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COACHING PARAEDUCATORS TO ACCURATELY RECORD STUDENT RESPONSE DATA DURING DIRECT INSTRUCTION

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COACHING PARAEDUCATORS TO ACCURATELY RECORD STUDENT RESPONSE DATA DURING DIRECT INSTRUCTION

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

by

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Dedication

To paraeducators because special education could not happen without you.

To my grandfather, Clifton Steven Jenkins,

who loved me and taught me the value of an education.

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Temple Grandin said, "I cannot emphasize enough the importance of a good teacher." I had many wonderful teachers, but there are two whose advice has guided me throughout my life. Mrs. Higginbotham, my first grade teacher often reminded me, "Paige, you ought to be learning something every day." Excellent advice. Likewise, Mr. Condit on his first day as a teacher and my first day of middle school, said to me, "I am scared, too, but we'll get through it together." I have approached every obstacle since with their words of wisdom. In order to prevent an acknowledgement section that exceeds the length of my dissertation, I will skip to recent years but people of McAlester, Oklahoma and Bangs, Texas, you know who you are!

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Abstract

COACHING PARAEDUCATORS TO ACCURATELY RECORD STUDENT RESPONSE DATA DURING DIRECT INSTRUCTION

By Paige Jane Carter, M. Ed.

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

Virginia Commonwealth University, 2021

Major Director: Dr. Yaoying Xu

Paraeducators serving students with disabilities outnumber special education teachers in the United States (Stewart, 2019; U. S. Department of Education et al., 2018). Paraeducators regularly provide instruction without the benefit of regular and effective training. One of the duties associated with instruction is the collection of instructional data. The purpose of this study was to examine a combination of training and coaching on the accuracy of recording student responses. In addition, a teacher-as-coach model was examined for feasibility with existing time and resources. A multiple baseline across participants design was planned. Special education teachers and paraeducators at a public separate day school for students with autism spectrum disorder were recruited. Shortly after recruitment began, the school district closed in response to the COVID-19 global pandemic. The study was completed once the school reopened for in-person learning. Only one teacher, one paraeducator, and one student completed the baseline, intervention, and follow-up phases. After a brief data recording training and ten intermittent

coaching sessions, each including a pre-coaching session, an observation, and a post-coaching session, the paraeducator's accuracy of recording improved in consistency and accuracy, moving from variable accuracy, averaging 58% in baseline, to a mean of 91% across the intervention sessions, and maintained100% in the follow-up phase. Social validity data and perceptions reported indicate that the participants valued the coaching sessions and found them to be effective. Implications for practice, policy, and research surrounding the support of paraeducators and special education are discussed.

       Keywords: paraeducator, special education, professional development, coaching

I.   Introduction

The Individuals with Disabilities Education Act (IDEA) requires the provision of a free and appropriate education for all students with disabilities and special education that addresses complex and varying needs (U. S. Department of Education et al., 2018). In 2016, there were 6,048,882 students, ages 6-21 with disabilities served under IDEA, with 353,801 full-time special education teachers supporting the instructional needs of these students (U. S. Department of Education et al., 2018). Outnumbering the teachers, 433,032 paraeducators also supported students in public schools (Stewart, 2019; U. S. Department of Education et al., 2018). This number does not include paraeducators who serve preschool-age students or those who are employed on a part-time basis. Paraeducators have become not only a plentiful but integral part of the instructional team (Giangreco et al., 2010).

Statement of the Problem

Paraeducators, often referred to as instructional assistants, paraprofessionals, or teacher aides, are school employees who work under the direction of a licensed or certified educator. Their role is to support students during instruction and perform other responsibilities, ranging from academic support to assisting with functional living tasks across school settings (U.S. Department of Education, 2018). Their responsibilities include leading small groups, working one-on-one with students, implementing behavior interventions, and creating plans for

