internship experiences were essential to progress towards their employment goals. Internships allowed students to learn work skills and identify preferences, resulting in many students adjusting their employment goals. Peer mentor support was important for progression towards all goal areas. Students relayed that continuing to learn and developing friendships in PSE changed their future. Implications for research and practice and study limitations are described.

## **Postsecondary Experiences and Supports that Advance Goals of Students with Intellectual and Developmental Disabilities**

Inclusive postsecondary education (PSE) programs for young adults with intellectual and developmental disabilities (IDD) have emerged at institutions of higher education across the nation. Students in PSE programs obtain real-life experiences to live independently, gain skills to be competitively employed, and learn in their communities (Grigal & Hart, 2010). Enrollment in PSE programs is associated with positive long-term outcomes such as increased employment and starting salaries, and self-determination (Smith et al., 2018; Grigal & Hart, 2010).

Self-determined people act as causal agents in their lives by taking actions that are aligned with freely chosen goals (Shogren, Wehmeyer, Palmer, Forber-Pratt, et al., 2015). Self-determination is essential for success in PSE for students with disabilities (Shogren & Shaw, 2016). Guidance given to PSE programs identifies self-determination as a primary focus (Grigal et al., 2012) and emphasizes the importance of student involvement in, and control over, the development of self-directed goals related to course selection, employment, and social experiences (Shogren et al., 2018). Developing and working toward goals increases self-determination skills of individuals with IDD, which contributes to improved outcomes such as competitive employment, community integration, and increased quality of life (Shogren, Wehmeyer, Palmer, Rifenbark, et al., 2015; Wehmeyer et al., 2003). National standards for PSE programs also emphasize the importance of students with IDD developing goals that support their desired educational and employment outcomes (e.g., National Alliance for Secondary Education and Transition Standards, 2005; Grigal et al., 2011). Self-directed goals should guide students' college coursework, employment and social experiences.

Although guidance and national standards exist, there has been minimal research that explores the experiences of students with IDD in PSE programs (Grigal et al., 2012). Further, students with intellectual disabilities (ID) are largely excluded from national surveys of college students (Paiewonsky, 2011) and college students with disabilities (Grigal & Hart, 2010). Many individuals with IDD want to participate in research to make a difference and to help others (McDonald et al., 2013); however, few opportunities exist. Excluding individuals with IDD from research likely leads to ineffective interventions, unaddressed barriers, and their self-directed goals being unmet (McDonald & Kidney, 2012). Difficulties with comprehension and communication may be barriers to the inclusion of students with IDD in research. However, an individual's ability or inability to answer for themselves is not permanent, rather it is dependent upon individualized accommodations and context (Claes et al., 2012). To ensure the research process is accessible the researcher must provide individualized supports to each participant.

Three research studies in the United States have explored the perspectives of students with IDD about their experiences in PSE programs (Paiewonsky, 2011; Wilt & Morningstar, 2020; Mock & Love, 2012). Paiewonsky (2011) supported nine students with ID to conduct participatory action research. Students collected videos and images to document their experiences in college, and then shared their experiences on VoiceThread. Students also used VoiceThread to discuss and analyze the data they collected. The students described an awareness of how PSE was influencing them personally. They discussed having access to many different classes compared to high school, which allowed them to discover their preferences and strengths. Students had to adjust to the new expectations of college, including being treated like an adult, taking responsibility, and being open to trying new experiences. The group talked about working with educational coaches to support them to acclimate to campus, use transportation, and take



advantage of campus life opportunities (Paiewonsky, 2011). The participants did not explicitly discuss self-directed goals or how their college experiences impacted achievement of their goals.

Wilt and Morningstar (2020) conducted focus groups with five PSE students with ID to better understand how they experienced and perceived supports provided by same-aged college students serving as peer mentors. The authors found that students had limited past experience with peer supports. Students reported that in high school they received academic support from paraeducators, or support was non-existent. Students with ID felt comfortable being supported by peers and found the support helpful and engaging in multiple realms: academic, emotional, informational/feedback, and social. Participants created opportunities during their college experience to support them to achieve their self-directed social goals (Wilt & Morningstar, 2020).

Mock and Love (2012) held four day-long summits in New York to explore statewide policies, practices, and beliefs about PSE for students with ID. The authors invited many stakeholder groups to the summits, including PSE programs, disability agencies, school districts, parent and self-advocacy groups, and colleges in the area. A total of 246 participants attended the four summits, including 24 students with ID. At each summit, the stakeholder groups were separated. Each group was asked to discuss their experiences, interests, and concerns about PSE for students with ID, the information and resources that their group needed about PSE, and the perceived issues for their K-12 colleagues related to inclusive PSE. The students with ID described college as an opportunity to make friends, learn in meaningful ways, make their own choices, and explore careers through classes and internships. The students discussed the need for better preparation in high school to fully participate in college. Specifically, students identified the need to receive more information about college earlier in high school so they could self-

advocate and be better prepared to take college courses. When discussing their PSE experiences, students described how continued learning is important for their self-directed work, relationships, and independent living goals (Mock & Love, 2012).

