

COACHING EDUCATORS ON EDUCATING CHILDREN WITH AUTISM SPECTRUM
DISORDER IN AN EARLY CHILDHOOD INCLUSION SETTING

by

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A DISSERTATION

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in the Department of Educational Studies
in Psychology, Research Methodology, and Counseling
in the Graduate School of
The University of Alabama

TUSCALOOSA, ALABAMA

2021

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ABSTRACT

There is a considerable gap between evidence-based interventions intended to support students with Autism Spectrum Disorder (ASD) and current classroom practice (Anderson et al., 2018; Artman-Meeker et al., 2015). Early childhood programs and educators are in crucial need of additional support and evidence-based services that address the growing need of specialized instruction for students with ASD (Corkum et al., 2014; Dyer & Redpath, 2021; Lauderdale-Littin & Brennan, 2018; Mueller & Brewer, 2013; Wilson & Landa, 2019). This study asked three questions: “Is there a functional relation between educator coaching and an increase in the frequency of the first, then board as measured by a behavior observation?”, “Is there a functional relation between educator coaching and a reduction in the frequency of disruptive behavior as measured by a behavior observation?”, and “Do educators find coaching socially acceptable as measured by a treatment acceptability measure?”. This study used single-case research methodology; specifically, a nonconcurrent multiple baseline design. There was resulting high variability of data across educator-child dyads, with no-to-minimal effect of coaching on educators’ use of first, then boards. Children’s behavior also fluctuated, and no conclusive results were found regarding the indirect impact of coaching educators. While there were limitations and other contextual factors, this study served as a foundation for further research expansion in the area of early childhood coaching.

DEDICATION

I have had a reminder on my desk while working on this dissertation. It reads “Doctor (noun): A practitioner of the healing arts, who works tirelessly to help others and brings hope. *See also: Live saver*”. Dr. Stacey Chambliss Snead was a practitioner of healing in multiple ways. She worked tirelessly for children and families while others would have quit. She endured so much quietly and always pressed on. She provided hope and inspiration for families, children, colleagues, friends, and strangers. She also was quite actually a lifesaver for many, including me. I always joked that she was my lifesaver for stepping in and agreeing to be my supervisor. During my last full week with her, I told her I never expected to gain a lifelong friend and mentor during our short time, but she was again my lifesaver and I thanked her for saying “yes” to a random student that walked up to her after a conference presentation and bluntly said, “I want to do what you are doing, and I want to be involved”. Dr. Snead invested in me. She taught me skills and life lessons that go beyond our profession. She was pivotal in my training and involvement with early childhood mental health, as well as family, school, and system consultation. There are those people you cross paths with that forever change you in some way, maybe a lifesaver or maybe a friend. Dr. Snead was both for me. Our work positivity impacted my career trajectory and greatly influenced my dissertation research. While I deeply miss my supervisor, even more so, I miss my friend. I hope this work honors the life that Dr. Snead lived, and I promise to work tirelessly to bring healing and hope, to fulfill a God-given responsibility, be a life saver and a friend, to encourage and advocate, just as Dr. Snead did.

ACKNOWLEDGMENTS

I would like to express my deepest appreciation to my committee members for their time, expertise, and guidance during this process. A special thanks to Dr. Tricia Witte for serving as my committee chair and offering support, guidance, and encouragement. Thank you, Dr. Bradley Bloomfield, for continued investment in my work. The hours of editing and feedback did not go unnoticed. I would also like to thank Dr. June Preast for her guidance during this study, as well as throughout my PhD experience. To Dr. Heather Britnell, I cannot thank you enough for your ongoing support, guidance, and friendship. Since my first graduate-level class, you have believed in me, so for that I thank you. I would also like to extend a message of gratitude to Dr. Laci Watkins for her guidance, feedback, and knowledge during this study. Additionally, Dr. Felicia Houston, thank you. I cannot begin to thank you enough for your guidance, knowledge, support, and time that you have invested in me. I value your friendship and wisdom. You have built a strong foundation for my career, which many will greatly benefit from for many years to come. Finally, to my family and friends. Words could never adequately describe how thankful I am. You all have poured so much love and encouragement into my life. To my parents, thank you. Thank you for all you have done and continue to do. This accomplishment is just as much yours as it is mine. Words will never be enough. You both have given me strength to endure in order to be diligent in my obedience to God's plan and to fulfill the responsibility and purposes that He has entrusted me to have. To my grandparents that have taught me work ethic, unwavering faith, and altruistic giving, thank you. Grandma, I am also forever grateful for your continued support and prayers. Your strength, generosity, and loyalty are unmatched.

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CHAPTER 1: INTRODUCTION

Early childhood systems (i.e., preschool programs) are in urgent need of efficient and effective, evidence-based, and resource-sensitive services that address the rising necessity of specialized instructional needs of students with autism spectrum disorder (ASD), through which coaching provides (Dyer & Redpath, 2021; Mueller & Brewer, 2013; Wilson & Landa, 2019). The Center for Disease Control and Prevention reports that 1 in 54 children in the United States are diagnosed with ASD, which has increased from 1 in 59 in 2018 (Martin & Wilkins., 2021). With the increase of ASD prevalence (Maenner et al., 2020), there is an amplified demand to support educators and their students with ASD (Corkum et al., 2014; Lauderdale-Littin & Brennan, 2018; Odom et al., 2013). There is a large gap between evidence-based interventions intended to support students with ASD and current classroom practice (Anderson et al., 2018; Artman-Meecker et al., 2015). It is estimated that less than 5% of educators use evidence-based practices or interventions with students with ASD (Pas et al., 2016). However, coaching is an advantageous and essential method that can support educators through evidence-based intervention implementation while bridging the research-to-practice gap (Artman-Meecker et al., 2015; Joyce & Showers, 2002; Reinke et al., 2014; Rush & Shelden, 2011). Furthermore, coaching in an early childhood setting urges educators to amplify their traditional role in a direct service provision model, while also providing instruction and support that enhances all children's functioning, participation, learning, and behavior in everyday life (Rush et al., 2003).

Autism Spectrum Disorder

According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5; American Psychiatric Association, 2013), the criteria of ASD includes persistent deficits in social communication and interaction, as well as restricted or repetitive patterns of behavior, interests, or activities that cause significant impairment in social, occupational, or other important areas of function. It has been suggested that the social deficits are the most prominent feature of ASD and often elicits challenging behaviors (Hardiman et al., 2009; Holden & Gitlesen, 2009; Matson et al., 2013; Matson & Shoemaker, 2009). Within the classroom, students with ASD may be challenged with initiating or responding to social interactions, neglect to participate in back-and-forth conversation, fail to understand nonverbal communication, be inflexible with changes, and/or have trouble creating and maintaining peer and educator relationships (Dilly & Hall, 2019; Watkins et al., 2019). The social deficit aspect is considered to be the most impacting and should be focused upon when analyzing and addressing challenging behavior (Matson et al., 2007). Students with ASD may also insist on sameness and routines, have trouble with transitions, and/or have ritualized behaviors as well (Cumo, 2019). Individuals with ASD may also underreact or overreact to any type of sensory input (Kilgus et al., 2016; Smith & Bryson, 2015).

The average age at diagnosis is between 4 and 5 years old (Van 't Hof, 2021; Yates & Couteur, 2016). Parents and caregivers report concerns as early as 15-18 months, but shortages of providers and services, along with lack of autism-specific knowledge and social stigmatization, among other factors, delay evaluations and subsequently diagnosis (Yates & Couteur, 2016). Also, there is a concerning racial disparity in early identification (Odom et al.,

2013). African American children with ASD are less likely to have an ASD evaluation before the age of 3 years old when compared to Caucasian children (Maenner et al., 2020).

It is estimated that about 1.5% of the global population has ASD (American Psychiatric Association, 2013; Kilgus et al., 2016) and it is the fastest growing developmental disability (Sansosti & Sansosti, 2013). The ASD prevalence estimate has grown about 10% since 2014 and approximately 175% higher since 2000 (Maenner et al., 2020). Within the context of comorbidity, ADHD and anxiety (including social anxiety, generalized anxiety, separation anxiety, and phobias) are the most highly associated with ASD (Simonoff et al., 2008; Will et al., 2018).

Notably, students with ASD are a diverse group that present with different skillsets, strengths, and needs (Anderson et al., 2018). While estimated that about 40% of children with ASD have a comorbid intellectual disability, there is no specific cognitive profile correlated with ASD, but students with ASD may exhibit slower processing skills and executive function challenges (Smith & Bryson, 2015). Kurth and Mastergeorge (2010) found that students with ASD perform best on concrete and procedural academic tasks, but struggle with abstract tasks, which might include solving applied math problems and passage comprehension. Students with ASD also may struggle with reading comprehension and descriptive writing (Brown & Klein, 2011). Jones et al. (2009) suggested that 75% of students with ASD have at least one area of reading or math achievement that is highly discrepant from their generalized intelligence.

Students with ASD often present behaviors that general education educators are not well prepared to handle or manage (Corona et al., 2017). Challenging behavior is defined as any type of behavior that puts people's safety at risk, is culturally abnormal behavior, violates social rules, causes social disruption, and/or impairs health and/or quality of life of the child or their caretaker

(Emerson, 2001). Challenging behaviors can include tantrums, aggression (including pushing, head-butting, hitting, kicking, biting, and/or scratching), noncompliance, property destruction, or self-injury (head-to-object banging, body-to-object banging, skin picking, self-biting, cutting, self-hitting; Emerson, 2001; Koegel et al., 2012; Matson et al., 2012; Sansosti & Sansosti, 2012; Smith & Bryson, 2015). Challenging behaviors can impede learning and risk classroom safety for children with ASD (Pas et al., 2016). Furthermore, students with ASD typically exhibit challenges with social engagement with peers, which can result in having fewer friendships and fewer peer interactions, as well as being less socially integrated within the classroom (Able et al., 2015; American Psychiatric Association, 2013; Kilgus et al., 2016; Locke et al., 2015).

Likewise, Kilgus et al. (2016) added that if students with ASD have any type of change in their routine or are expected to transition from one thing to another, they can become upset, angry, or fearful, which typically results in challenging behavior for educators to handle. Thus, students with ASD often need additional supports in transitioning, social relationships, self-advocacy, social academics, and peer-related needs (Able et al., 2015; Watkins et al., 2019). They also appear to be underperforming academically compared to typical peers, which may be due to the inability of emotional and behavioral regulation (Ashburner et al., 2010).

Many consider ASD-only environments to be segregated and developmentally toxic (Skokut et al., 2008). Over 40% of parents expressed a desire to have their child with ASD be more involved in school and classroom activities (Simpson et al., 2017). Restrictive placements and limited time in the general education classroom are highly associated with lowered expectations of the students (Jorgensen, 2005). Even when in inclusive classrooms, students with ASD demonstrated much lower levels of involvement compared to other students with and without disabilities (Simpson et al., 2017). The authors called their findings “concerning” (p.

104) as these data trends were present in students as young as 5 years old, implying that the lack of typical engagement may be initiated at the beginning of the school years (Simpson et al., 2017). Additionally, and across all grades, students with ASD experience higher rates of bullying victimization within inclusive classrooms (Sreckovic et al., 2014).

Currently, there has been an increase of students with ASD being provided an education in the general education setting with typically-developing peers (Able et al., 2015; Bateman & Wilson, 2021; Fennell & Dillenburger, 2018; Locke et al., 2015; Watkins et al., 2019). The National Center for Education Statistics (2019) estimates that 40% of students with ASD spend more than 80% of their day in a general education classroom, which has increased from 31% in 2016 (Martin & Wilkins, 2021). Additionally, students with ASD that are educated in the general education classroom typically perform higher on IQ assessments and adaptive behavior rating scales in comparison to students with ASD that are only educated in self-contained classrooms (Kurth & Mastergeorge, 2010).

Successful inclusion of students with ASD in the general education classroom may require additional services, supports, and resources (Skokut et al., 2008). Smith and Bryson (2015) advocate for individualized academic programming that specifically aligns with students' distinct needs, including their strengths and weaknesses. It is important to note that students with ASD are a "heterogeneous group [that presents] with diverse skillsets and needs such that no single intervention or set of intervention goals will be appropriate for all or even most students" (Anderson et al., 2018, p. 111). Students with ASD require individualized interventions and supports (Odom et al., 2013). There have been consistent findings that individualized early intervention supports provided in an early childhood setting allow for more improved adaptive

behavior, cognitive functioning, social-emotional and language skills across the school-aged years (Schochet et al., 2020; Vinen et al., 2017; Wong et al., 2015).

Early Childhood Education Programs

Many national organizations responsible for early childhood educational standards acknowledge that educators play the most impactful role in the provision of early childhood education (Fantuzzo et al., 2011). Unfortunately, educators are not well prepared for the classroom, especially teaching children with disabilities in an inclusive setting, which often results in the failure of using effective inclusive practices (Chang et al., 2005; Peyton et al., 2021) and significantly hinders attainment of education (Corkum et al., 2014). Fifty percent of children exhibiting challenging behavior during the early childhood years continue to do so throughout their school-aged years, especially if the challenging behavior is not addressed before their school-age transition (Stormont et al., 2005). Addressing challenging behavior in early childhood classrooms has become one of the Nation's most urgent and pressing needs (Garrity et al., 2019).

In addition, there is a great demand for early intervention programs to help meet the extensive needs of children with ASD (Keen et al., 2017; Stahmer, 2007). As one of the most successful and popular early childhood education programs, Head Start narrows the achievement gap between disadvantaged children and all children in multiple areas, including social skills, writing skills, and vocabulary (Abbott-Shim et al., 2003; Garces et al., 2002). Two-year-old children enrolled in an Early Head Start program scored significantly higher in areas of cognitive development and abilities on the Bayley Scales of Infant Development Mental Development Index in comparison to non-attending children (Abbott-Shim et al., 2003). Preschool programs are an investment supported by educators, parents, communities, and the government that will

help prepare children for life (Garces et al., 2002), but it is a challenge for many early childhood educators to meet the academic and behavioral needs of children with disabilities (Ottley & Hanline, 2014).

In many early childhood education programs, there is a gap between educators' daily practice and ideal evidence-based practice (Artman-Meeker et al., 2015; Locke et al., 2019; Odom, 2008). Provision and involvement in ongoing professional development (e.g., coaching) is critical for bridging the research-to-practice gap while maintaining positive teacher quality, developing, and supporting skills, and offsetting job-related stress (Fantuzzo et al., 2011). Early childhood coaching is one of the strongest ways to promote education and social justice while improving educational opportunity for marginalized youth (Knight et al., 2019; Schochet et al., 2020) and reducing disparities in early intervention educational programs (Maenner et al., 2020).