instruction under the supervision of a special education teacher (Bingham et al., 2007; Brock & Carter, 2013; Hughes & Valle-Riestra, 2008; Mazurik-Charles & Stefanou, 2010). The focus on academic and functional skills instruction reflects a significant change in paraeducator responsibilities. Paraeducators traditionally executed clerical duties such as preparing projects, making copies, and laminating; however, they are now delivering instruction in individual and group settings (Mazurik-Charles & Stefanou, 2010) with little or no formal training (Douglas et al., 2016, 2019; Giangreco et al., 2002; Rispoli et al., 2011; Trautman, 2004). Giangreco (2010) notes that this lack of essential training results in the least qualified staff supporting the students with the most complex needs. When students with disabilities receive support from professionals who are inadequately trained, progress may be inhibited, prompt dependency may arise, and the frequency or intensity of challenging behavior may increase (Giangreco et al., 2011; Rispoli et al., 2011). Consequently, increased reliance on paraeducators for instruction has presented a critical and immediate need for training (Bolton & Mayer, 2008; Giangreco et al., 2010; Ledford et al., 2017; Rispoli et al., 2011; Walker & Snell, 2017).

Rationale for Study of Problem

Professional development must align with the increase in instructional responsibilities. The significance of the role of the paraeducator has also been noted in legislation. The reauthorization of The Individuals with Disabilities Education Act (IDEA) of 2004, also known as the Individuals with Disabilities Education Improvement Act, states that paraeducators who work with students with disabilities must be adequately trained, and stipulates that state education departments must establish qualifications to ensure that all staff serving students with disabilities are appropriately prepared and trained to serve students with disabilities. Likewise, the Every Student Succeeds Act (ESSA) of 2015 has rigorous standards for paraeducators

working in Title I schools, requiring either two years of completed college courses, an associate degree, or a demonstration of skills through passing an exam. Although not all schools or programs require this level of preparation, adequate and appropriate training is necessary to provide effective instruction. The Council for Exceptional Children (CEC) presents a specialty set of seven preparation standards for paraeducators which include skills in the following areas: Learner Development and Individual Learning Differences, Learning Environments, Curricular Content Knowledge, Assessment, Instructional Planning and Strategies, Professional Learning and Ethical Practice, and Collaboration (Council for Exceptional Children [CEC], 2015). Additionally, these standards outline the needed skills for a competent paraeducator. CEC also outlines Professional Development Standards for Paraprofessionals. Despite these guidelines, many school districts are challenged to find ways to feasibly implement a paraeducator training program (Brock et al., 2017; Brock & Carter, 2016).

Models of Professional Development

There are several professional development models available for preparing paraeducators to instruct and support students with disabilities using evidence-based instructional practices (EBIP; Mason et al., 2018). It is not clear, however, *what type of* and *how much* training is best to adequately train paraeducators (Brock & Carter, 2013, 2016). A common practice for professional development in public schools involves a speaker and handouts with little or no follow-up (Brock et al., 2017). Professional development models that include a combination of direct instruction, modeling, prompting, practice, and ongoing performance feedback exhibit a higher rate of positive outcomes than the traditional lecture-style presentation (Bertram et al., 2014; Brock et al., 2017; Rispoli et al., 2011). Unfortunately, the most common form of professional development for paraeducators is stand-alone training (Stichter et al., 2006), which

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is rarely effective at conveying information and shows limited impact on the ability of paraeducators to apply EBIP (Fixsen et al., 2005; Walker & Smith, 2015).

Another model that shows promise is coaching, which usually includes training on a specific skill, opportunities for practice, and an observation and performance feedback cycle (Joyce & Showers, 1981; Mason et al., 2018; Voorhees et al., 2013). This model can include side-by-side coaching in which feedback is given during the session or supervisory coaching, where feedback follows an observation (Kretlow & Bartholomew, 2010). Likely, a combination of both online training and opportunities for actual practice with performance feedback, could improve outcomes in the classroom (Keengwe & Keen, 2012).

In a review of the literature, documented in Chapter 2, seven single-subject studies implemented a teacher-as-coach model where paraeducators are trained using varying combinations of didactic training, online training, role-play, self-monitoring, video modeling, live coaching, remote coaching, and performance feedback (Brock et al., 2016; Giles et al., 2018: Hall et al., 2010; Mason et al., 2017, 2018; Scheeler et al., 2018; Wermer et al., 2018). All of the referenced studies described licensed special education teachers in the role of coach for classroom staff. Skills coached in these studies include discrete trial teaching, peer support arrangements, response interruption and redirection, behavioral strategies, specific praise, communication, and data collection. Though this model is not widely used, it was noted to be an effective tool for training paraeducators.