These studies provide a glimpse into the experiences and perspectives of students with IDD in PSE programs. The participants from one study (Paiewonsky, 2011) did not discuss how their PSE experiences affected the achievement of their self-directed goals. Participants from the other two studies described how peer mentor support (Wilt & Morningstar, 2020) and continued learning (Mock & Love, 2012) were important to achieving their self-directed goals. However, both of these studies had some shortcomings. Wilt and Morningstar (2020) had a small number of participants ( $n=5$ ) and explored student experiences and perceptions of PSE concerning only peer support. Mock and Love (2012) had the largest sample size ( $n=24$ ); however, important student information was absent. The authors did not provide student demographic information, current PSE status, or the supports and accommodations that were provided to participants during the summits. Although the topic of goals naturally arose, students were not explicitly asked about their self-directed goals (Mock & Love, 2012). To date, no study has explored how experiences and support during PSE have affected progress towards the goals of students with IDD.

The purpose of this study is to understand the kinds of PSE experiences and supports that individuals with IDD perceived as contributing towards their self-directed employment, education, and social goals. Further, this study explores how individuals with IDD perceive PSE has affected the achievement of their goals and how PSE has changed their future.

## **Method**

### **Setting and Participants**

After university Institutional Review Board approval, we recruited participants who attended a PSE program for students with IDD housed at a four-year public university in the southwestern United States. The university's enrollment was approximately 47,000 students. The PSE program was fully inclusive and provided students with IDD the opportunity to attend college courses, participate in internships and campus life, and be supported by same-aged undergraduate peer mentors. The two-year certificate program admitted approximately 10 students with IDD each year. Approximately 20 students are enrolled in the program during each academic year.

Students attended a variety of school districts across the southern region of the state before their admission to the PSE program. Students remained dually enrolled at their high school and the university during the program; however, all support services were provided at the university. Students walked at the university's graduation and received their PSE certificate and high school diploma or certificate upon completion of the PSE program.

Students who were currently in their second year of the program and those who had graduated within the prior two years were recruited to participate in an interview. The first author had been a teacher for the PSE program and was able to contact the potential participants and their parent(s). Recruitment emails including a brief and simple description of the study and a Qualtrics questionnaire link were sent to 31 students. The Qualtrics questionnaire provided students with details about the study and asked if they wanted to participate in an interview. By responding "yes," they provided consent to participate if they were their own guardian, or assent to participate if they were not their own guardian.

Emails that included a brief description of the study and a separate Qualtrics questionnaire link were also sent to the parent(s) of all potential participants whether or not they

were their child's guardian. This Qualtrics questionnaire described the study and included a request for parental consent for their child to participate in an interview if they were their child's guardian.. The questionnaire also asked about their child's disability(ies), demographic information, and communication supports. A total of seven parents filled out the questionnaire. Three students (Participants 2, 3, and 5) who were their own guardians and whose parents did not fill out the questionnaire, chose to fill out the questionnaire themselves.

A total of 10 current and recently graduated students with IDD participated in the study. Participants were 19-22 years old; half were female and half were male. Four participants were Latinx, two were Black, two were White, and two were White and Asian/Asian American. Participants identified with a variety of, and often multiple, disabilities, including autism spectrum disorder, intellectual disability, multiple disabilities, cerebral palsy, hearing impairment, Deafness, speech-language impairment, other health impairment, emotional/behavior disturbance, seizure disorder, and attention deficit disorder. See Table 1 for all participant demographic data.

### **Data Collection**

Semi-structured interviews were conducted via Zoom, a remote online platform, with 10 participants with IDD. The interview questions were designed to gain an understanding of how students perceive the effect of their experiences and supports during PSE on the progress toward, and achievement of, their self-directed employment, education, and social goals . Further, participants were asked to reflect on the experiences and supports they desired but did not have, that would have allowed them to make further progress towards their goals. The interview was organized into three sections by goal (see Table 2 for participants' goals), each section followed the same question structure (see Table 3 for interview questions). Finally, participants were

asked how they think PSE prepared them for their goals and how they think their future has changed because of attending a PSE program.

Interviews embody an uneven power dynamic between researcher and participant. This dynamic is often magnified when participants have a disability, and when comprehension or expressive communication may limit or alter their responses (Emerson et al., 2004). The interviewer used communication techniques described by Sigstad and Garrel (2018) with participants who needed support in offering rich descriptions. These supports included wait time (i.e., being silent to allow the participant to process the question and answer), encouraging verbal and nonverbal prompts (e.g., nodding), rephrasing questions, and repeating and summarizing participants' responses. The researcher sought feedback from participants to confirm her understanding and summarization of participants' responses. If a participant verified the researcher's summary of their response with "yes" or "no", the researcher asked the participant to elaborate on why they agreed or disagreed with the summary to gain a deeper understanding of the participant's perspective. The researcher also observed participants' behavior intended to express communication (e.g., participant squeezed their shoulder when asked what they learned from job shadowing a masseuse) and asked them to elaborate on the meaning of their behavior (e.g., "I noticed you squeezed your shoulder, did you learn about how to touch clients? Tell me more about that").