There is a great racial disparity regarding ASD identification and service provision as minority children are less likely than Caucasian children to receive early intervention services, and ultimately a delayed ASD diagnosis (Komzelman et al., 2010; Sullivan, 2013). Further, clinicians required three times more contact with African American children when compared to Caucasian children to provide an ASD diagnosis (Mandell et al., 2002). In a report for the Centers for Disease Control and Prevention (CDC), there is a positive association between neighborhood socioeconomic status and ASD prevalence (Maenner et al., 2020), suggesting the possibility of a higher identification rate and greater access to diagnosis and support services in higher socioeconomic status neighborhoods. Moreover, coaching has been deemed an essential practice in early childhood educational settings as it supports continued implementation of evidence-based practices with high fidelity across all races, genders, ethnicities, abilities,

socioeconomic statuses, etc. (Artman-Meeker et al., 2015; Joyce & Showers, 2002; Rush & Shelden, 2011).

Evidence-Based Practices

Evidence-based practices are defined as having three parts: (1) consideration of the best data/research available, (2) individualized that takes into account the student's own strengths and challenges, and (3) based on professional expertise/judgement (Will et al., 2018). The Individuals with Disabilities Education Improvement Act (IDEA; 2004) requires that students with disabilities be educated in the Least Restrictive Environment (LRE), which, for students with ASD, often is the general education classroom (Able et al., 2015; Koegel et al., 2012). When determining the LRE, a student's strengths and weaknesses, behavioral support needs, degree of independence, communication skills, and age must be considered (Sansosti & Sansosti, 2012).

In addition, schools are also required by law to provide a free and *appropriate* public education (FAPE), which is a mandate of IDEA (Stevenson & Correa, 2019). The Every Student Succeeds Act, which replaced the No Child Left Behind Act, also safeguards students with disabilities, requiring that evidence-based practices that are grounded in research and have evidence of success be used in the classroom (Alexander et al., 2015). Currently, there is a major gap within implementation of evidence-based interventions that support students with ASD and daily classroom practice (Anderson et al., 2018; Artman-Meeker et al., 2015). Some potential reasons for a lack of evidence-based practices in the classroom are due to schools not having access to high quality training, support, and resources that are rooted in and supported by research (Anderson et al., 2018). Other negatively impacting factors may be educators' individual attitudes, school climate, and implementation leadership (Locke et al., 2019).

Typically, in schools, evidence-based practices are solely informed by the best available research. However, Lubas et al. (2016) suggest schools use a more ideal model where evidence-based practice is still influenced by best available research, but also influenced by teacher expertise and experience, as well as individual student's characteristics. Coaching is a "promising practice for promoting high fidelity of evidenced-based practices from training settings to real classroom settings" (Kretlow & Bartholomew, 2010, p. 293). Further, coaching is a "promising approach" to support teacher implementation of evidence-based interventions, such as visual supports (Reinke et al., 2014, p. 150).

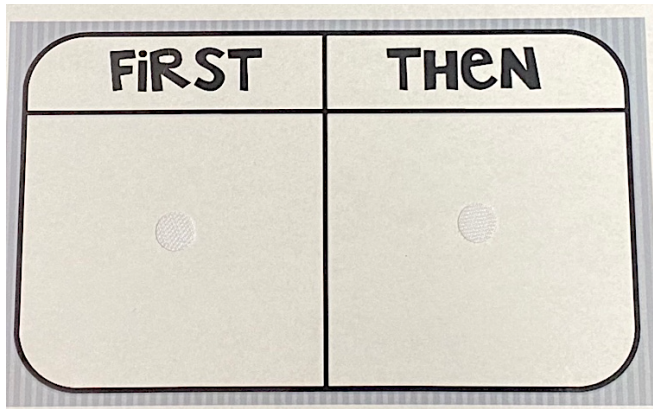
Visual Supports

Visual supports are any type of visual display that support the learner (Wilkinson, 2017), and can include pictures, schedules, maps, labels, written words, scripts, objects, timelines, and organization systems (Wong et al., 2015). These supports can help students with ASD become more independent, less anxious, and remain focused (Hume, 2011; Martin & Wilkins, 2021), and bolster students' strengths by incorporating visuospatial skills, memory recall, and use of graphic symbols (Mesibov & Shea, 2010). Moreover, shifting from verbal prompts to visual supports increases students' engagement and independence (Green, 2001).

Likewise, visual supports are an evidence-based practice effective across academics and cognition, behavior, communication, play, social, and transition in early childhood, elementary, middle, and high school age students (Doehring & Becker-Cottrill, 2013; Hungate et al., 2019; Odom et al., 2013). When visual supports are implemented, the form of representation (i.e., what form of information is meaningful to students – pictures, icons, objects, etc.), the length of the visual support, the presentation of the visual support, and the location of the visual are considered and carefully planned out (Hume, 2011). Also, visual supports attract and hold

Figure 1

First, Then Board



students' attention while making more abstract concepts concrete (Rao & Gagie, 2006). Visual supports provide structure, routine, and sequence for children with ASD as well (Rao & Gagie, 2006). A study completed by Dettmer et al. (2000) found visual supports to be effective, successful, and necessary to support students with ASD, and they should be used in multiple modalities and be concrete representations (Denning & Moody, 2018).

First, Then Board. A specific type of visual support is a first, then board, as seen in Figure 1. The structure of “first this... then this...” allows a child to understand time and activities by showing both the event sequence and visually representing a reward or enjoyable event at the end of an undesired task (Hayes et al., 2010). The first, then boards are grounded in the Premack principle which involves being presented a nonpreferred activity before a more preferred activity (Mancil & Pearl, 2008). When classroom interventions based on the Premack principle are implemented, there tend to be increases in desirable classroom behavior (Alberto & Troutman, 2009).

Educator Preservice Training

Currently, educators are not getting the appropriate preservice training needed on how to educate students with ASD in the general education classroom (Corkum et al., 2014; Ho et al., 2018; Martin & Wilkins, 2021; Wilson & Landa, 2019). Lauderdale-Littin and Brennan (2018) call this issue “one of the most needed areas of improvement within higher education” (p. 371) and Swiezy et al. (2008) claim that “preparing qualified teachers and paraprofessional to educate and support students with ASD is the most significant challenge facing the autism field” (p. 34). A survey of 87 higher education institutions located in 43 states, found that 41% of the graduate programs did not offer any ASD coursework and around half of the institutions reported that there was not a list of ASD standards or competencies for educators endorsed by the given state (Pas et al., 2016). Furthermore, Corkum et al. (2014) found that only 7.1% of educators in their study had taken an ASD-specific class during their formal training that focused on how to educate a child with ASD. Even more so, Zeedyk et al. (2019) suggest that there is a major lack of ASD knowledge within college educators that teach pre-service teachers. Moreover, there is a neglect occurring during preservice training that results in educators not having the ability to appropriately support students with ASD (Gómez-Marí et al., 2021; Sansosti & Sansosti, 2012). Continual professional development through coaching will better develop positive student-educator relationships, which in turn typically decreases overall educator stress (Caplan et al., 2016).

Colleges of Education need to evaluate, reflect, and put into action the best possible ways to train future educators on how to educate students with ASD in the classroom (Alexander et al., 2015). Preservice teaching training has a direct impact, which can be positive or negative, on an educator’s ability to educate students and meet the needs of all children of all abilities in the

classroom (Lauderdale-Littin & Brennan, 2018). Adding to the argument for betterment of educator training, Shyman (2012) writes that providing appropriate educator training in ASD has become an “educational necessity” and educational faculties must lead the way of improvement (p. 187). There also is a great need for system-level consistency of educator preparation, where educators-in-training are well prepared and equipped to teach students with ASD in the general education classroom (Gómez-Marí et al., 2021; Lauderdale-Littin & Brennan, 2018).

Lauderdale-Littin and Brennan (2018) call for the utilization of coursework that pertains specifically to students with ASD, relevant field placements or practicum experiences involving students with ASD, evidence-based trainings on how to handle and manage challenging behavior, and providing educators with the skills to search for and implement evidence-based practices.

Professional Development

Throughout literature, there is a consistent trend of neglect of evidence-based intervention implementation in the classroom (Anderson et al., 2018; Locke et al., 2019; Reinke et al., 2014). It is estimated that less than 5% of educators use evidence-based practices and interventions with students that have ASD (Pas et al., 2016). One reason may be due to the limited capacities of early childhood programs, which may include a lack of training, shortage of staffing, prioritization of other responsibilities, or limited access to resources (Locke et al., 2015). Another contributing factor may be that educators, based on their own pedagogical beliefs, choose interventions that are simple, easy, and have available materials (Koegel et al., 2012). It is vital that internal capacity is built and maintained for appropriate evidence-based practices to be consistently applied in the school setting (Locke et al., 2015).

Professional development is one of the most important bridges from research to implementation within the classroom for educators (Kretlow et al., 2016). Many early childhood preschool programs do not have access to high-quality professional development or coaching specifically focused on evidence-based interventions (Anderson et al., 2018). This is unfortunate as trainings focused on how to best choose and implement interventions with high fidelity are easily generalizable to all educators, regardless of if they teach a student with ASD. There needs to be a more effective model of professional development that better supports a quality and consistent service delivery system for educators across time (i.e., coaching; Zan & Donegan-Ritter, 2013).

Sansosti and Sansosti (2012) advocate for training all educators and support staff in the area of ASD, what it may look like in the classroom, and assessment strategies to determine specific needs of students and techniques that develop and advance behavioral, academic, and social outcomes of students with ASD. Pas et al. (2016) also support the need for educators and school staff to have additional training and professional development in the domain of ASD so that all students can be better supported, as does Corkum et al. (2014). Continual professional development may also help to better develop positive student-educator relationships, which in turn helps decrease overall educator stress (Caplan et al., 2016).

Consistent across literature, one-time trainings or workshops have been found to be ineffective and typically do not produce or impact lasting, sustainable evidence-based practices (Bethune & Wood, 2013; Kretlow & Bartholomew, 2010; Wilson et al., 2012). The “Train and hope” (Oliver & Reschly, 2007, p.11) or “one hit wonder” (Simpson & Linder, 2014, p.338), as experimenters often refer to one-day in-service trainings or workshops, tend to result in no sustainable change of practice of participants (Farmer & Chapman, 2008; Herschell et al., 2010).

Unfortunately, learning and retaining good teaching practices presented in trainings and one-day workshops tend to not be utilized or carried out in the classroom in a sustainable manner (Fixsen et al., 2005). For professional development to be beneficial and for there to be high-quality implementation that is sustained over time, there must be buy-in from stakeholders, access to ongoing coaching, administration support, and team-based problem-solving (Anderson et al., 2018). The goal of professional development and coaching within an educational setting is to assist educators, staff, and administration help students have improved learning outcomes, which ultimately improves quality of life for students and educators (Fennell & Dillenburger, 2018). Continued professional development is one of the best approaches to improving education for students with ASD (Odom et al., 2013).

Additionally, a piece that is vital for adoption of evidence-based practices is social validity, meaning that educators must find the intervention, goals, and outcomes important and favored (Barton et al., 2018). Individuals' attitudes regarding evidence-based practices also effect the frequency of intervention use, but Locke et al. (2019) claim that this area of research is narrow and insufficient. Educators that have participated in coaching sessions reported the coaching intervention to be favorable and beneficial (Artman-Meeker et al., 2015). Social validity can be impactful and can ultimately determine if educators continue to use the evidence-based practice outside of the research study context (Keen et al., 2017).

Very few educators have the proper training needed to implement evidence-based interventions that manage the behavior of students with ASD (Pas et al., 2016). Educators do not feel prepared or knowledgeable to implement appropriate and necessary interventions (Able et al., 2015). Ruble et al. (2011) suggested educators should not draw upon their previous experience when working with students with ASD due to the individual differences and needs of

each student. Consultants must address educators' attitudes and biases towards teaching students with ASD as well (Higgingson and Chatfield, 2012). For the consultation process to be as efficient and beneficial as possible, goal development, planning, and implementation must be collaborative (McIntosh et al., 2010).

Coaching

Coaching is a “focused, individualized practice with the primary goals of supporting and encouraging adult learners, facilitating reflection, and refining specific skills through a systematic, but flexible, learner-driven process” (Trivette et al., 2009, p.2). In addition, coaching is an “observation and feedback cycle”, “continuing problem-solving endeavor” (Joyce & Showers, 1981, p. 170), and an ideal framework that allows for knowledge and skills to be shared (Wilson et al., 2012). Further, school-based coaching is defined by Denton and Hasbrouck (2009) as professional support provided to educators as a means of improving their skills.

The input of coaching affects teacher outcomes (both knowledge and behavior), which then positively affects student outcomes (Kraft et al., 2018). Coaching is best when it is individualized, sustained, context-specific, and focused (Kraft et al., 2018). Kraft et al. (2018) consider the following to be the ideal model of coaching, and across studies, the coaching method was similar: (a) in-service or multiple classroom observations before the coaching intervention occurred, (b) feedback meetings, (c) highly-engaging coaching intervention/demo lessons, (d) follow-up observations, and (e) a minimum of at least one feedback evaluation meeting (Artman-Meeker et al., 2015; Kretlow & Bartholomew, 2010; Stormont et al., 2015).

Showers (1984) pioneered a five-component model of coaching, which includes coaching as (a) a companionship/relationship, (b) a feedback process, (c) an incorporation of continual

analysis, (d) an ongoing analysis, and a provision of support. In addition, Killion (2012) provided 10 different roles in which a coach serves: resource provider, classroom supporter, instructional specialist, data coach, curriculum specialist, mentor, learning facilitator, school leader, catalyst for change, and learner. Overall, coaching provides educators, staff, and administration additional knowledge, support, and skills required in the classroom and result in competence and mastery of skills needed (Mueller & Brewer, 2013).

Moreover, Wilson et al. (2012) provided the following six stages of coaching: (1) initiation of the coaching relationship, (2) naturalistic observation of learners, (3) action of goals, (4) reflection and provided feedback, (5) evaluation of the process, and (6) resolution. For the initiation of the coaching relationship, rapport must be established, and a well-collaborative strategy (including goals) must be planned (Erchul, 2015; Rush et al., 2003). As part of the naturalistic observation of learners, the coach should observe the consultee in the natural environment upon a time agreed. During the action of goals stage, the consultee should take action to work toward their goals. For reflection and provided feedback, the consultee and the coach should work together to reflect on the previous action and experience (Fabiano et al., 2018; Gallacher, 1997) and the coach should provide comprehensive feedback and praise. During the evaluation of the process stage, the coach should complete self-reflection and self-evaluation (Rush et al., 2003), including the consultee providing feedback to the coach and determining if continued coaching is needed. And lastly, once both parties determine that the established goals have been met, then it is time for the conclusion of the coaching process. Both members can make additional plans to have continued support and guidance if desired.