Paraeducator Perspectives

Research also explores the perspective of paraeducators regarding their learning and training needs. Giangreco and colleagues (2001) noted paraeducators typically perform instructional responsibilities without adequate training or support and received mainly on-the-job

training. The good news is that this same study indicated that paraeducators that learned on-the-job over a period of several years were perceived by teachers as being capable of implementing instructional programs. Learning in the setting where the skills are applied is consistent with adult learning theory; research indicates that adults learn best when they are learning what they need to do to fulfill their role (Lee, 1998). Hughes and Valle-Riestra (2008) quoted a paraeducator saying, "My most valuable training was in the classroom because I don't care what book you read, the best experience is hands-on and that's where I really learned" (p. 169). This indicates that learning instructional practices with a qualified teacher is not only effective but is perceived to be valuable.

Statement of Purpose

The purpose of this study was to examine a training and coaching model for preparing paraeducators and to investigate the feasibility of embedding this model into the instructional day. This study examined if a combination of training and coaching was effective for increasing the fidelity of implementation of evidence-based instructional practices (EBIP). Another consideration was whether or not this model can be feasibly implemented within classrooms with existing staff and resources.

I examined the effectiveness of training and teacher-implemented coaching model for preparing paraeducators on accurate data collection, specifically the recording of student responses during instruction. Data collection is an EBIP essential for informing instruction and monitoring student progress (Ruble et al., 2018). Data were not only collected on academic progress, but also on social, functional, and behavioral skills and were specific to Individualized Education Plan (IEP) goals. For this study, data collection was defined as the accurate recording of student responses during a one-to-one instructional session led by a paraeducator.

Research Questions

The following research questions were addressed in this study:

1. What is the effect of combined training with coaching on the accuracy of paraeducators' recording of student responses during direct instruction?

2. Can a teacher-as-coach model for professional development for paraeducators be efficiently delivered in the classroom with existing time and resources?

Method

I examined the impact of coaching on paraeducators' accuracy of recording student responses. Coaching by the classroom teacher was embedded into the classroom routine during the school day and focused specifically on the documentation of student responses during instruction. I also looked at the feasibility of this coaching model. Based on the results outlined in the literature review, the implementation of coaching improves the fidelity of implementation of EBIP the accuracy and fidelity of the paraeducators' recording of student responses. Implementation of coaching to improve practices during the school day without additional staff or resources was examined.

Design

A single-subject multiple baseline across participants (MBAP) research design was utilized. This study design was selected because it is practical for research and is compatible with intervention classrooms (Gast et al., 2014). The participants included a teacher serving as coach, a paraeducator, and a student. Participants from seven classrooms were recruited with a goal of at least three groups. With staggered baselines and systematic data, MBAP supports internal validity and experimental control through replication (Gast et al., 2014). This replication is valuable and is "at the heart of all science" (Gast & Ledford, 2018, p.78); evidence is

strengthened across time and across participants through replication which allows the functional relationship between the intervention and the behavior change to become more apparent (Gast et al., 2014; Horner et al., 2005). The mandatory school closures due to the global COVID-19 pandemic impacted the number of participants. As a result, repeated measures were not able to be completed as designed. Only one triad completed the study through the baseline, intervention, and follow-up phases.

Setting and Participants

The study occurred in a public separate day program (PSDS) designed for students with autism spectrum disorder (ASD), located within a mid-Atlantic rural and suburban school district that serves 24,000 students. In this district, at the onset of the study 474 students were served under the educational category of Autism, with 38 attending the program where the study took place. This program employed eight teachers and 29 paraeducators. Implementation occurred during the regular school day in the spring semester. The participants included a licensed special education teacher who served as teacher-coach, a paraeducator, and a student with ASD. The program administrator and other classroom staff also participated in social validity interviews.

The Virginia Commonwealth University (VCU) Institutional Review Board (IRB) reviewed the study to ensure that the rights of all human subjects, including teacher-coaches, paraeducators, and students, were upheld throughout the study. In addition, a review process at the school district level was conducted to ensure that the study met local guidelines and school board policy for research completed within the school district.