Measures were taken to ensure the interview process was accessible to each participant. Interview accommodations were prepared (e.g., visuals) for each participant using the information collected from the parent questionnaire and the researcher's prior knowledge of the participant. Two participants had parent support during the interview. The parent of Participant 6 rephrased interview questions for increased participant comprehension. The parent of Participant

10 clarified the participant's expressive communication. Interviews ranged from 47 to 102 minutes, with an average of 70 minutes. During the interviews, participants were also asked about their high school experiences and supports; however, these data are not included in this paper.

### **Positionality**

As the lead researcher, I am also the interviewer and a prior special education teacher in the PSE program. Although I did not directly teach any of the participants, I knew all of them before I interviewed them. My experience as a PSE educator and knowledge of the participants situated me to individualize supports and comprehend verbal and nonverbal communication. I do not have a disability and I am not a parent of a child with a disability and may have been perceived by participants as an expert with institutional capital. Participants' perceptions of me may have influenced their responses and our interactions. I emphasized to each of the participants that I was very interested in learning about their experiences. Further, I expressed that their participation and perspectives may influence PSE programs and the lives of other individuals with IDD.

My perceptions of the participants may have also influenced my interactions with them. When using Sigstad and Garrel's (2018) communication techniques of wait time, encouraging verbal and nonverbal prompts, rephrasing questions, and summarizing responses I attempted to continuously engage in reflexivity to realize potential influences and biases. For example, I am a strong advocate for inclusive education. I continuously reflected upon whether I was encouraging participant responses that favored inclusive experiences and supports through my verbal or nonverbal communication. I frequently used the communication technique of summarizing participant responses for clarification in interviews. It is possible that my

experiences, biases, or mere misunderstanding may have influenced my summary in a way that the participant did not intend. This incorrect summary may or may not have been noticed or corrected by the participants. To avoid changing the participants' meaning, I often used the same vocabulary as the participant in my summaries and observed their verbal and nonverbal communication in an attempt to detect confusion or misunderstandings (Sigstad & Garrel, 2018).

### **Data Analysis**

All participant interviews were conducted via Zoom, a remote online platform, because in-person meetings were not permitted due to COVID restrictions. Interviews were video and audio recorded, and then transcribed verbatim. The researcher compared each transcript to the video recording to check for accuracy and removed all identifiable information. All transcripts were uploaded into Dedoose (2021), a qualitative analysis software. The first and second authors then used Saldaña's (2016) method for first and second cycle coding.

An open-coding process was used for the first cycle of coding that resulted in a codebook with descriptive codes, definitions, and examples. The first author reviewed all 10 transcripts to develop the codebook (see Table 4 for code descriptions). For each transcript excerpt, the researcher identified the category that aligned with the interview questions (e.g., "Supports Present"), and summarized the participant's response to create a descriptor (e.g., "Peer mentor modeled work task"). All descriptors were compiled into one document and grouped by similarities under each category (i.e., Experiences, Learning, Supports, Feelings) to develop the codes. The first and second authors then met to review and refine the codebook. For example, the authors decided to collapse "Natural" and "Individualized" supports into one code. Once the codebook was near completion, the first and second authors coded one complete transcript together to reach agreement on which codes to apply and finalized the codebook. For second

cycle coding, the first two authors independently coded two complete transcripts. The authors met after coding each of the transcripts to debrief, discuss disagreements, and come to consensus on the codes. The first author then coded the remaining seven transcripts.

All coded excerpts were downloaded from Dedoose by category (i.e., Experiences, Learning, Supports; Feelings) and codes (e.g., work experiences, preferences, educator supports) for thematic analysis. The coded excerpts were examined using a process of searching for patterns and clustering (Miles et al., 2020). The first author extracted the main idea from each coded excerpt in a category and then grouped the main ideas by similarities to discover themes. Finally, the themes were organized by employment, education, and social goals. The first two authors met to discuss and confirm the meaning of themes that emerged from the analysis (Miles et al., 2020). Themes with contributions across a minimum of three participants were included in the study Findings.

### **Trustworthiness**

Investigator triangulation through a collaboration of the three authors occurred during the study planning stages (Brantlinger et al., 2005). Confirmability of the data analysis and findings occurred throughout the study. The first two authors met frequently during code development and data analysis phases. Each author coded transcripts independently and met multiple times to discuss discrepancies and reach agreement on codes (Brantlinger et al., 2005). The authors wrote analytic memos throughout the data analysis phase describing possible relationships among codes and emerging themes, and reflecting on the process (Miles et al., 2020).