Regarding the need for coaching, educators are feeling overwhelmed with managing conflicting demands from trying to educate students with ASD, as well as other students in their

classrooms, and they are searching for more knowledge about how to provide individualized supports and strategies for students with ASD within an inclusive setting (Able et al., 2015). Even more problematic is the lack of support from administrators typically due to their lack of training, knowledge, and experience with ASD (Segall & Campbell, 2012). Designing and implementing appropriate and effective curriculum for students with ASD is complicated and complex (Stevenson & Correa, 2019). Ultimately, when there are a lack of support and resources, educators may face difficulty with parents when services requested are not feasible, resulting in frustration due to the feeling of inadequacy by not having students' needs met and there being a reduction in the overall capacity for including students with disabilities (Sansosti & Sansosti, 2012).

Typically, when interventions are implemented in the classroom, functional cognition, communication, and developmental skills are focused upon (Skokut et al., 2008). Behavioral and educational interventions used in the classroom for students with ASD should allow for learning and encourage acquisition of new skills, reduce challenging behavior that impedes learning, and enhance the quality of life for all involved (Smith & Bryson, 2015). Interventions used should also be implemented with high fidelity so that coaching can positively impact educators' practices (Kretlow et al., 2016). When educators are coached within a naturalistic setting (i.e., their classroom), their behavior management skills can be greatly improved as educators are provided with new knowledge, immediate performance feedback, and time to reflect on their experiences (Pas et al., 2016). In fact, educators prefer coaching and rate it more effective than a single lesson or training session (Kretlow et al., 2016). Additionally, Able et al. (2015) found that even after educators take a class on the best practices for inclusion in the classroom, they still require additional support (i.e., coaching).

Furthermore, Anderson et al. (2018) provided descriptive steps of establishing the coaching process for implementation of an intervention: (a) discussion of core features of the intervention, (b) decide when and how the intervention will be carried out, (c) determine who will implement the intervention, (d) predict needed resources, (e) set a date for the coach to train and go over the process of such, (f) establish a system of progress monitoring, (g) determine a date to begin and discontinue baseline data collection, (h) set a date to begin the coaching process of intervention implementation. Coaching sessions should be within close concurrence and have continued follow up (Pas et al., 2016). Coaching allows for problem solving and performance feedback, as well as an increase in educators' skills and knowledge (Schultz et al., 2015).

Within the coaching process, there must be buy-in from all involved (Anderson et al., 2018). If educators are not invested in the coaching process, then it is highly likely that the coaching will not impact instructional practice (Kraft et al., 2018). Coaching within an early childhood setting should be an interactive method and dyadic process that promotes the educator's ability to support a child's daily function and education (Rush et al., 2003).

Moreover, a study completed by Zan and Donegan-Ritter (2013) analyzed the impact of a professional development model for educators that incorporated monthly video-based coaching, self-reflection, workshops, and mentoring. After one year, there were significant improvements in educators' behavior management skills, productivity, language modeling, and quality of feedback (Zan & Donegan-Ritter, 2013). Another study, conducted by Romano and Woods (2018), focused on analyzing the effects of a collaborative coaching intervention within a Head Start setting that targeted children with communication delays. The experimenters found that coaching early childhood educators in a high-poverty settings produced improvements with

educators' behavior management, as well as all children involved in the study made improvements as well (Romano & Woods, 2018). Coaching also allows the consultee to learn and reflect upon skills (Rush et al., 2003). In addition, Artman-Meeker et al. (2015) claim that coaching is essential for evidence-based intervention implementation in an early childhood setting. Across studies, there does not appear to be a standard amount of time determined to be necessary for coaching sessions, observations, feedback meetings, etc. Out of twenty-six studies that Artman-Meeker et al. (2015) reviewed, the number of coaching sessions varied between three and thirty-two, with each session lasting anywhere from two minutes to 5 hours. Regardless, Rush and Shelden (2020) wrote that coaching promises improvement of existing skills and ensures gaining of new abilities.

Conclusion

Students with ASD tend to characteristically exhibit higher levels of challenging behavior and emotional difficulties than their typically-developing peers in the classroom (Ashburner et al., 2010). Most educators do not receive adequate or appropriate training on how to educate a child with ASD, and with the increasing trend of inclusion, it is vital that educators are knowledgeable about ASD and trained in evidence-based best practices (Gómez-Marí et al., 2021; Gunn & Delafield-Butt, 2016; Watkins et al., 2019). Within an early childhood school setting, coaching is a promising approach that provides educators with support before, during, and after intervention implementation (Reinke et al., 2014).

In addition, Locke et al. (2015) write that there is “a crucial need for school-based research that examines interventions to address implementation challenges particularly at the school level” (p. 66). The most efficacious and successful way for schools to educate students with ASD is by training and supporting educators and staff on evidence-based practices through

coaching (Alexander et al., 2015). Through coaching, educators need to be provided with more ASD-based knowledge about the characteristics of the exceptionality and behavior interventions, such as visual supports (i.e., “first, then board”) within an inclusive setting (Able et al., 2015). Educators can not only gain necessary knowledge about ASD but also have improved attitudes and acceptability for teaching students with ASD in the general education classroom through supports and training provided by a coach (Higginson & Chatfield, 2012). The use of evidence-based interventions and practices allow for substantial improvements and gains in the lives of children with ASD and their families, as well as educators, school staff, other service providers, and administrators (Alexander et al., 2015).

Furthermore, coaching provides educators, staff, and administration additional knowledge, support, and skills required in the classroom and result in competence and mastery of skills needed (Mueller & Brewer, 2013). Within an early childhood setting, coaching should be an interactive method and dyadic process that promotes the educator’s ability to support a child’s daily function and education (Rush et al., 2003). Notably, coaching is essential for evidence-based intervention implementation in an early childhood setting (Artman-Meeker et al., 2015).

Purpose

The purpose of this study is to increase educators’ use of visual supports, more specifically a first, then board, an evidence-based practice, with students with ASD through coaching, and to decrease challenging behavior from students with ASD in the classroom. This project worked toward building capacity within early childhood education programs for addressing urgent needs, as well as addressing questions of importance as related to preschool programs and early childhood education policy and practice. The intervention in this project was

generalizable, meaning that the educator could also use the strategies for all students in the classroom.

Furthermore, important issues within early childhood programs were targeted to be addressed and innovative strategies were implemented to build, retain, and provide professional development for early childhood educators. This project was built upon existing knowledge found within data-based literature and expands the current understanding of early childhood populations served.

In conclusion, coaching is a valuable and propitious method of service delivery to support educators and indirectly support students (Stormont et al., 2015). There is an increased need for educators to be knowledgeable about ASD and best practices for ASD in order to educate and support students with ASD in the classroom (Lauderdale-Littin & Brennan, 2018). The data collected throughout this study will allow for continuous quality improvement. This project supported early childhood educators on educating students with ASD through coaching, while also narrowing the research to practice gap.

Research Questions

1. Is there a functional relation between educator coaching and an increase in the frequency of the first, then board as measured by a behavior observation?

It is hypothesized that through coaching, educator use of a first, then board in the classroom will increase.

2. Is there a functional relation between educator coaching and a reduction in the frequency of disruptive behavior as measured by a behavior observation?

It is hypothesized that coaching will decrease the frequency of disruptive behavior in the classroom.

3. Do educators find coaching socially acceptable as measured by a treatment acceptability measure?

It is hypothesized that coaching will be found socially acceptable by participating educators.

CHAPTER 2:

METHODS

Setting & Participants

The study took place in three early childhood programs in a mid-size city in the southern United States. One was an early childhood private program (Dyad C) and two were early childhood public school programs (Dyad A and B). Each classroom was a general education inclusive classroom with an estimated equal spread of both gender and race. Within the settings' county, the reported racial breakdown is: 46.6% African American, 41.7% White, 7.3% Hispanic, 2.5% more than one race, 1.7% Asian, and 0.1% American Indian (VOICES for Alabama's Children, 2020).

The experimenter was previously involved with the early childhood programs and provided mental health consultation and services, as requested by referrals through her clinical internship placement. When an educator or a staff member had a developmental, behavioral, academic, or mental health concern regarding a child, the experimenter and her supervisor conducted a comprehensive evaluation, which included assessments, parent and educator interviews, and observations. Regarding recruitment for the current study, the process of the study and the goals were discussed with the program directors. Once the program directors agreed to participate, they provided names of educators and children that were identified as being in need from additional support(s) and met the study's inclusion criteria to be participants. The experimenter then contacted the identified educators via a site visit and asked if they would like to participate.

The participants in this study included three early childhood educators that each supported a child with ASD in their classrooms. The inclusion criteria for the educators were employment in an early childhood education setting with the role of a general education class educator. Each participant was recommended by the early childhood program director and identified as benefiting from additional support. Additionally, one child with an ASD diagnosis in each of the three classrooms was targeted for intervention. The inclusion criteria were students between the ages of 2-6 years old, identified as having ASD by the school system and/or had a clinical diagnosis of ASD (as confirmed by the program director), and displayed challenging behavior (e.g., kicking, hitting, crying, defiance) in the classroom, as reported by the program director and the educator during a semi-structured interview. The child also had to be in an inclusive early childhood classroom. The exclusion criteria for the study were any educator without a child with ASD in their classroom and a non-early childhood educator. Additionally, the exclusion criteria for the children were any child without an identification of ASD or older than 6-years-old. Also, if the child did not display any challenging behavior, then they were excluded from the study.

The educators were informed that their participation in the study was voluntary and there would be no penalty if they declined to participate in the study. Once the educators agreed, the experimenter discussed the study's procedures and requirements, and the educators provided their consent for participation. The educators and the program directors reached out to the targeted children's parent(s) and informed them about the study. They discussed the study's goals and procedures. The informed consent form was sent home to the parent(s) to sign, and they returned it to the educator. The experimenter was available for the parents to contact to explain the study and answer any questions, if necessary, but only one parent reached out to the

experimenter to thank her for the additional support. When the forms were returned to the educator, the experimenter picked up them up from the site. Assent from the participating children was not required as the experimenter only directly interacted with the educators.

Additionally, by being culturally-aware and culturally-responsive, consent was only required from one parent of each child participating. It was not possible for the experimenter to determine if both parents had legal rights/custody/care of the targeted child, or if one of the parents was intellectually incompetent, unavailable, deceased, absent, or incarcerated. It is estimated that 72.1 percent of families in the study's city are single-parent households, which ranks second highest in the United States (Burgett, 2018). More specifically, as stated in the National Head Start FACES 2014 Research Brief, more than half of students in Head Start classrooms live in a single-parent home (Tarullo et al., 2017). Also, the research involved no more than minimal risk and attempted to provide direct benefit to the participants. According to the Office for Human Research Protections (n.d.), parent permission (i.e., consent) is defined as "the agreement of parent(s) or legal guardian to the participation of their child in research" (para. 8), which indicates that permission of one parent is sufficient. This study was a direct service for the educators, whereas classroom observations were the only "involvement" of each child.

The educators and parents were informed that data collected throughout the study would be de-identified and used for research purposes only. Moreover, the participants' involvement in the study was voluntary, in which they were able to withdraw without penalty at any time. The educators that participated in the study had a wide variety of education and experience in early childhood education. There was a total of six educators recruited, however three withdrew from the study due to outside factors.

Dyad A

Educator A was a 29-year-old Caucasian female with 12 years of experience in education. She had 6 years of experience in early childhood education and had a bachelor's degree in early childhood education. Additionally, when asked on the General Information Questionnaire if she believed that a child with ASD could successfully be integrated into a general education class, she said yes. She also acknowledged that she knew how to access additional support and professional resources to assist her in educating a child with ASD. Further, she stated that she had previous training on how to best educate a child with ASD. Educator A's preschool classroom was a public school extended-year program that took place in the summer and contained 4-6 children per classroom.

Child A was a five-year-old female of Indian descent. Her educator reported an "extreme amount" of challenging behavior displayed in the classroom. She noted that Child A was very hyperactive, engaged in a lot of repetitive behaviors (motor movements of her body and arms), and displayed high levels of noncompliance to educator demands. The educator also reported that she escaped the classroom 1-3 times per day and engaged in aggression (i.e., pushing, hitting, and kicking) with other children.

Dyad B

Educator B was a 25-year-old Caucasian female with 4 years of experience in education. During the school year, she is a special education teacher, but for the duration of this study, she was in the role of the general education teacher in the extended school year setting. Additionally, educator B had a bachelor's degree in K-6 elementary education/special education. This was her first year of experience with early childhood education but had worked within her current school system for the past 3 years. Educator B reported on the General Information Questionnaire that

she believed that children with ASD could be integrated within a general education classroom and be successful. She also reported that she currently knew how to gain access to professional support and resources when needed to assist her in educating a child with ASD in her classroom. Furthermore, when asked if she had any previous training regarding educating a child with ASD, she replied “somewhat” and stated that she more so has learned throughout her years of teaching. Educator B’s preschool classroom was a public school extended-year program that took place in the summer and contained 4-6 children per classroom.

Child B was a five-year-old African American female. The educator reported that she engaged in high levels of challenging behavior in the classroom. Child B displayed high levels of noncompliance, off-task behavior, and yelled/cried throughout the day. The educator also reported that the child engaged daily in aggression in the form of pushing and hitting peers. This information was collected during an interview with the educator and the program director.

Dyad C

Educator C was a Caucasian 57-year-old female with 30 years of experience in education, including 16 years of experience in early childhood education. She had the CDA (Child Development Associate) certification and had worked in her current location for 1 year. Further, when asked on the General Information Questionnaire if she believed that children with ASD can be integrated into an inclusive general education classroom, she said yes. She also reported to have had previous training on how to educate a child with ASD and she was aware of how to access professional support and resources when needed to help her educate a child with ASD. Educator C’s preschool classroom was a year-round preschool and had on average about 20 children per day.

Child C was an African American 5-year-old female. Based on a semi-structured interview with the educator and the program director to better define the exhibited challenging behavior, it was reported that Child C was “very withdrawn” (lack of social interaction). Her educator noted that Child C struggles with transitions, cries frequently, and lacks social skills. Child C was also reported to lack social integration within the classroom (e.g., remaining on the perimeter of the classroom and distanced from other peers) and have a high sensitivity to loud noises.

Additional Dyads

There were three additional dyads that began participation within the study but did not complete the study. One educator was withdrawn from the study due to circumstances outside of the study. An additional dyad had a child that withdrew from the study due to moving cities. Also, another child within a different dyad withdrew from the involved preschool program. When one of the members of the dyad withdrew, the other participant therefore became ineligible in the study.