<div align="center">

Findings and Conclusions

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Even though the study was completed with fewer participants than anticipated, the observation results demonstrated a clear improvement in the paraeducator's accuracy of

recording student responses. The results were determined using visual analysis, including level and trend change across phases, variability within and between phases, and percentage of non-overlapping data. Social validity information was analyzed using both the results of a survey and open-ended interviews. The social validity analysis revealed the value and importance of supporting the instructional skills of paraeducators through coaching in the classroom. Moreover, the open-ended interviews revealed an increase in communication between classroom staff and an increase in the paraeducator's confidence to implement and document instruction.

Implications for professional development for paraeducators and special education teachers, administrative support, policy, and research are discussed. In addition, considerations regarding the COVID-19 pandemic and the impact it has had on services for students with disabilities are also posed.

Definition of Terms

Coaching: Effective coaching has many common characteristics. It is an intensive and sustained professional development that is embedded in the daily routine. It requires a positive collegial partnership between the coach and the recipient; therefore, the coaching relationship is not evaluative. Communication, including performance feedback, is a key component to success. Coaching is focused on improving, refining, and developing skills and techniques for instruction and management (Knight, 2009; Kucharczyk et al., 2012).

Evidence-Based Practice: Danielson and Rosenquist (2014) define evidence-based practice as "an instruction or intervention approach that improves results for students who receive the intervention, based on data from rigorous, scientific research studies" (p.7).

Fidelity: Fidelity is "the accurate and consistent delivery of instruction, intervention, or assessment in a manner that is consistent with the developer's recommendations" (Danielson & Rosenquist, p. 7).

Paraeducator: Paraeducators, often referred to as instructional assistants, paraprofessionals, or teacher aides, are school employees who work under the direction of a licensed or certified educator. Their role is to support students during instruction and other responsibilities in the school setting, ranging from academic support to assisting with functional living tasks across school settings (U.S. Department of Education, 2018). These terms are used interchangeably and do not have definitions that discriminate between them.

Professional Development: structured learning resulting in changes to teacher practices and improvements in student learning outcomes (Darling-Hammond et al., 2017).

II.   Review of Literature

The Individuals with Disabilities Education Act (2004) states that paraeducators who work with students with disabilities must be adequately trained to serve children with disabilities. The Every Student Succeeds Act (ESSA) of 2015 has more specific standards for paraeducators working in Title I schools as well. Designation as a Title 1 school is based on the number of low-income families served by a school. These mandates present challenges to public schools that already have limitations both in time and fiscal resources (Stewart, 2019). The purpose of this review is two-fold. The first aim is to examine the research regarding special education teachers coaching the paraeducators in the classroom and its impact on implementation of EBIP. Second, this review aims to investigate the efficacy and feasibility of this coaching, hypothesizing that it allows for effective professional development despite the constraints of existing resources. An overview, including a theoretical basis for paraeducator training, is outlined below. Then, the systematic literature review will be presented, followed by a discussion of the literature and the implications for the review.

Overview

Paraeducator Training and Responsibilities

Paraeducators provide direct services such as behavior management, working one-on-one with students, providing accommodations, implementing behavior intervention plans, and creating plans for instruction (Bingham et al., 2007; Hughes & Valle-Riestra, 2008; Likins, 2003; Mazurik-Charles & Stefanou, 2010). This is a significant change in their responsibilities.

Thus, there is an increased reliance on the use of paraeducators to provide instruction within the U.S school systems (Bolton & Mayer, 2008) and a greater need for training. Additionally, paraeducators play an important role in students accessing the curriculum (Tarry & Cox, 2013), spend more time with students than special education teachers do (Gilligan et al., 2007), and often come to their roles without education or background that would prepare them for these responsibilities (Brown & Stanton-Chapman, 2017).