During interviews, the communication technique of summarizing participant responses using similar language was used for clarification and member checking purposes (Sigstad &



Garrel, 2018). Additionally, the first author's knowledge of the participants and their communication style increased confidence that the data was accurately interpreted (Sigstad & Garrel, 2018). Finally, all transcripts were emailed to participants for member checking (Brantlinger et al., 2005). Participants who were unable to read text could use strategies learned during the PSE program to access the transcripts, such as using text-to-speech or asking for support. One participant chose to revise three short excerpts of her transcript. These measures reduced the potential for research bias that may have been introduced by the first author's relationship with the participants.

### **Findings**

Participants had personal, self-directed employment, education, and social goals during PSE. The purpose of this study was to understand what PSE experiences and supports students with IDD perceive as advancing progress towards their self-directed goals. Additionally, this study explored how individuals with IDD perceive PSE has affected their goal achievement and future.

#### **Employment Goals**

Half of participants had employment goals related to the food industry, including being a chef, waiter, and grocery store bagger. Two participants were interested in working in the music industry, including being a choir director/teacher and working at a store that sells musical instruments. The other three participants had employment goals in retail, technology, and the medical field (see Table 2 for all participants' goals). Half of the participants changed the employment goals that they initially identified in high school after gaining experience during PSE. Participant 10, for example, changed her employment goal from working in an office with technology during high school, to being an audio and video equipment technician during PSE.

All participants identified internship experiences as important to attaining their goal, as well as the subsequent skills and preferences they learned from those experiences. Some participants desired to have more internship experiences directly related to their employment goals.

Participants identified that taking courses related to their employment goals and having educator and peer mentor support bolstered progress toward their employment goals.

### ***Internship Experiences***

All participants described internship experiences as contributing to the achievement of their employment goals. Participants worked at multiple different internships during their PSE program. These included concert theatre ticket sales and ushering, computer data entry, mail distribution, and food preparation, service, and stocking. PSE educators built campus and community relationships to create internship opportunities for participants. PSE educators set up or supported participants to interview for internships that, if possible, were aligned to their employment goals. All participants worked at internships between 3-10 hours/week during their first year in the PSE program and 8-20 hours/week during their second year.

Participants described having internships that were both directly related and indirectly related to their employment goals. Internship experiences resulted in six participants learning their work preferences, such as what type of job they wanted and what working conditions they preferred (e.g., working with people). One participant reflected on learning her work preferences from her internship: “when I was in the kitchen in the bakery section, I felt like I belonged in the kitchen, more than an office staring at like different people and staring at the computer all day. I just didn't see myself in that category as I did in my last year of high school.”

The majority of participants described learning work skills that directly related to their employment goals. For example, Participant 6 identified learning skills related to her goal of working as a stocker at a grocery or clothing store:

Interviewer: Thinking about your time at the market, during (PSE program), what did you learn to do at the market?

Participant 6: I clean your shelf.

Parent: And then what?

Participant 6: Okay. I cut your box and put snacks on shelf.

Participants also described learning general work skills such as being on time, signing in for shifts, and improving communication, organization, and self-advocacy skills. Reflecting upon her internship at a theatre, Participant 1 said “I was working a lot more with my other coworkers and other customers, so I really had to strengthen up my people skills which I feel like I was able to do with that experience.” Participant 3 described what he learned about employment during the PSE program:

(PSE program) help me work, work hard to prepare for jobs and learning a lot about different stuff like budgeting and learning about job skills, learning about becoming independent. Those stuck out a lot. And making sure that being responsible of always staying dedicated to your work. And making sure that, to never quit... And always make sure to enjoy what you like working.

The majority of participants also expressed enjoying their PSE internship experiences.

### ***Desired Goal-Related Internship Experiences***

Six participants, however, expressed that they wanted more internship experience directly related to their employment goals. Some participants described internships that were set up but did not work out because the campus or community partner pulled out. For example, Participant 4 who had an employment goal of being a waiter said “I was gonna work at (restaurant name). Yeah, unfortunately, the guy who runs that restaurant backed out.” Participant 9 who had an employment goal of working in the medical field had a similar experience: “I was supposed to

start this internship at what's called campus health, but, uh, but, but unfortunately I didn't work out." Participant 10 who had an employment goal of being a choir director/teacher did have a theatre internship aligned with her employment goal; however, she desired additional experience: "I wish I could have gotten more teaching experience knowing what it's like to work with other students."

### ***Work-Related Coursework***

Half of the participants took college courses that were directly related to their employment goals. For example, a participant who had an employment goal of being an audio and video equipment technician said she took courses that "help for my current goals, including equipment tech classes, music, basic computer skills for office app, and intro web design development." Another participant shared a similar thought when she said, "what helped me with, first with my goal to become like a counselor was like taking counseling classes, which I love those classes I took."