Coach/Experimenter

The primary experimenter and observer that implemented the coaching intervention was a graduate student with previous involvement and training in school-based coaching. The experimenter had past experiences and knowledge of working with children with ASD, as well as instructionally and behaviorally supporting educators. Also, the experimenter had experience in data collection and in providing research- and evidence-based support and consultation within school settings. The experimenter had her Ed.S. in School Psychology and was also a Nationally Certified School Psychologist (NCSP). She also had an endorsement in Early Childhood Mental Health.

Additionally, a second observer for this study was a trained licensed clinical psychologist with 20+ years of experience in early childhood education. She had advanced training in behavioral observation and data collection. In addition, she also was previously a director of a preschool program for children with special needs. In regard to this study, this person supported the coach's pre-intervention training and completed second observer observations for interobserver agreement and treatment integrity.

Measures

Observation Form

The experimenter created an observation form (APPENDIX A) to track the number of times the educator provided a visual support to the targeted child during the observations via a frequency count. It should be noted that during baseline observation, any use of a visual support (picture or image used to communicate), including first, then boards, visual pictures or cue cards, and visual schedules was tallied. Only during the intervention (coaching) and maintenance phases was first, then board use tallied. The form also had space for the number of times the targeted child displayed challenging behavior (as previously defined) to be tallied as well. This form was used throughout the baseline, intervention, and maintenance phases.

Autism Self-Efficacy for Educators (ASSET)

The Autism Self-Efficacy for Educators (ASSET) measurement tool (APPENDIX B) assesses educators' beliefs of personal skills, ability, and confidence in educating a child with ASD (Ruble et al., 2013). Educators' beliefs are positively correlated with students learning outcomes, especially students with autism spectrum disorder (Segall & Campbell, 2014). The ASSET has 30 items that educators self-respond to regarding classroom-based practices, progress monitoring, and intervention implementation specific to ASD (Ruble et al., 2013). The

scale from 0 (cannot do at all) to 100 (highly certain can do) is modeled on Bandura's 2006 guide that provides instructions on how to construct self-efficacy scales (Ruble et al., 2013).

The ASSET has an internal consistency of .96 and low self-efficacy scores reported was directly related to educator stress, including self-doubt, frustration, loss of satisfaction, and disruption of teaching (Ruble & McGrew, 2015). The ASSET can be helpful in identifying, and intervening through coaching, educator stress before it accumulates and potentially causes educator burnout (Ruble & McGrew, 2015). This measurement tool was completed by the educators both before and after the coaching intervention was implemented. While previous research utilized the ASSET as a needs assessment or a one-time assessment, for the purpose of this study, it was used as a pre- and post-measure. This deviation is to determine if any improvement can be shown. The results from the educators' completion of the ASSET before intervention began helped inform the experimenter (coach) about areas of need and specific areas to target for the intervention to be as beneficial and generalizable as possible.

Autism Knowledge Questionnaire

The Autism Knowledge Questionnaire (APPENDIX C) was created by Corona et al. (2017) to measure school professionals' knowledge on working with children with ASD. The questions involved topics of ASD characteristics, diagnostic criteria, and intervention strategies. The Autism Knowledge Questionnaire has a Cronbach's alpha value of .532. In the Corona et al. (2017) study, the participants were provided a specific training that the educators in this project did not have access to. For this study's purpose (as a pre- and post-measure) and in order for the measurement to fit into an early childhood context, the Autism Knowledge Questionnaire was adapted by selecting specific study-relevant statements only.

Coaching Session Fidelity

The eight-step coaching session guide (APPENDIX D) was created to measure the percent procedural fidelity to ensure that all coaching sessions remain uniform. The guide was modified from Barton et al. (2018). Items included on the coaching session guide were reviewing goals, describing skills, modeling using visual supports, allowing time for educator to practice, providing feedback, giving at least two positive statements, getting educator input, and answering educator's questions. The guide helped measure the coach's procedural fidelity.

The experimenter used the coaching session guide during each coaching session for each educator. During the intervention phase, a trained licensed psychologist was present to independently complete an observation of the experimenter coaching the educators. The second observer used the same eight-step coaching session guide checklist. When comparing data collected across both raters to ensure inter-observer agreement, the resulting agreement when comparing the coaching guide checklist was 100%.

Educator Fidelity Checklist

Fidelity of intervention implementation occurs when the educator implements an intervention as trained and intended to do so (Ledford et al., 2018; Stormont et al., 2015). Both implementation and procedural fidelity will be measured using this fidelity checklist (APPENDIX E). Educators' fidelity greatly impacts the intervention effectiveness, which fundamentally affects student outcomes (Stormont et al., 2015), and it is important that fidelity is measured and reported in single case research studies (Ledford et al., 2018). The educator fidelity checklist was adapted from an example provided by Ledford et al. (2018) and measures the degree to which the educator implements the skill learned through coaching: providing visual supports using a first, then board.

Treatment Acceptability Measure

A recent literature review of coaching in the classroom found that in all studies reviewed, educators reported positive results, found coaching to be meaningful, and reported feelings of satisfaction of the coaching intervention (Stormont et al., 2015). The measure used in this study was modified from the Treatment Acceptability Rating Form – Revised (TARF-R) as published by Reimers and Wacker (1988) by removing specific questions that were not applicable to this study. For the purpose of this study, this measure (APPENDIX F) was qualitative and allowed the participants (educators) to provide feedback regarding the study and interventions.

General Information Questionnaire

The General Information questionnaire (APPENDIX G) allowed participants to provide their basic information and demographics. Items were adapted from the Leblanc et al. (2009) study. Questions related to beliefs regarding ASD and education, access to resources, and previous training were included. The collected information allowed the experimenter to analyze additional factors (i.e., education, age, experience, etc.) that could have impacted the educators' skills and knowledge.

Questions About Behavioral Function

Interventions that target improving challenging behavior should not be implemented without considering the possible function of a child's behavior (Brosnan & Healy, 2011). The Questions About Behavioral Function (QABF; APPENDIX H) was used to gather information about hypothesized functions of observable behavior (Paclawskyj et al., 2001). On this measure, educators were asked to rate how often the child demonstrated a particular behavior within a provided situation: the Likert rating scale had the options of never, rarely, some, or often. Based on the response, a number was assigned to the individual scenario. The item scores were then

separated into the different areas of possible behavioral function: attention, escape, non-social, physical, and tangible. Whichever behavior (attention, escape, non-social, physical, or tangible) had the highest total score resulted to be the hypothesized possible function of behavior.

The QABF has been established as a reliant and effective tool to determine functions of children's behavior, as well as being clinically useful and a sufficient functional assessment (Healy et al., 2013; Matson et al., 2012). Behavioral interventions developed using the QABF allowed for significantly greater, more impactful effects for the individual children compared to a non-function based predetermined intervention (May et al., 2014). For the purpose of this study, the QABF was used to gather information about the possible function of the children's behavior(s). The QABF also was used to collect additional data regarding the participating children's behaviors to best target the coaching intervention. Based on the QABF, Child C's predicted function of behavior was escape, while Child B's predicted functions of behavior were attention and access to tangible items. Additionally, Child A's predicted function of behavior was non-social. While completing this measure with the educator, the experimenter informally asked the educator what the child liked or found rewarding within the classroom.

Challenging Behavior. For this study, challenging behavior was determined by the educators' semi-structured interview, observation, and the Questions About Behavioral Function (QABF). In collaboration with each educator and for the purpose of this study, challenging behavior was defined as withdrawal (lack of social interaction, failure to engage with peers, physical location away from peer group), noncompliance or defiance (e.g., ignoring or refusal to complete a task/adult's request after 3 requests), tantrums (including crying and/or yelling for more than 30 seconds), elopement (i.e., running or walking away from group/activity), aggression (i.e., hitting, kicking, biting, and/or pushing peers and adults), being off-task (e.g.,

engaging in behavior or activities that are not part of instruction for longer than 30 seconds), and taking or grabbing items from others without permission (Fujiki et al., 2019; Xu et al., 2021).

Materials

Visual Supports

A visual support is a type of visual concrete representational display that supports the child in their daily functioning (Denning & Moody, 2018; Wilkinson, 2017) and has been a recommended intervention for students with ASD (Watkins et al., 2019). During baseline, the observers were looking for the number of times the educators used any type of visual support (e.g., visual schedules, picture cards, visual boundaries, or first, then boards) while also specifically notating and tallying when a first, then board was used. During baseline, the educators were not provided with any support materials. The baseline observation of visual support usage was intended to be as naturalistic as possible.

First, Then Board. The type of visual support used in this study was a first, then board (Figure 1). The educators were provided the first, then board, along with picture cards (APPENDIX L) at the beginning of the coaching intervention. They were told to use the board before transitions or new activities, as needed when challenging behavior occurred, and as a reminder for the student during nonpreferred tasks. The first, then board had a space for a picture card for an undesired task on the left and a space for a picture card for a desired/preferred task on the right. For data collection purposes, a use of the first, then board was recorded during the observations if the following steps occurred: The educator placed the appropriate picture cards (the undesired task to complete first on the left side under the word “first” and the card of what the child prefers or likes on the right side under the word “then”) in each space, gained the child’s attention by calling the child’s name and orienting the child to the first, then board, and

then showed and pointed to the first, then board, and then verbally stated a statement along the lines of “first we are going to (child’s undesired task), and then we can (child’s preferred/rewarding item or activity)”. The educator repeated the process if necessary. All educators were provided the same visual cards and the experimenter made sure to include reinforcing item picture cards that each educator reported were rewarding and desiring for the child within their dyad.

Experimental Design

The current study used single-case research methodology; specifically, a nonconcurrent multiple baseline design, where multiple observations occurred across time (baseline, intervention, and maintenance phases) across all participants (Cooper et al., 2019) and the outcome variable(s) was measured recurrently within and across different phases (Harrington & Velicer, 2015). Single-case design is one of the main research methods that identify evidence-based practices across multiple disciplines, including special education and behavioral studies (Reichow et al., 2018). It documents current (pre-intervention) behavior, measures impact of an introduced intervention, and allows for manipulation of the intervention to verify its effect on behavior (Reichow et al., 2018). Single-case experimental design allows for a more intensive investigation of an intervention and provides a foundation to establish generality (Conti et al., 2020).

Within nonconcurrent multiple baseline designs, the a priori baseline duration, along with random assignment of participants, strengthens the design’s potential to establish any experimental control and offers flexibility while recruiting participants (Christ, 2007). The study was designed to meet multiple baseline single-case design standards with reservations for the What Works Clearinghouse (WWC), by having a minimum of five data points per phase across

participants (Kratochwill et al., 2010). However, due to many limitations and impacting factors, this was not feasible, but it would be ideal for further expansion of this study. Additionally, this study included start-point randomization for the baseline phase (Koehler & Levin, 1998; Watson & Workman, 1981).

Within single-case design literature, it is suggested that anywhere from 3 to 10 baseline sessions occur (Barnard-Brak et al., 2021; Cooper et al., 2019; Cook et al., 2017; Reichow et al., 2008). This study used a randomized predetermined number of baseline observations for each individual dyad (educator and child pair). The baseline observations began in a staggered fashion and regulated randomization was utilized as it maintained the integrity of the multiple-baseline design and appropriately determined the likelihood of the obtained outcome (Koehler & Levin, 1998). Randomization in single-case intervention designs also increase internal validity and can strengthen two-phase AB designs' scientific merit (Levin et al., 2019). During this study, each educator/child dyad was randomly assigned a number (via an online random number generator) of baseline observations that occurred before intervention implementation.

Procedures

Baseline

During baseline and before the coaching intervention phase began, the ASSET questionnaire, the Autism Knowledge Questionnaire, and the general information questionnaire were completed by the educators during a site visit. The QABF was also completed for each targeted child by their educator.

Baseline data were collected during two 15-minute classroom observations two times per week during instructional time in an inclusive, general-education classroom. The two consecutive 15-minute observations occurred each observational period to gain more activity-

specific and behavior-specific data. The targeted behavior (educator's use of a first, then board for the preidentified child with ASD) was observed and recorded across time, as was the targeted child's preidentified challenging behaviors. The challenging behaviors observed were uniform across all children participating. It should be noted that during baseline, the educators' use of any visual support was also recorded and specified. The experimenter used an observation form to guide the data collection (APPENDIX A). During baseline, the experimenter did not provide any coaching or instructional feedback.

Coaching

Coaching is professional support provided to educators as a means of improving their skills (Denton & Hasbrouck, 2009). Showers (1984) coaching model that includes coaching as (a) a companionship/relationship, (b) a feedback process, (c) an incorporation of continual analysis, (d) an ongoing analysis, and (e) a provision of support served as the foundation and blueprint for this study. The What Works Clearinghouse (WWC) of the U.S. Department of Education requires that there is some correspondence of intervention implementation across phases (U.S. Department of Education, Institute of Education Sciences, 2017), which occurred during this study. The coaching intervention took place in the natural environment (i.e., classroom), one-on-one with the educator during the educators' free time (e.g., free period, break, and/or when children were working independently). Each educator was provided with a first, then board (Figure 2) at the beginning of the intervention phase. Additionally, all three educators were provided the same set of picture cards, as shown in Figure 3, at the same time as the first, then board was provided.

Each educator participated in five total coaching sessions for 15 minutes each session. The coaching sessions occurred biweekly for the educators, with each session following two 15-

minute observations. During biweekly coaching sessions, the experimenter first reviewed the intervention goals (increasing educator use of first, then board and decreasing challenging behavior in the classroom) and described the skill (i.e., how to use the first, then board). The experimenter then modeled how to use the first, then board and provided mock scenarios, which included examples of challenging behavior and how to prevent and/or address it by using first, then board. The educator then had opportunities to practice the first, then board instructional strategies with the experimenter. The experimenter provided feedback (both positive and corrective) based on the rehearsed examples and previous classroom observations. During the coaching session, the experimenter gave at least two positive statements to the educator and requested the educator's input throughout. The experimenter also encouraged the educator to ask questions and made sure that the educator exhibited understanding of the first, then board and how to use it. During each of the coaching sessions, a uniform document (APPENDIX D) was used as a guide for the experimenter. At the end of the five coaching sessions, the same questionnaires, the ASSET and the Autism Knowledge Questionnaire were completed again by the educators at the conclusion of the intervention phase to help the experimenter determine the level of change of the educators' confidence, knowledge, and beliefs regarding ASD. The treatment acceptability measure was also then completed.

Maintenance

Maintenance was proposed to monitor the educators' use of first, then boards, as well as the participating children's behavior following the termination of coaching sessions. Only one dyad (educator/child C) was able to participate in the maintenance phase. Dyad C was in a year-long early childhood setting, but dyads A and B were in Extended School Year programs that were only three half-days a week for two months with a predetermined ending date. The last

coaching session for both educator A and B took place on the last day of Extended School Year, therefore maintenance was not possible.