Requirements for Paraeducator Training

With the shift in paraeducators' roles came the need to increase their training in order to match their responsibilities and adhere to federal legislation, which now requires that all paraeducators receive training. IDEA requires that paraeducators be adequately trained. ESSA's more specific guidelines state:

> Paraeducators working in Title 1 schools must have earned a secondary diploma or its recognized equivalent. Additionally, paraeducators must complete two years of study at a higher education institution or obtain an associate degree or meet a rigorous standard of quality and be able to demonstrate, through a formal state or local assessment, knowledge of and the ability to assist in instructing reading, writing, and mathematics, or, as appropriate reading readiness, writing readiness, and mathematics readiness (p. 129).

Although IDEA does not require this level of rigor, there is a consistent acknowledgment in both IDEA and ESSA that paraeducators require knowledge, skills, and training in order to provide instruction to students.

Training Models

Knowing that paraeducators now serve students with disabilities in an instructional capacity and that there is a need to adequately prepare paraeducators for this instructional role, it

is surprising that the literature has consistently noted that paraeducators often receive no formal training and often learn their roles as they go (Douglas et al., 2019; Giangreco et al., 2002). It is also crucial to note that the requirements of their job may vary based on the needs of the student, or the paraeducator's specific assignment may change, based on the immediate needs of the setting (Stewart, 2019). This is in stark contrast to the type of training recommended, which should be engaging (Douglas et al., 2019), provide opportunities for practice (Brock & Carter, 2016), and be ongoing, systematic, and competency-based (Likins, 2003).

There are a number of models situated within the public schools to provide professional development for paraeducators in EBIP (Mason et al., 2018). The models available can be divided into three types: preservice training, systematic on-the-job training, and formal in-service training (Likins, 2003). The most widely implemented professional development model is a lecture-style whole-group training that involves a speaker and handouts. Though popular and low-cost, this format alone is rarely effective and shows minimal impact on paraeducators being able to apply what they have learned (Fixsen et al., 2005; Stichter et al., 2006). Conversely, professional development models that include coaching, modeling, prompting, practice, and ongoing performance feedback, exhibit a higher rate of learning and application than the traditional lecture-style presentation (Bertram et al., 2014; Likins, 2003; Rispoli et al., 2011). It is not yet clear; however, *what type of* and *how much* training is best to adequately prepare paraeducators (Brock & Carter, 2013; 2016).

Online modules for professional development have become more popular, especially given the ease of availability and lower cost and conceivably a good option for training paraeducators (Douglas et al., 2013). Considering the research, it is likely that a combination of online training and opportunities for actual practice could be effective (Keengwe & Keen, 2012).

A promising model is coaching, which includes training on a specific skill, opportunities for practice, and performance feedback (Mason et al., 2018; Voorhees et al., 2013). This model can include side-by-side coaching in which immediate feedback is given during the session or supervisory coaching where feedback follows an observation (Kretlow & Bartholomew, 2010).

Paraeducator Perspectives

It is also important to consider the literature that explores the perspective of the paraeducator regarding their own learning and training needs. Consistent with the noted research, paraeducators report feeling unprepared and often received no training or onboarding before starting their instructional responsibilities (Brown & Stanton-Chapman, 2017; Giangreco et al., 2001). Paraeducators have equated this lack of preparation to how little they are valued in the school setting (Giangreco et al., 2001). Paraeducators have indicated that time for training and collaboration is limited (Giangreco et al., 2002) and that special education teachers may not be well-trained themselves (Giangreco et al., 2001). Although these problems have been identified, paraeducators who received mainly on-the-job training and were supervised by the teacher over a period of several years felt more confident and were perceived by teachers as being capable of implementing instructional programs (Giangreco et al., 2001). Thus, learning instructional practices on-the-job with a qualified teacher is valuable.

Theoretical Framework

The goal of professional development is to improve teaching practice in order to increase student learning (Knight, 2009). Professional development must be meaningful and designed with the learner in mind. With paraeducators in mind, both adult learning theory and implementation science come together to provide the theoretical framework for this literature

review and highlight implications for learning that apply to professional learning for school professionals, including paraeducators.