### ***Educator Support for Employment***

Support from PSE educators hastened progress towards participants' employment goals. Seven participants described educators individualizing internship opportunities and adjusting them as students' goals changed. One participant said, "I remembered when I changed to becoming a chef, um, I was talking to (PSE educator) and then she helped me get my internship." Another participant who had an employment goal to work in a music store shared a similar experience, he said "(PSE educator) is very generous, I was able to use my email to change my interview from the kitchen to changing my job for the following, for the second year."

Three participants expressed that educators encouraged them to explore a variety of options for PSE internships and future employment. A participant described exploring internship

opportunities that were different from his high school employment goal of being a grocery store bagger:

my job coach at (PSE program), said that maybe if you should try like food industries, you know, maybe like that, instead of like having to like work in the grocery stores and stuff. So I was like, okay, and then I, I tried the food industry and it was really fun. It was really, it was really great. I love, I love working at the food industry.

Half of the participants stated that learning about getting a job (e.g., interviews) and/or developing job materials supported progress towards their employment goals. Participant 1 describes weekly “portfolio” meetings with a peer mentor during her second year of the PSE program where she “learn[ed] how to write a cover letter and resume and stuff like that. And also, just think about how our disability affects us and what our strengths and weaknesses are, which I feel helped a lot because I, because I had no idea how to write a cover letter a couple years ago.”

### ***Peer Mentor Support During Internship***

Seven participants explained that receiving internship support from peer mentors encouraged progression towards their employment goals. Participants described how peer mentors explained and modeled internship tasks. For example, Participant 3 said that peer mentors “showed me, this is how you're supposed to do this at work like setting up the tables and putting silverware away and cups.” Participants also described how peer mentors faded support to increase their independence at work. For example, one participant said:

Participant 4: Well, they watched me, on everything I was doing to make sure, make sure I was doing okay. Yeah, and I was doing okay by myself.

Interviewer: So did they end up kind of not coming anymore, where you're working more independently?

Participant 4: Yeah

Participant 9 shared a similar thought when he said “she [peer mentor] just like showed me how to do things on my own.” He later went on to say:

Participant 9: I think (PSE program) did did did a lot better than, a lot better than high school did because, because, because you know I had like teachers and and peer mentors who were, you know who were there to help me so you know, yeah.

Interviewer: So you feel like the support that you received in (PSE program) from teachers and peer mentors really helped you reach your goals?

Participant 9: Oh yes.

Interviewer: Where in high school, maybe it wasn't the same level of support?

Participant 9: Oh yeah. Yes, yes.

## **Education Goals**

Four participants whose education goals were to go to college said that their goals were fulfilled through attending the PSE program. A participant described wanting to attend the university but not knowing how to make progress towards his goal while he was in high school. He said “it was pretty lucky for me” after learning about the PSE program and having the opportunity to fulfill his education goal. Four participants had goals of continuing in higher education; two wanted to earn Music degrees from the university, one wanted to attend the local community college, and one wanted to attend a second PSE program. The other two participants had education goals to learn about specific topics, such as Spanish, Psychology, and healthy food (see Table 2 for all participants’ goals). Most participants said that their college coursework and subsequent skills learned advanced progress towards their education goals. Peer mentor support during class and to complete coursework was described by most participants as important to progress towards their education goals.

## ***Coursework***

Three participants described taking college courses that were directly related to their education goals. For example, one participant who had an education goal of learning Spanish reflected on the classes he took during his second year in the program: “I took Spanish 101 during first semester [Fall] and Spanish 102 last, during the last semester [Spring].” Another participant shared that taking a nutrition course and a money management course advanced

progress towards his education goals of learning about healthy food and learning to be more independent. Multiple students expressed that they greatly enjoyed the college courses they took. For example, a participant said “I loved it [class]. It was really fun because I learned a lot and then um, there's, there was so much more I learned about.”

Some participants described learning class-related skills such as note-taking, presenting, and communicating with classmates. Other participants described learning about the supports they need based on their disability. Participant 5 had an education goal of continuing in higher education after the PSE program by attending a local community college. She recognized the challenges that she had with notetaking and comprehending lecture-style teaching and expressed that she will need to find a tutor in community college. She explained that “community college is mostly like (PSE program), but it's, it's without no support. That's, that's going to be something new because I need support because of my disability.”

### ***Peer Mentor Support for Class***

Peer mentor support during class and to complete coursework was described by eight participants as important to progress towards their education goals. Participants stated that peer mentors supported with note-taking, completing homework, learning course content, and studying. One current PSE participant described the challenge she has with note-taking during class and the support she receives from a peer mentor: “I try to do notes, but I can’t get like the details. Like in my money class on Wednesdays, she [professor] goes really into detail so it's hard for me to get everything written so I just don’t, I just let the peer mentor because she gets every detail, I just can't.”

Participant 2 viewed the peer mentors who supported her in classes as siblings who held her accountable to complete coursework:

I told myself... I have like an older brother and older sister that's helping me at school with like my schoolwork. And, like, just that feeling of like, um like students near your age helping out. I felt like I was very supported, like they were supporting me in their own way. And I was really happy that like any peer mentor that I hung out with, they were like, 'okay, (student's name), before we have fun you have to get your laptop, we have to see if you have any homework or anything to do.'