During the maintenance phase, no additional coaching occurred, but observations and data collection continued to occur so that the effectiveness of the coaching intervention and other factors could be measured and analyzed over time. At the conclusion of the project, educators and administration were debriefed. Had there been any additional needs such as further support or consultation during the maintenance phase, then the experimenter would have referred the educator and/or child to the program director and the contracted licensed psychologist for additional services and supports.

Interobserver Agreement

Interobserver agreement (IOA) was measured for the educator's use of first, then boards and children's challenging behaviors. During the baseline, coaching, and maintenance phases, a trained licensed psychologist was present to independently complete observations. The second observer (the primary experimenter) used the same observation form (APPENDIX A). Both observers had advanced training in behavioral observation and data collection prior to this study. Before collecting data, the two observers reviewed the observation forms and reviewed the applicable information. The second observer did not have any questions and did not need any additional clarification regarding the forms. The observation forms from both observers were compared and agreement rate was calculated based on the same number of tallies of observed behavior out of the total observed behavior. Total count IOA is based on comparing the total count tallied by each observer during each phase of event recording (Cooper et al., 2019).

When comparing data collected across both raters to obtain inter-observer agreement, the resulting agreement when observing the educators' use of visual supports (i.e., first, then board)

during observations was 100% for all three phases and for all three dyads. Additionally, the resulting agreement of the children's challenging behavior ranged from 50% to 100%, with an average agreement of 75% during baseline and 67% during the coaching phase. The raters had a 100% agreement rate for student C's behavior and a 50% agreement rate for child B's baseline and coaching phase. Furthermore, the agreement rate for student A during the coaching and maintenance phases was also 50%. There was no discussion between the two raters if there was a disagreement in data collection during the study.

Treatment Integrity

Treatment integrity, the amount to which an independent variable is implemented as projected, is necessary to demonstrate relationships between implemented interventions and dependent variables (Gresham et al., 1993). Before intervention implementation, the experimenter practiced trial coaching sessions with a trained expert who provided corrected feedback before any intervention implementation occurred to ensure procedure fidelity. To ensure fidelity, as defined as the adherence to intervention procedures as intended (Pellecchia et al., 2015), the experimenter self-monitored and completed a fidelity checklist (APPENDIX D) during 100% of coaching session. Also, a second rater completed the coaching fidelity checklist for 27% of the coaching sessions. The treatment integrity rating agreement between both observers was 100%.

Data Analysis

Data were graphed and analyzed using visual analyses to determine any changes in trend, level, and variability. Visual analysis is the recommended primary method of data evaluation within single-case designs (Ledford & Gast, 2018). Two important questions can be answered through visual analysis: did behavior change, and if so, to what extent can that change be

credited to the independent variable (Cooper et al., 2019)? Also, visual analysis allows for multifaceted considerations of all data to determine and evaluate the degree of behavior change (Ninci et al., 2015). Through visual analysis, one can determine if there is a functional relation between an intervention implementation and behavior change across multiple participants (Lane & Gast, 2013). In addition, there was visual and qualitative analysis of the pre and post measures as well to determine any changes.

Additionally, data were also analyzed using Tau-U. Tau-U, which was calculated via a singlecaseresearch.org calculator, is useful as it combines nonoverlap with trend data within the phase of intervention (Parker et al., 2011). It also has more statistical power than any other nonoverlap index, and is flexible in calculating trend only, nonoverlap between phases only, or a combination of both (Parker et al., 2011). Further, Parker et al. (2011) suggests that a Tau-u score of 0-0.65 is considered to have a weak effect, while a score of 0.66-0.92 has moderate effect and 0.93-1 has a strong effect.

Tau-U inspects pairwise data comparisons across adjacent phases and is read as the percentage of improved pairs from baseline to intervention (Wolfe et al., 2019). Baseline corrected Tau-U was not used as it depends on multiple design variants and when inappropriately used, it can result in invalid conclusions (Fingerhut et al., 2021). In addition, other measures (General Information Questionnaire and Treatment Acceptability Measure) were descriptively reported, meaning that summaries about the sample and measures are provided below.

CHAPTER 3:

RESULTS

Research Question 1: Educator Use of First, Then Board

The first research question was "Is there a functional relation between educator coaching and an increase in the frequency of the first, then board as measured by a behavior observation?". Results of each educator's use of First, Then Boards across all phases is below in Figure 2. The weighted average of Tau-U for all three dyads was 0.3, which indicates a weak effect.

Dyad A

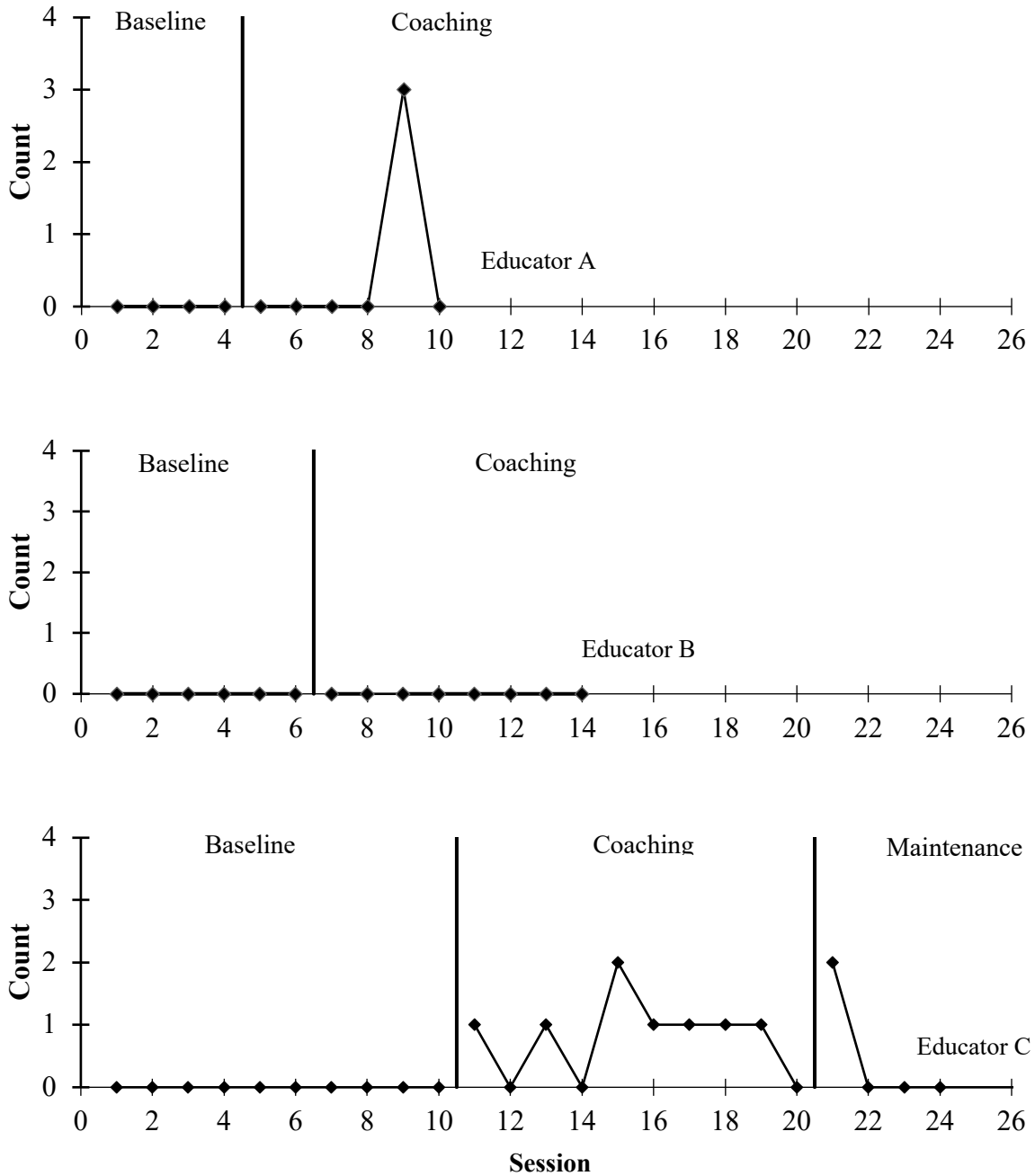
Educator A's baseline data had a low, stable level with zero trend and high stability. After the phase line, which indicated the implementation of the intervention (i.e., coaching), there was a low, stable level with zero trend, until after the fourth coaching session that produced a rapidly increasing trend spike. The spike was then followed by a rapidly decreasing trend. Overall, there was no observed change between conditions. Tau-U was calculated and produced an effect size of 0.2, which indicates a weak effect.

Dyad B

Educator B's baseline had a low, stable level of responding and zero trend. The intervention phase (i.e., coaching) data had a low, stable level of responding and zero trend as well. This graph visually depicts a highly stable data path with no observed change. The Tau-U calculation produced an effect size of 0 for educator B, which indicates no effect.

Figure 2

Educator Use of First, Then Board



Dyad C

Educator C's baseline data pattern revealed a low, stable level and a zero-trend direction with high stability. However, when the coaching intervention began, the data appears to have an

extremely variable pattern of responding, which does not indicate any overall level of responding. There also was zero trend with high variability. During maintenance, there was a rapidly decreasing stable trend that then had a zero trend with high stability. Overall, between conditions, it appears that there was a change in level and a change in trend. Tau-U was calculated and produced an effect size of 0.7, which indicates a moderate effect.

Research Question 2: Children's Challenging Behavior

The second research question for this study was: "Is there a functional relation between educator coaching and a reduction in the frequency of disruptive behavior as measured by a behavior observation?". Results of each child's observed challenging behavior across all phases is below in Figure 3. The weighted average of Tau-U for all three dyads was -0.3, which indicates a weak effect.

Dyad A

The baseline data for Child A reveals a low, stable level with a gradually decreasing variable trend. During the coaching intervention phase, it appears that the data pattern has zero trend with a high level of variability. Overall, there was a change in level, indicating that once the coaching began, the child's challenging behavior increased. Tau-U was calculated and produced an effect size of -0.9.

Dyad B

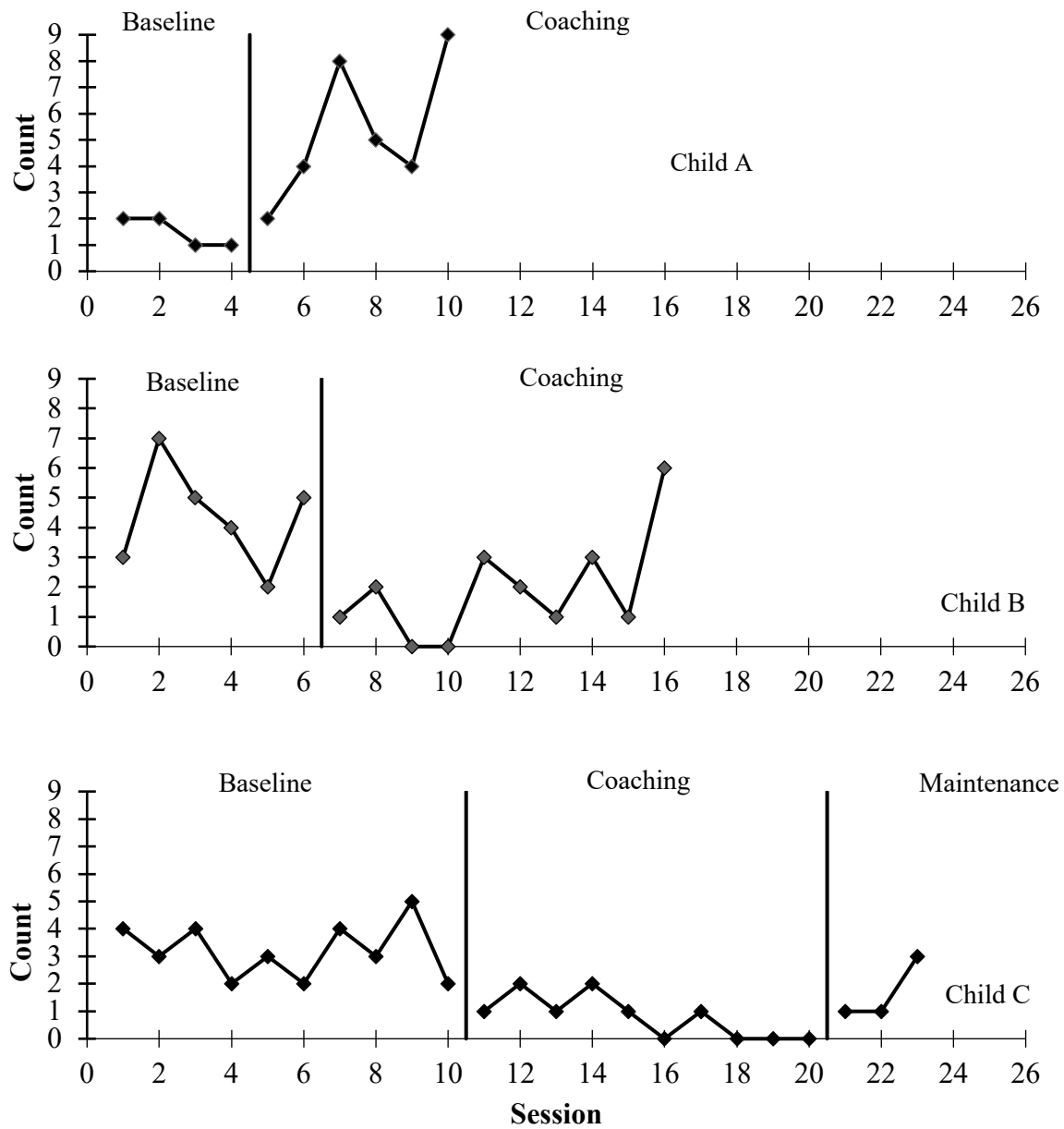
The baseline data path of Child B had an extremely variable pattern of responding that was not indicative of any overall level of responding, however there was a gradually decreasing variable trend. Once the coaching intervention began, the data pattern indicated a zero trend with high variability and an extremely variable pattern of responding that was not indicative of any overall level of responding. Overall, when comparing across conditions, there was some change

in level, indicating that once coaching began, Child B's challenging behavior decreased briefly, but the intervention phase data path had too high of variability to conclude any major findings.

Tau-U was calculated and produced an effect size of -0.7, which indicates a moderate effect.