### **Social Goals**

Seven participants had social goals of making new friends. The other participants had social goals of maintaining high school friendships and having a boyfriend. One participant did not have a social goal, but desired additional support for regulating her emotions while in the PSE program (see Table 2 for all participants' goals). Most participants described fulfilling their social goal of developing friendships during the PSE program. For example, one participant said that the PSE program "really impacted my life in a good way. And I'm glad I was able to do it or else I wouldn't have these friends." Most often, participants developed friendships with peer mentors, but friendships with coworkers and other students in the PSE program were also discussed. Participants expressed happiness about developing friendships; for example, one participant said "building friendships with peer mentors I think it was pretty amazing. And same with (PSE program) students." Another participant described her experience developing friendships with internship coworkers: "we worked and talked. But it was, they were really nice people. And then, and I really enjoyed spending my time with them." In addition to fulfilling their social goals, most participants explained that doing activities on and off-campus contributed to progress towards their social goals. Peer mentors often supported participants to schedule these social activities and to learn social skills.

### ***Social Activities***

Six participants described doing social activities on and off campus, such as attending pep rallies and sporting events, participating in clubs, and going to museums, the recreation



center, and the game room on campus. One participant described how social activities contributed to her experience as a college student, saying “I was really happy at myself that I got to take classes at the university and basically be a college student, like going to sports and pep rallies on Fridays, and going to like the recreation center.” Another participant said that he attended “all the home football games... I like to watch the game and be around other people.”

### ***Peer Mentor Social Support***

Four participants described learning how to schedule activities from peer mentors. One participant described what peer mentors often said while they supported him to fill out his weekly schedule: “would you like to contact your friends, or would you like to schedule to hang out in the game room, or would you like to meet with you peer mentors so you could spend time of going classes and doing fun stuff?” Another participant described scheduling to meet up with a peer mentor “I think I went to a football game once and then, she (peer mentor) told me that that that I could text her.”

Three participants expressed that peer mentors supported them to learn social skills. For example, a participant said “peer mentors taught me that it's okay to hug people just not for a long period of time. Like for just three, like three seconds, like 1-2-3 and then let go.” Another participant described peer mentors with whom she developed friendships, taught her social skills and practiced them with her. She went on to say, “I've definitely asked my peer mentors questions about social interactions, like ‘what should I say about this situation and how?’”

### **Effect on Future**

All participants expressed that their futures had changed because of attending PSE. Half of the participants expressed that their future changed because they continued to learn during PSE. One participant described agreeing with his mother's advice to go to college: “my mom

said... I want you to go to college first, and to get a job and to make sure that you get the job that you like.” Another participant compared learning in high school to PSE when she said “in high school you don't really do much, just you know the basic things. But in college you get to learn a little bit more of learning... Because high school could teach you so much, but college gives you more.” Participants also described the specific skills that they learned during PSE, such as communication and self-advocacy. One participant voiced that his future had changed because he learned his passion during PSE: “It sort of changed my perspective...(PSE program) really got me into what I want to do.”

Three participants also described that their future had changed because of the friends that they made during PSE. If she did not attend PSE, Participant 1 expressed “I wouldn't know all these peer mentors who I still consider my friends and talk to today.” Another participant described how it would feel if he did not attend PSE: “I would be kind of sad... if I did not go to (PSE program) and made new friends.”

### **Discussion**

The purpose of this study is to understand what PSE experiences and supports students with IDD perceive as contributing to their self-directed employment, education, and social goals. Further, this study explored how individuals with IDD perceive PSE has affected their goal achievement and changed their future. Themes emerged of specific experiences and supports that bolstered participants' goal progress. Internship experiences, work-related coursework, educator supports, and support during internships from peer mentors contributed to participants' employment goals. However, participants desired more internship experiences that were directly related to their employment goals. Coursework and peer mentor support for class contributed to participants' education goals. Developing friendships, social activities, and peer mentor social

support contributed to participants' social goals. Participants reiterated the importance of learning about employment and receiving PSE teacher and peer mentor support when asked how PSE prepared them for their goals overall. Finally, participants expressed that their futures had changed from PSE because they were able to continue learning and develop friendships.

Findings from this study reveal that internship experiences were vital to participants' employment goal attainment and led to learning work preferences and skills. Further, participants expressed that continued learning during PSE had positively affected their futures. Previous research has documented similar findings in which students with ID identify continued learning as important for their self-directed employment and relationship goals, and that PSE internships and coursework allow for career exploration (Mock & Love, 2012). Similar to college students without disabilities, obtaining a variety of work and educational experiences in PSE allows students with IDD to discover their preferences and strengths (e.g., Paiewonsky, 2011). This study offers new contributions by providing examples of the ways that participants learned work preferences and skills, which resulted in progress towards their employment goals. These findings are supported by the literature that argues PSE leads to students gaining work skills to be competitively employed (Grigal & Hart, 2010). Further, enrollment in PSE programs is associated with increased employment of students with ID (Smith et al., 2018).

Prior research documents that PSE students with ID believe coursework provides opportunities for exploration of careers (Mock & Love, 2012). Findings from this study extend understandings of how PSE students with IDD perceive college coursework. Participants expressed that coursework resulted in learning content, directly and indirectly, related to their employment and education goals, as well as academic skills (e.g., note taking, presenting, communicating with classmates) and self-advocacy for disability-related supports.

Peer mentors in PSE programs are natural supports (Carter et al., 2019) who can support students to engage in courses and develop employment and social skills (Kleinert et al., 2012). Peer mentor support was the only theme that emerged across all goal areas. These findings are consistent with recent research documenting that PSE students with ID found peer support beneficial across educational, social, and informational realms (Wilt & Morningstar, 2020). This study provides new insight into what peer mentors do to support students in PSE programs to progress towards their goals and how students perceive the evidence-based practices used (e.g., modeling tasks, fading support). Recent research also documented that PSE students with ID built friendships with peer supports over time (Wilt & Morningstar, 2020). Participants in this study also described how their social goals progressed through developing friendships with peer mentors. Further, many participants highlighted that their futures had been positively affected by the friendships they developed during PSE.

Participants were also asked about the experiences and support they wish they had during PSE to better prepare them for their employment, education, and social goals. A desire for internship experiences that were directly related to participants' employment goals was the only theme that emerged. It is unclear why internships directly related to some participants' employment goals were unavailable. PSE educators might need to make additional efforts to understand students' employment goals as students refine them, and internships should be adjusted accordingly. Individuals with ID face barriers securing competitive integrated employment, primarily because of employers' perceptions that they lack work skills (Kocman et al., 2018). This stigma might also affect PSE educators' and students' ability to secure internship opportunities on and off-campus.

## **Implications**

Several implications exist for research and practice from the study's findings. Participants described changing their goals during PSE and expressed wanting more internship experiences that were directly related to their employment goals. To ensure students' experiences are aligned with their progressing goals, students should act as causal agents through selection of courses, employment, and social experiences that align with their self-directed goals (Shogren, Wehmeyer, Palmer, Forber-Pratt, et al., 2015; Shogren et al., 2018). PSE programs should encourage students' self-determination by regularly discussing their self-directed goals and if their experiences and supports align with their goals. Regular check-ins to discuss students' employment goals are particularly important because of the likelihood of students' goals changing as they gain experiences. Further, gaining work skills aligned with students' employment goals prepares students for competitive employment in that occupation (Grigal & Hart, 2010); therefore, internships that are directly related to students' employment goals must be prioritized.

PSE programs and students may consider prioritizing the experiences and supports identified in this study as contributing to students' goals; however, it is unknown if students across PSE programs have similar perceptions. Future research should solicit the perspectives of PSE students with IDD on a larger scale, across programs and states, to obtain a broader understanding of the experiences and supports that foster students' goal progression. Large-scale research on the perceptions of PSE students with IDD would better inform PSE program procedures and educator and peer mentor practices. Further, larger-scale studies would increase the representation of individuals with IDD in research, likely resulting in improved interventions, additional barriers addressed, and personal goals met (McDonald & Kidney, 2012). Further,

longitudinal research should be conducted to better understand students' goal outcomes and PSE impact across time.

Finally, multiple participants described challenges they encountered during their transition to PSE. Compared to high school students with other disabilities, students with ID are less likely to have PSE or competitive employment goals on their transition plans (Grigal et al., 2011). Future research should explore the perceptions of high school and PSE students with IDD regarding their transition to and preparation for PSE. Findings would inform teacher preparation for high school transition planning and agencies that provide post-high school support, such as vocational rehabilitation.

### **Limitations**

There are limitations to this study that must be acknowledged. First, all participants attended the same PSE program; therefore, their perspectives may not be representative of PSE students with IDD across programs. Additionally, this study presented the perspectives of only 10 participants. Although this study contributes to the literature, there is a need for further investigation into the perspectives and experiences of other PSE students with IDD. Data collection entailed one, in-depth interview with each participant. Additional perspectives may have been obtained from participants if provided multiple opportunities and modalities of data collection (e.g., focus groups, artifacts). Finally, participant member checking (Brantlinger et al., 2005) of the authors' interpretation of the data collected should have been done to increase study validity.

### **Conclusion**

Inequity in educational and employment outcomes of students with ID is arguably a result of the scarce opportunities to attend college or obtain competitive employment (Grigal &

Papay, 2018). PSE for individuals with IDD remains limited due to historical, institutional, and attitudinal barriers to college access (O'Brien et al., 2018). However, there are significant benefits that result from PSE, such as learning work preferences and gaining skills to be competitively employed (Smith et al., 2018). Findings from this study reinforce the importance of and need for PSE opportunities for students with IDD. Participants identified specific experiences and supports that fostered learning and advanced progress towards their employment, education, and social goals.