Figure 3

Frequency of Children's Challenging Behavior



Dyad C

Based on visual analysis, Child C had zero trend with gradually increasing variable trend and an extremely variable pattern of responding that was not indicative of any overall level of responding during the baseline phase. During the coaching intervention phase, there was a gradually decreasing variable trend with a period after the fourth coaching session with zero trend and high stability. Additionally, the data paths during the maintenance phase had an extremely variable pattern of responding that was not indicative of any overall level of responding and had no meaningful trend with too much variability. Across phases, there was very little change in trend. Tau-U was calculated and produced an effect size of 0.9, which indicates a moderate effect.

Research Question 3: Social Validity

The third research question for this study was: “Do educators find coaching socially acceptable as measured by a treatment acceptability measure?”. Educators B and C completed a modified form of the Treatment Acceptability Rating Form – Revised (TARF-R), as published by Reimers and Wacker (1988). Educators B and C’s responses (APPENDIX K) were qualitative. Both reported to have found the coaching intervention helpful and socially acceptable. Charts that depict the pre- and post-ratings on the ASSET of each educator regarding their confidence when educating children with ASD can be found in APPENDIX I. Below in APPENDIX J are results from pre- and post- measure educator responses on the Autism Knowledge Questionnaire.

Dyad A

Educator A answered 4 questions correctly (40%) on the Autism Knowledge Questionnaire pre-intervention measure, but she did not complete the final Autism Knowledge

Questionnaire post-intervention assessment due to outside factors. Also, educator A did not complete the post-measure of ASSET, however, her results from the pre-measure are shown below in APPENDIX I.

Dyad B

Educator B answered 5 questions correctly (50%) on the pre-intervention Autism Knowledge Questionnaire measure. On the Autism Knowledge Questionnaire post-intervention measure, educator B answered 6 questions correctly (60%). For educator B on the ASSET measure, there was a total self-efficacy increase of 0.6%. She reported a 17.5% increase in her ability to describe the implications for intervention based on a student's characteristics of ASD.

Dyad C

Educator C answered 5 questions correctly (50%) on the pre-intervention Autism Knowledge Questionnaire measure. After the intervention phase was complete, educator C completed the Autism Knowledge Questionnaire measure again and answered 7 questions correctly (70%). Additionally, for educator C, there was a positive increase of 9% in the total score, which indicates that for educator C, coaching increased her confidence regarding educating children with ASD. Educator C reported an 89% increase in being more confident in to describe a student's characteristics that relate to ASD. She also reported an increase in her confidence to describe the implications for intervention based on a student's characteristics of ASD after coaching.

CHAPTER 4:

DISCUSSION

The purpose of this study was to determine the effectiveness of early childhood coaching for educators that taught children with ASD in an inclusive classroom setting. The focus of the coaching was to increase the use of first, then boards. After a randomized predetermined number of baseline observations occurred for each individual dyad, the coaching intervention began in a staggered fashion with each educator. All educators received five coaching sessions each, as predetermined before the study began. Further, direct observation, feedback, and skill instruction was utilized throughout all coaching sessions. The experimenter also observed the preidentified child to determine if there was a decrease in challenging behavior (as previously defined) when first, then boards were used by the educators. The research questions for this study are as follows:

1. Is there a functional relation between educator coaching and an increase in the frequency of the first, then board as measured by a behavior observation?
2. Is there a functional relation between educator coaching and a reduction in the frequency of disruptive behavior as measured by a behavior observation?
3. Do educators find coaching socially acceptable as measured by a treatment acceptability measure?

Results

First, Then Board

The first research question of this study was: Is there a functional relation between educator coaching and an increase in the frequency of the first, then board as measured by a behavior observation? Sometimes, behavior changes in delayed, sporadic, temporary, or apparent uncontrolled ways; and although through visual analysis the graphs show inconsistent un-hypothesized data patterns, equally important behavior-related and intervention information can be obtained (Cooper et al., 2019). Further, there was high variability of data across all three participants, which can impede the validity of the study's conclusions (Harrington & Velicer, 2015). It is hypothesized that there was not enough dosage of coaching sessions for educators. There also was no adjustment of the coaching method when no response (i.e., increase in use of first, then board) was observed during the intervention phase.

In addition, provided that within single-case design research, multiple types of analysis occur, including visual analysis, and it is noted that the statistical result(s) are often not the best estimates of overall intervention effect when compared to visual analysis and other forms of measurement (Harrington & Velicer, 2015). Had this study took place longer across time with an increased amount of observations/data points, it is hypothesized that the statistical effect might increase, indicating a stronger effect that mirrors previous research. When initial studies occur in a naturalistic setting (i.e., a classroom) and the collected data suggest that there is no effect of the intervention, Harrington and Velicer (2015) suggest that the investigation of a potentially effective intervention should continue with follow-up studies that have additional controls put into place. In addition, there was no modification during the intervention phase when the educators were not implementing the first, then boards so that the study could remain consistent

and uniform across all three educators. Further, while the first, then board use was being tallied via a frequency count, there also was no observation across all three dyads of any additional type of visual support used.

Challenging Behavior

The second research question of this study was: “Is there a functional relation between educator coaching and a reduction in the frequency of disruptive behavior as measured by a behavior observation?”. The resulting data overall had a high variability and an extremely variable pattern that was not indicative of any effectiveness of the coaching intervention.

Change in behavior may not have occurred due to the educators’ lack of consistent use of first, then board implementation. Alternatively, the children’s behavior could not have improved due to the ineffectiveness of the coaching intervention. However, Brock & Beaman-Diglia (2018) also found a brief reduction of challenging behavior after coaching two preschool educators, but they noted that continued support (i.e., coaching) is needed in order for sustained behavior change.

Social Acceptability

The third research question of this study was: “Do educators find coaching socially acceptable as measured by a treatment acceptability measure?”. Based on educator B and educator C’s qualitative responses (APPENDIX K) on the Treatment Acceptability Measure, coaching is a socially acceptable and beneficial intervention. Both educator B and C reported an increase in their ability to describe the implications for intervention based on a student’s characteristics of ASD after coaching. Additionally, educators who have access to appropriate, consistent, and long-term support and training demonstrate a more positive view of inclusion and more confidence in their own individual educational skills (Corkum et al., 2014). This statement

was found to be supported during this study. Based on the ASSET, there was an increase in self-confidence post coaching intervention for educators B and C. It is hypothesized that with continued professional support (i.e., coaching), educators' self-efficacy regarding educating students with ASD would likely increase.

Previous Research

Similar with this study, Corona et al. (2017) found that educators' scores on an ASD knowledge questionnaire were drastically increased post training, indicating that continued professional support resulted in positive outcomes regarding ASD-specific knowledge. While this study was limited in time, it is hypothesized that ongoing, continued across time coaching will increase educators' ASD specific knowledge. Further, Wolf (1978) first introduced the idea of social validity, writing that our work must be validated regarding the social significant of the intervention's goals, procedures, and effects (i.e., social validity). This study's educators reported to find coaching socially acceptable and beneficial.

Theoretical Implications

One theoretical implication that resulted from this study that may influence future research has to do with the dosage of coaching sessions. This study followed Showers (1984) coaching model, which includes "on-going" support and analysis. This study followed the steps of Showers (1984) coaching model, but the "on-going" support was cut too short. In addition, this study also used Wilson et al. (2012) coaching method, which included initiation of a coaching relationship, naturalistic observation, action of goals, reflection and feedback, evaluation of the process, and resolution. As with the Showers (1984) model, resolution did not occur. The lack of unlimited time as a resource may have impacted the results of this study.

Additionally, Wilson et al. (2012) proposes evaluation of the process as an integral step during coaching. Within this study, there was no change in the coaching procedure so that it could be uniform across all three dyads. However, it would be beneficial for future research for evaluation of the process to occur throughout the coaching intervention and respond or adjust if necessary. For example, educator B did not use the first, then board at all during the coaching intervention. This could be due to the coaching itself, which might have needed altering or adjustment of the presentation of skill(s). Had the coaching intervention been adjusted at any point, the results may have been strengthened throughout this study.

Limitations and Contextual Factors

Throughout the process of this study, there was a lot of flexibility required. There were significant impacts due to COVID-19, as well as other factors that are discussed below.

COVID-19

One important contextual factor of this study was COVID-19. An estimated 1.5 billion students' education has been affected (UNESCO, 2021) and the World Bank (2020) described COVID-19 to be the "largest simultaneous shock to all education systems" (p. 37). COVID-19 has in a sense torn down foundations of learning and had even more of a negative impact on young children, as they have been faced with extreme adversity during a critical time of growth and development (Pattnaik & Jalongo, 2021).

COVID-19 has additionally been described to have pushed the early childhood educational system to a collapse (National Association for the Education of Young Children, 2020; Zero to Three, 2020). During this study, the participating school sites closed for extended periods of time due to COVID-19 and there were a lot of unknowns during the past year and a half. In order to collect data that was valid and reliable, the experimenter had to be adaptable, as

she had no control over multiple aspects of the study (small sample size, no maintenance phase for educator B and C, etc.).

Further, COVID-19 has caused a high level of anxiety and other mental health concerns that may have impacted or worsened the participating children's classroom behavior (Chaabane et al., 2021; Di Giorgio et al., 2020; Schwartz et al., 2021), as well as the educators' ability or willingness to implement the first, then board (Baker et al., 2021). This suggests that there is a possibility that the challenging behavior measured in this study was amplified or increased due to the stress and impact of COVID-19. While schools teetered between virtual and in-person learning, there was also likely an enlargement of educational disparities for children with ASD and other disabilities due to the lack of supports, accesses to resources, and consistencies (Chaabane et al., 2021; Lund & Gabrielli, 2021).

In addition, Masonbrink & Hurley (2020) reported that remote learning and school closures exacerbated the already extensive educational disparities and there were (and still are) critical services, supports, and resources for children with disabilities lost. Students in rural and/or low-income communities were sent home during school closures with little-to-no materials, no transitional plans/resources, and no additional supports or supplemental materials (Chaabane et al., 2021). COVID-19 significantly and negatively impacted the world, our nation, our educational system, and even more so arguably children with disabilities (Corell-Almuzara et al., 2021; Lund & Gabrielli, 2021).

Nonconcurrent Multiple Baseline Design

While multiple baseline designs are widely used and offer significant advantages, there are some limitations and considerations to keep in mind (Cooper et al., 2019). Nonconcurrent multiple baseline designs are a flexible alternative research design, however, they may not be

able to identify any previous or current factors that might have occurred/occur at the same time as the intervention, which could possibly affect outcome data (Harvey et al., 2004). During the study, the educators could have participated in professional development offered by their place of employment, which could have impacted the study's data. Additionally, the participating children could have been receiving outside therapies and/or services that also could have impacted this study's data. Further, there could have been outside factors, such as the home environment and/or medication, that could have increased or decreased the children's exhibited behaviors. Because of the flexibility that multiple baseline designs provide, phases across different participants may begin and end across multiple spans of time. Further, extraneous events may impact the study (Christ, 2007).

Lack of Access of First, Then Board during Baseline

During the baseline phase, educators were not provided with any materials. The first, then board and visual cards were not provided until the coaching phase began. During baseline, the experimenter documented use of any visual support and qualitatively recorded the type used, if any, to assess, evaluate, and gain additional information. The lack of access to first, then board for the educators could have impacted the baseline data, which then could have skewed the results.

Extended School Year vs. Year-Round School

Dyad C was involved in a year-round school. The child in dyad C had been in a classroom with the educator longer and may have had better rapport with her educator. Dyads A and B both were in Extended School Year, therefore it was a new classroom, new educators, new children, smaller class size, etc. As a confounding variable, this may have impacted study results.

Definition of Challenging Behavior

Additionally, it would have been better practice to have a clearer definition of challenging behavior, as that alone can include many actions and be very broad. While some challenging behavior may be developmentally expected, adults have individualized interpretation on to what degree a child's behavior then becomes labeled as challenging (Smith & Fox, 2003). Based on IOA data within this study, there needed to be a more operationally defined definition of what behaviors are included within the challenging behavior domain. Additionally, within early childhood education, challenging behavior may look different than what would be described in a middle or high school setting. Matson and Nebel-Schwalm (2007) call for challenging behavior, when regarding children with ASD, be clearly and operationally defined. In this study, there was some disagreement within IOA regarding the children's displayed challenging behavior and what that actually consisted of or looked like. It is recommended for future research to have clear, well-defined behaviors.

Maturation

Within single-case design research, data is gathered across time (i.e., sessions, weeks, and months), which allows for the possibility of participants (both educators and children) to change across time (e.g., participants may learn new skills or changes might happen in the study's environment; Kratochwill et al., 2010). Maturation of both the educators and children participating should be taken into consideration as well. It is possible that over time, the children became more comfortable with their educator and/or classmates/classroom. It is also unknown if the participating children received any therapy or services (esp. ones that target challenging behaviors) concurrently while this study was taken place.

Practical Implications

Results from this study yielded possible practical implications for educators, professionals involved in early childhood education, higher education trainers, educational administrators, and consultants. Educators that teach children with ASD need support. They need specialized ongoing support that can help them problem-solve, implement interventions, and teach students that display challenging behavior(s). This study also supplements the idea(s) that students with ASD display a wide variety of challenging behaviors in the classroom setting with which educators need to be better trained to manage. Future research has many opportunities to fill the revealed gaps and bridge what we know to be evidence-based to classroom practice.

Future Research Ideas

Much was learned throughout this study. There are many possible future directions and expansions of this research. Ideas are presented below.

Longer Span of Coaching Intervention

Another continuation of this study could look at if the number of coaching sessions impacts the effectiveness of the intervention. Additionally, one could study if the length across time positively affects the intervention effectiveness. Fox et al. (2011) state that the dosage of coaching is an important factor when working with teachers. Further, Corona et al. (2017) suggest a high correlation between educators' self-efficacy and their experience, training, and knowledge. If there is a longer span across time of coaching, it is hypothesized that educators' self-efficacy would increase even more. It is also hypothesized that educators' implementation of both visual supports and first, then boards would increase drastically with more coaching sessions across a longer length of time.

Continued Follow-Up/Maintenance

In order to have a stronger measure of overall educator behavior change (i.e., use of first, then board), a longer maintenance phase with observations would need to occur across time. Also, completion of a longer maintenance phase could allow for further coaching or problem solving if needed. If in the maintenance phase, the experimenter observed no change in behavior, the educator could receive additional support, training, and/or coaching. It is possible that the participating educators in this current study needed a higher dosage of number of coaching sessions.

Gender

Another possible expansion of this current study is to increase the number of participants (educator/child dyads). Interestingly, ASD is 4.3 times as prevalent among males (Maenner et al., 2020). This study's participants were all coincidentally female. To further investigate if gender of a child plays a role in early childhood coaching, this study could be replicated with a larger sample size with equal division of genders.