**Table 1*****Participant Demographic Data***

Participant	Age	Gender	Race	Ethnicity	Nature of Disability	Graduation Year	Interview Accessibility Supports
1	20	F	White, Asian American	Not Latinx	ASD	2020	-
2	21	F	-	Latinx	OHI	2019	Simplified Language
3	21	M	Black	-	ASD, ID, EBD, OHI	2020	Visuals, Written Supports, Simplified Language
4	20	M	Black	Not Latinx	ASD	2020	Visuals, Written Supports, Simplified Language
5	21	F	-	Latinx	ID	2021	Visuals, Written Supports, Simplified Language
6	22	F	White	Not Latinx	ID, HI	2019	Parent Support, Visuals, Written Supports, Enlarged Text, Simplified Language
7	19	M	White	Not Latinx	ASD, SLI, ADD	2021	Visuals, Written Supports, Simplified Language
8	22	M	Other: Mexican American	Latinx	ID, Deafness	2019	ASL Interpreter, Simplified Language
9	22	M	Other: Hispanic	Latinx	MULTI, ID, CP, Seizure Disorder	2020	Visuals, Written Supports, Simplified Language
10	21	F	Other: White, Asian	Not Latinx	ID, HI, SLI	2020	Parent Support, Visuals, Written Supports, Simplified Language, Prepared Responses in Advance

*Note.* ASD= Autism Spectrum Disorder; OHI= Other Health Impairment; ID= Intellectual Disability; EBD= Emotional/Behavior Disturbance; HI= Hearing Impairment; SLI= Speech-Language Impairment; ADD= Attention Deficit Disorder; MULTI= Multiple Disabilities; CP= Cerebral Palsy; ASL= American Sign Language.



**Table 2*****Students' Goals: Employment, Education, and Social***

Participant	Employment Goal	Education Goal	Social Goal
1	High school choir director/teacher	Bachelor's degree in Music	Close group of friends
2	Chef	Go to college	Boyfriend/good relationship
3	Work in food industry	Become independent Learn about healthy food	Make friends
4	Waiter	Learn Spanish Learn about Psychology	Make friends
5	Grocery store bagger	Attend community college	-
6	Retail/clothes stocker	Go to college	Make many friends
7	Work at a music store	Degree in Music	Maintain high school relationships
8	Work at a grocery store	Go to college	Make friends
9	Work in the medical field	Attend the university	Make friends
10	Audio and video equipment technician	Attend another PSE program	Make friends Improve communication

**Table 3*****Interview Questions***

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**Employment**

- What was your job goal when you were in PSE?
- What did you do during PSE that helped you reach that goal?
- What did teachers or peer mentors do in PSE that helped you reach that goal?
- Is there anything you wish you did in PSE to better prepare you to reach your goal?
- Is there anything you wish teachers or peer mentors did in PSE to better prepare you to reach your goal?

**Education**

- What was your education goals when you were in PSE?
  - Or was your education goal fulfilled by PSE?
- What did you do during PSE that helped you reach that goal?
- What did teachers or peer mentors do in PSE that helped you reach that goal?
- Is there anything you wish you did in PSE to better prepare you to reach your goal?
- Is there anything you wish teachers or peer mentors did in PSE to better prepare you to reach your goal?

**Social**

- What was your social goal when you were in PSE?
- What did you do during PSE that helped you reach that goal?
- What did teachers or peer mentors do in PSE that helped you reach that goal?
- Is there anything you wish you did in PSE to better prepare you to reach your goal?
- Is there anything you wish teachers or peer mentors did in PSE to better prepare you to reach your goal?

**Effect on Goal Achievement**

- How do you think PSE prepared you for your goals overall?

**Effect on Future**

- How do you think your future has changed after being in PSE?
-

**Table 4*****Codes with Definitions***

Codes	Definitions
Experiences	
Work Experiences	Work experiences such as internships or volunteering
Desired Work Experiences	Work experiences that were desired, but did not occur
Coursework	Classes taken or class experiences in any context
Social Experiences	Social events such as sporting events, or outcomes of social experiences such as friendships
Learning	
Work Skills	Learned or strengthened work-related skills, such as communicating with coworkers
Educational Skills	Skills learned or strengthened, such as notetaking, from educational experiences
Social Skills	Learned or strengthened social-related skills, such as scheduling
Preferences	Explored or determined employment, education, or social preferences; could be described as personal experiences or exploration, or others providing information
Supports	
Educator	Supports or services provided by adult educators
Natural/Individualized	Natural supports such as peer mentors or coworkers, and individualized supports such as assistive technology
Feelings	
Work	Feelings about work experience or work skills learned
Education	Feelings about coursework, educational experiences, or educational skills learned
Social	Feelings about social experiences or social skills learned
Supports	Feelings about educator, natural, or individualized supports that were provided in any context

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