Setting Expansion

Culturally responsive interventions and supports (e.g., coaching) encourage equity within underserved communities (Bateman & Wilson, 2021). While this study's classroom settings were estimated to have evenly dispersed racial makeup, the socioeconomic status of the children were unknown. The setting's county has estimated 27.8% of children (ages 0-5 years old) living in poverty (VOICES for Alabama's Children, 2020). It would be ideal to expand this research into Head Start programs and other areas that are underserved.

Experience of Educators

Furthermore, an additional research topic of investigation could be if the length of educator experience affects the outcome of the intervention. Haimour and Obadait (2013) found that educators' prior experience with children with ASD positively predicted their knowledge and Gómez-Marí et al. (2021) claim that veteran educators tend to know more about ASD than pre-service teachers. Additionally, are educators with more years of experience more likely to implement the first, then boards through which coaching supports? Are newer educators within the field more likely to find coaching acceptable and/or beneficial? To answer these questions, a larger sample size would be needed with an equal spread of range of educators' years of experience within education. Further, one could discover if there is a difference between early childhood education experience and K-12 education. Also, while also considering educators' characteristics, an additional research question could also be "Does educators' personality, stress level, or coachability affect outcomes?".

Conclusion

Coaching has been found across literature to be a promising method/intervention to support educators, while also supporting children (Stormont et al., 2015). Even more so, coaching in the educational setting has been found to help bridge the research to practice gap of intervention implementation (Artman-Meeker et al., 2015; Joyce & Showers, 2002; Reinke et al., 2014; Rush & Shelden, 2011; Stormont et al., 2015). Coaching is a direct service and support for educators, while indirectly supporting and benefitting children in the classroom. In order to build a more inclusive classroom, especially for children with ASD, educator trainings (both pre- and in-service educators) need to drastically be improved with intensive efforts, as well as continued ongoing support and professional development through which coaching can provide (Gómez-

Marí et al., 2021). While this study's data did not align with the proposed hypotheses or the wealth of previous literature, this study did spark a new topic of research regarding coaching within early educational inclusion settings while specifically working with educators on how to best educate students with ASD in their classrooms.

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APPENDIX A

OBSERVATION FORM

The number of times the educator provides a visual support (first, then board) to the targeted child during the observation will be recorded. The number of times the targeted child displays disruptive behavior (as previously defined) will be tallied as well.

Use of Visual Supports *Note if First, Then Board	
Child Challenging Behavior *As previously defined	

Notes:

APPENDIX B

AUTISM SELF-EFFICACY SCALE FOR EDUCATORS

Name: _____ Date: _____

Rate your degree of confidence by recording a number from 0 to 100 using the scale given below:

0	10	20	30	40	50	60	70	80	90	100
Cannot do at all					Moderately can do					Highly certain can do

Remember to respond with your student in mind.

Confidence (0-100)

This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for educators of students with autism. Please rate how certain you are that you can do the things discussed with regard to the student with autism. Write the appropriate number in the space provided.

1. Conduct an assessment of this student's developmental skills/learning skills: _____
2. Describe this student's characteristics that relate to autism: _____
3. Describe the implications for intervention based on this student's characteristics of autism: _____
4. Translate assessment information into teaching goals and objectives for this student: _____
5. Write a measurable objective for this student: _____
6. Write a teaching plan for this student based on goals and objectives: _____
7. Generate teaching activities for this student: _____
8. Organize the classroom to increase opportunities for learning for this student: _____
9. Use visual structure to increase this student's independence: _____
10. Help this student understand others: _____
11. Help this student be understood by others: _____
12. Provide opportunities for communication in the classroom for this student: _____
13. Assess the causes of problematic behaviors of this student: _____
14. Design positive behavioral supports for this student: _____
15. Implement positive behavioral supports for this student: _____
16. Collect data to monitor this student's progress toward objectives: _____

17. Make use of data to re-evaluate this student's goals or objectives: _____
18. Assess this student's social interaction skills: _____
19. Assess this student's play skills: _____
20. Teach this student social interaction: _____
21. Teach this student play skills: _____
22. Train peer models to improve the social skills of this student: _____
23. Describe parental concerns regarding this student: _____
24. Communicate and work effectively with this student's parent(s) or caregiver: _____
25. Describe parental priorities for learning with regard to this student: _____
26. Help this student remain engaged: _____
27. Sustain this student's attention: _____
28. Motivate this student: _____
29. Help this student feel successful: _____
30. Teach this student academic skills : _____

APPENDIX C

AUTISM KNOWLEDGE QUESTIONNAIRE

1. The Center for Disease Control currently estimates that _____ individuals have an autism spectrum disorder.

- A. 1 in 49 B. 1 in 54 C. 1 in 88 D. 1 in 110

2. In May 2013, the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association, 2013) was published. What statement is not true according to the new criteria?

- A. There are three core characteristics of an autism spectrum disorder.
- B. Autism, Asperger, and pervasive developmental disorder—not otherwise specified (PDD-NOS) are collapsed into one single diagnosis.
- C. Although symptoms of autism must begin in early childhood, they may not be recognized fully until social demands exceed capacity.
- D. Symptom severity for each of the areas of diagnostic criteria is now defined.

3. What is an empirically validated and evidence-based intervention?

- A. Facilitated communication B. Chelation
- C. Positive behavior support D. Auditory integration training

4. Which of the following related characteristics primarily involves a difficulty in regulating emotion and carrying out goal-directed behavior?

- A. Executive functions B. Adaptive skills
- C. Sensory processing D. Communication skills

5. A Functional Behavior Assessment includes the following:

- A. Prevention strategies. B. Definition of behavior
- C. Teaching of new behavior or skill. D. Antecedent interventions

6. The ability to understand another person's perspective, feelings, and emotions, and attribute them as the cause of (or contributing to) that person's actions is:

- A. Executive functioning
- B. Theory of mind
- C. Central coherence
- D. Social cognition

7. What is most important when choosing a reinforcer for an individual with autism spectrum disorder (ASD)?

- A. Cost
- B. You (the provider) find it reinforcing
- C. The individual with ASD finds it reinforcing
- D. The rest of his or her classmates find it reinforcing

8. Sometimes when implementing supports and interventions, you may see an increase in undesired behaviors. This is known as:

- A. Delayed reinforcement
- B. Delayed gratification
- C. Extinction burst
- D. Extinction bubble

9. Which of the following statements is true?

- A. There is no longer a formal diagnosis of Asperger Syndrome according to the *DSM-5*
- B. Girls are more likely to be given a diagnosis of autism
- C. The rate of autism has stayed the same over the past decade
- D. All children with ASDs have a delay in verbal communication

10. If the performance of a skill is too hard for a student, you would:

- A. Identify the components of a skill in the order in which they occur and teach them
- B. Provide modifications and/or supports necessary to promote them
- C. Identify prerequisite skill deficits and begin teaching them
- D. All of the above

APPENDIX D

COACHING SESSION FIDELITY

Date:

Coach:

Educator:

Start time:

End time:

_____ **Review goals**

_____ **Describe skill(s)**

_____ **Model using visual supports**

_____ **Allow time for practice**

_____ **Provide feedback**

_____ **Give at least two positive statements**

_____ **Request educator input**

_____ **Answer questions**

Notes:

APPENDIX E
EDUCATOR FIDELITY CHECKLIST

Date: _____ Session: _____

Educator: _____

_____ Educator gains attention of targeted student

_____ Educator shows child first, then board with correct picture cards in correct place

_____ Educator points to the first, then board & provides verbal statement of “first ____, then ____”

_____ Educator repeated the process if necessary

APPENDIX F

TREATMENT ACCEPTABILITY MEASURE

1. What aspects of coaching did you like?
2. What do you understand well about the process of coaching?
3. What do you understand well about visual supports?
4. What do you understand well about using first, then board?
5. What did you not like about coaching?
6. What have you found effective/beneficial?
7. How confident are you that you will continue to use visual supports?

APPENDIX G

GENERAL INFORMATION QUESTIONNAIRE

Name: _____

Gender: _____

Age: _____

Race: _____

Degree: _____

Years as an Educator: _____

Years in Education: _____

Years in Early Childhood: _____

Years involved with Head Start/Current Preschool: _____

I believe that children with ASD can be integrated into a regular classroom and be successful.

True False

I currently know how to access professional support and resources to assist me in educating a child with ASD.

True False

I have had previous training on how to best educate a child with ASD before.

True False

APPENDIX H

Student's Name _____ Date: _____

Behavior: _____ Respondent: _____

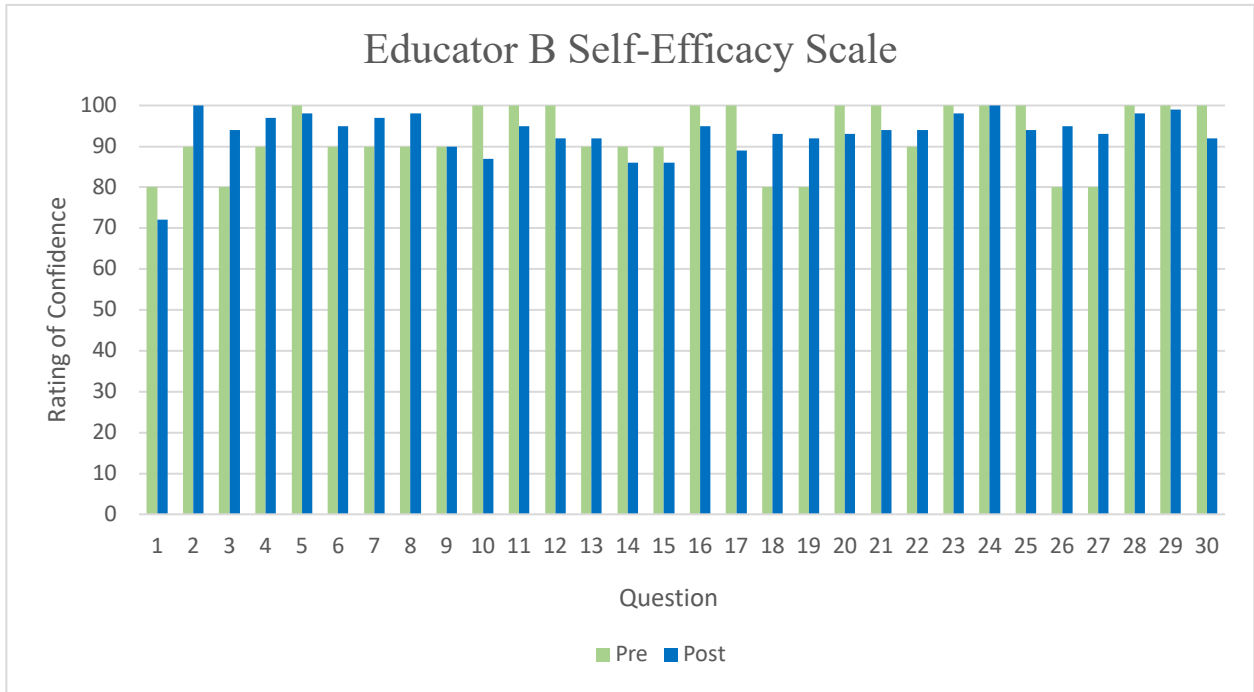
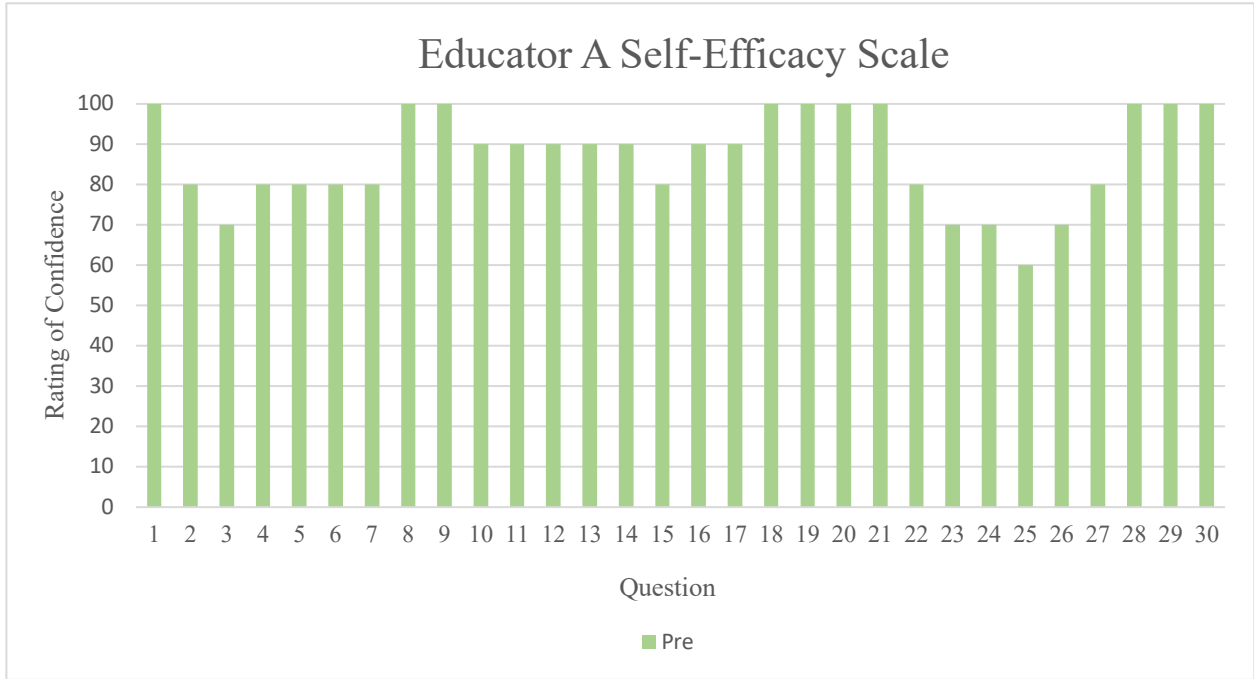
QUESTIONS ABOUT BEHAVIORAL FUNCTION (QABF)

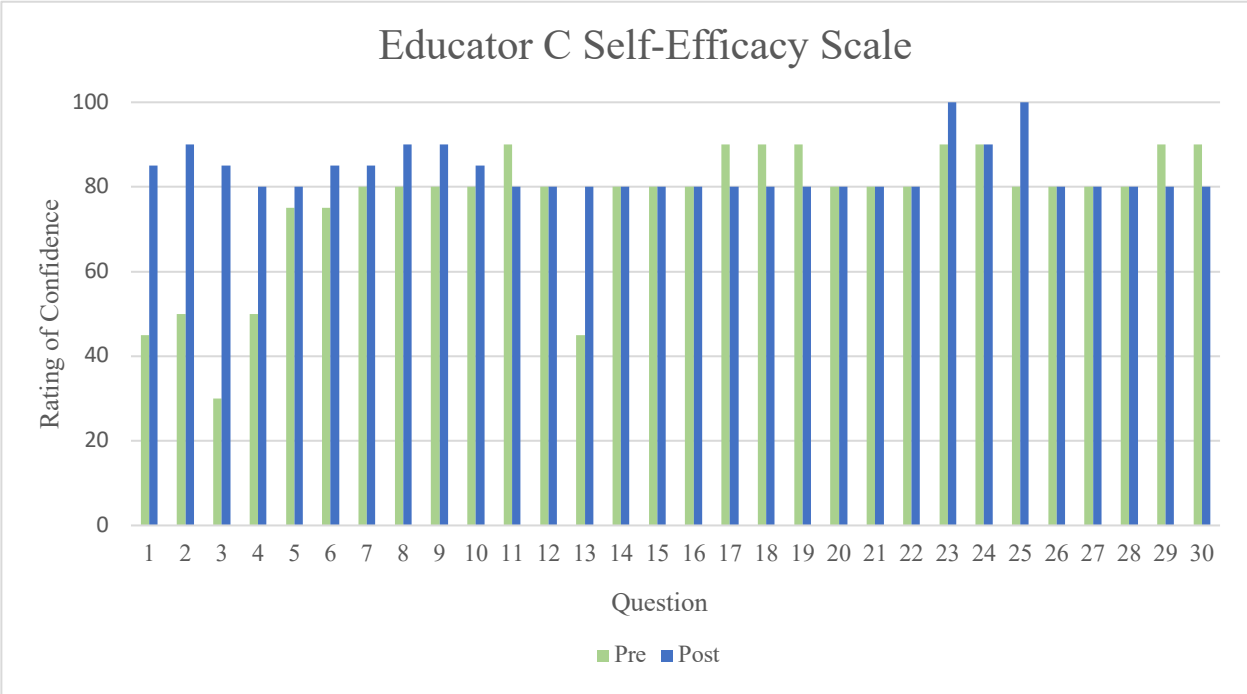
Rate how often the student demonstrates the behaviors in situations where they might occur. Be sure to rate how often each behavior occurs, not what you think a good answer would be.

	X = Doesn't apply	0 = Never	1 = Rarely	2 = Some	3 = Often
Score	Number	Behavior			
	1.	Engages in the behavior to get attention.			
	2.	Engages in the behavior to escape work or learning situations.			
	3.	Engages in the behavior as a form of "self-stimulation".			
	4.	Engages in the behavior because he/she is in pain.			
	5.	Engages in the behavior to get access to items such as preferred toys, food, or beverages.			
	6.	Engages in the behavior because he/she likes to be reprimanded.			
	7.	Engages in the behavior when asked to do something (get dressed, brush teeth, work, etc.			
	8.	Engages in the behavior even if he/she thinks no one is in the room.			
	9.	Engages in the behavior more frequently when he/she is ill.			
	10.	Engages in the behavior when you take something away from him/her.			
	11.	Engages in the behavior to draw attention to himself/herself.			
	12.	Engages in the behavior when he/she does not want to do something.			
	13.	Engages in the behavior because there is nothing else to do.			
	14.	Engages in the behavior when there is something bothering him/her physically.			
	15.	Engages in the behavior when you have something that he/she wants.			
	16.	Engages in the behavior to try to get a reaction from you.			
	17.	Engages in the behavior to try to get people to leave him/her alone.			
	18.	Engages in the behavior in a highly repetitive manner, ignoring his/her surroundings.			
	19.	Engages in the behavior because he/she is physically uncomfortable.			
	20.	Engages in the behavior when a peer has something that he/she wants.			
	21.	Does he/she seem to be saying, "come see me" or "look at me" when engaging in the behavior?			
	22.	Does he/she seem to be saying, "leave me alone" or "stop asking me to do this" when engaging in the behavior?			
	23.	Does he/she seem to enjoy the behavior, even if no one is around?			
	24.	Does the behavior seem to indicate to you that he/she is not feeling well?			
	25.	Does he/she seem to be saying, "give me that (toy, food, item)" when engaging in the behavior?			
	Attention	Escape	Non-social	Physical	Tangible
1. Attention	<input type="checkbox"/>	2. Escape	<input type="checkbox"/>	3. Self-stim	<input type="checkbox"/>
6. Reprimand	<input type="checkbox"/>	7. Do something	<input type="checkbox"/>	4. In pain	<input type="checkbox"/>
11. Draws	<input type="checkbox"/>	8. Thinks alone	<input type="checkbox"/>	5. Access to items	<input type="checkbox"/>
16. Reaction	<input type="checkbox"/>	9. When ill	<input type="checkbox"/>	10. Takes away	<input type="checkbox"/>
21. "Come see"	<input type="checkbox"/>	11. Draws	<input type="checkbox"/>	14. Physical problem	<input type="checkbox"/>
		12. Not do	<input type="checkbox"/>	15. You have	<input type="checkbox"/>
		13. Nothing to do	<input type="checkbox"/>	16. Reaction	<input type="checkbox"/>
		14. Physical problem	<input type="checkbox"/>	17. Alone	<input type="checkbox"/>
		15. You have	<input type="checkbox"/>	18. Repetitive	<input type="checkbox"/>
		16. Reaction	<input type="checkbox"/>	19. Uncomfortable	<input type="checkbox"/>
		17. Alone	<input type="checkbox"/>	20. Peer has	<input type="checkbox"/>
		18. Repetitive	<input type="checkbox"/>	21. "Come see"	<input type="checkbox"/>
		19. Uncomfortable	<input type="checkbox"/>	22. "Leave alone"	<input type="checkbox"/>
		20. Peer has	<input type="checkbox"/>	23. Enjoy by self	<input type="checkbox"/>
		21. "Come see"	<input type="checkbox"/>	24. Not feeling well	<input type="checkbox"/>
		22. "Leave alone"	<input type="checkbox"/>	25. "Give me that"	<input type="checkbox"/>
Total		Total		Total	
		Total		Total	

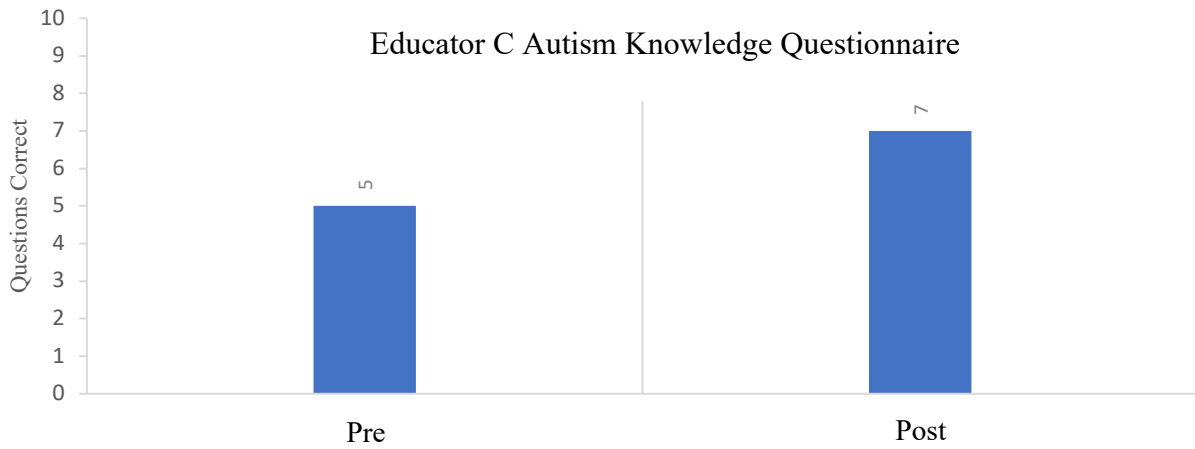
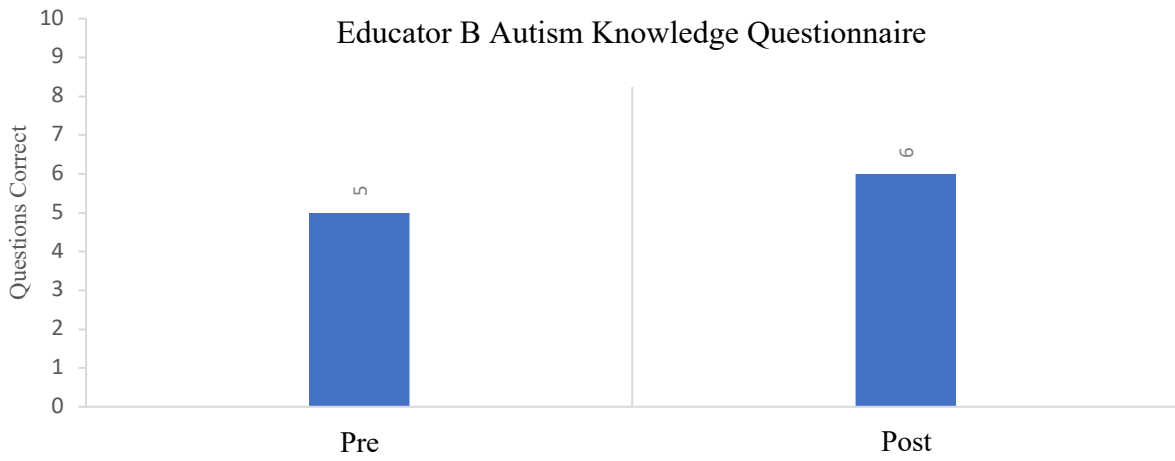
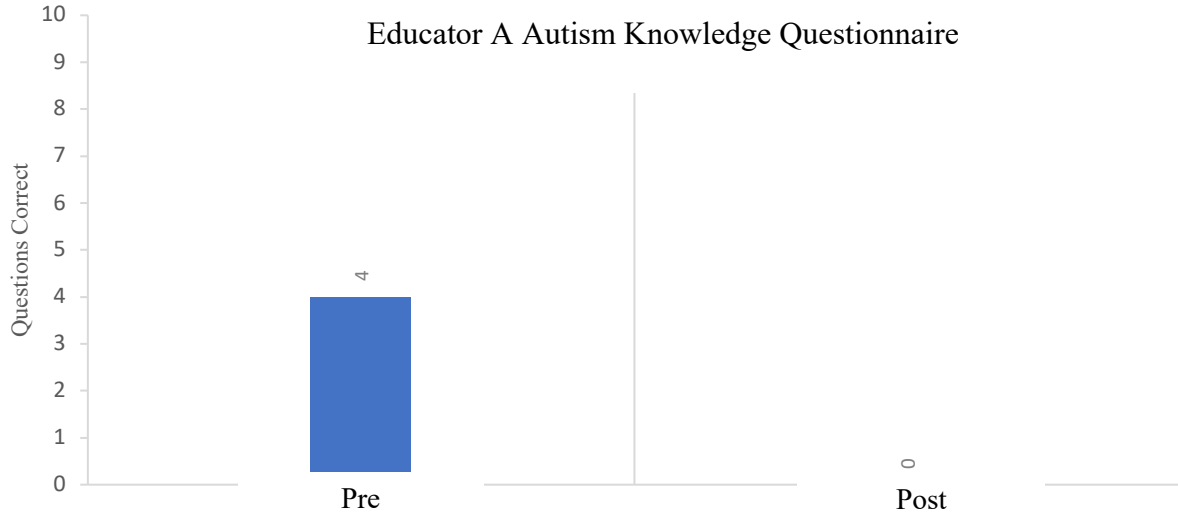
Revised 4-19-01

APPENDIX I
ASSET RESULTS (Pre- & Post-Measures)





APPENDIX J
Autism Knowledge Questionnaire














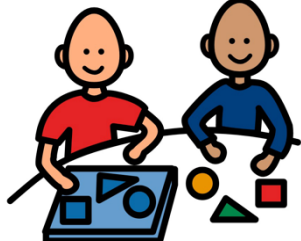


APPENDIX K
Treatment Acceptability Measure

Educator B	
What aspects of coaching did you like?	“I have enjoyed having someone come in and provide a different perspective”
What do you understand well about the process of coaching?	“The coaching from an outsider’s perspective can be useful”
What do you understand well about visual supports/first, then boards?	“These are helpful when helping students communicate and it helps students understand communication from others. / These are helpful when it comes to assisting children in transitioning and having a clear understanding and vision of their day. This can help ease anxiety”
What did you not like about coaching?	“N/A”
What have you found effective/beneficial?	“It was helpful to receive visuals and different resources”
How confident are you that you will continue to use visual supports?	“Very”

Educator C	
What aspects of coaching did you like?	“That I had visuals that I could use with the child as well as the others in the class”
What do you understand well about the process of coaching?	“That you need to do it all the time until the child understands what the next step is in what we do in the classroom”
What do you understand well about visual supports/first, then boards?	“That it helps the children know what comes next during the day while in the classroom”
What did you not like about coaching?	“I liked it and the visuals”
What have you found effective/beneficial?	“Visuals, support”
How confident are you that you will continue to use visual supports?	“I will use them for the child and others”

APPENDIX L
Visual Cards

<p>ABC</p> <p>letters</p>	 <p>iPad</p>	 <p>listen to music</p>	 <p>circle time</p>
<p>break</p> 	 <p>clean up</p>	 <p>Calm body</p>	 <p>play</p>
 <p>play outside</p>	 <p>Quiet</p>	 <p>Listen</p>	 <p>Stop</p>
<p>Wait</p> 	 <p>school work</p>	 <p>snack foods</p>	 <p>table work</p>

*Individual images obtained from the Boardmaker Software



August 19, 2021

Morgan Lane
Dept. of ESPRMC
College of Education
Box 870231

Re: IRB Application #: e-Protocol 20-05-3626-R1 "Coaching Educators on Educating Children with Autism Spectrum Disorder in an Early Childhood Inclusion Setting"

Dear Morgan Lane:

The University of Alabama Institutional Review Board has granted approval for your proposed research. Your application has been given approval according to 45 CFR part 46

The approval for your application will lapse on July 14, 2022. If your research will continue beyond this date, please submit the Continuing Review to the IRB as required by University policy before the lapse. Please note, any modifications made in research design, methodology, or procedures must be submitted to and approved by the IRB before implementation. Please submit a final report form when the study is complete.

Please use reproductions of the IRB approved informed consent/assent form to obtain consent from your participants.

Good luck with your research.

Sincerely,

Director & Research Compliance Officer

Jessup Building | Box 870127 | Tuscaloosa, AL 35487-0127 | 205-348-8461
Fax 205-348-7189 | Toll Free 1-877-820-3066 | rscompliance@research.ua.edu