Adult Learning Theory

Malcolm Knowles applied the science and art of adult learning, also known as the theory of andragogy (Knowles, 1992; Lee, 1998). This theory outlines the characteristics of adult learners and a set of assumptions for teaching them (Lee, 1998). Knowles clearly defined how maturing learners motivate and learn differently; they do not respond to the same pedagogical approaches as they did when they were children. Knowles' theory assumes that adults are often intrinsically motivated because they want to solve problems and learn to master what is needed to do their work well. Adults have life experiences to bring to the educational setting, they want to work collaboratively, and learn from one another (Gregson & Sturko, 2007; Knowles, 1992; Lee, 1998). Didactic lecture, perhaps the common form of training, does not capitalize on what is known about the learning needs. As applied to the work of paraeducators, professional learning opportunities must be geared toward these characteristics of adult learners.

Implementation Science

Implementation science offers a framework that can also be applied to the training of paraeducators as adult learners. Eccles and Mittman (2006) defined implementation science as "the scientific study of methods to promote the systematic uptake of research findings and other EBIPs into routine practice" (p. 1). It is the application of any practice and is often where the problem lies when it comes to addressing the gap between research and practice (Fixsen et al., 2009). This valuable science includes two components: the specific and effective practices that exist within a particular field or discipline and second, a clear set of strategies or processes that allow the effective implementation of that practice (Odom et al., 2013). This literature review

examines the strategies needed to ensure that EBIPs are implemented when training paraeducators. Additionally, coaching is an embedded feature of the implementation drivers within the implementation science framework. (Bertram et al., 2014; Blasé et al., 2012). Together, training and skillful coaching promote competence and confidence in the implementation of a program or EBIP. As shown in Figure 1, there is alignment between coaching and adult learning theory (Fixsen et al., 2009; Lee, 1998).
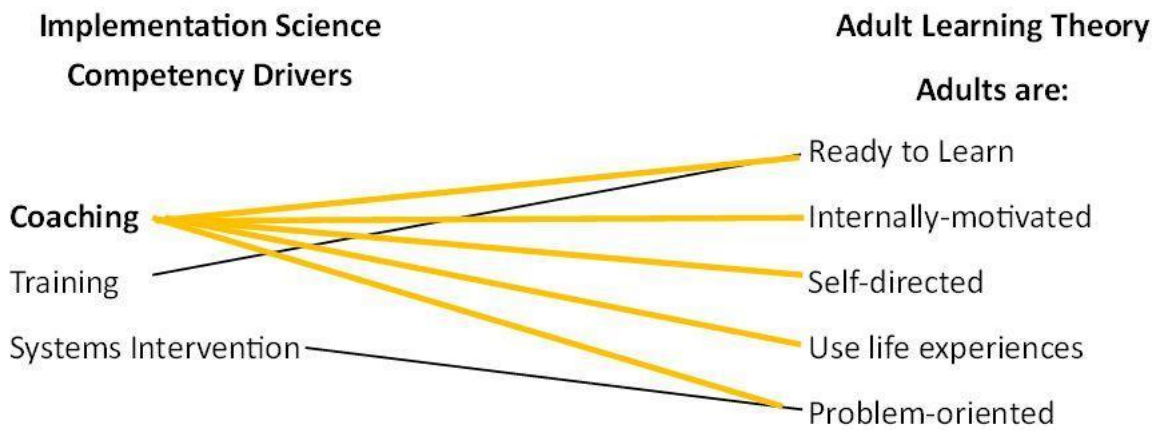
Figure 1

Theoretical Framework

Literature Review Aims

There is a clear need for training and coaching to be efficient (Bolton & Mayer, 2008) and to capitalize on the valuable role of the teacher in preparing paraeducators (Hughes & Valle-Riestra, 2008). Coaching within the context of the classroom utilizing existing classroom staff, including the teacher and the paraeducator(s), could be a way to ensure both efficient transfer of knowledge and the application of that learning in the classroom. Thus, the aim of this review is to explore the impact of teacher-as-coach for paraeducators as well as the feasibility of the delivery of this kind of professional development with existing time and resources.

Review Method

A systematic literature review was conducted to examine literature that specifically targets special education teachers coaching paraeducators. The methodology for the systematic review is outlined below, as is the result. Because the review led to studies that were single-subject research design, the articles will be assessed through analysis of the visual data for trend and immediacy of effect. Additionally, indicators of quality will be examined, including treatment fidelity, social validity, and interobserver agreement (IOA) (Horner et al., 2005).

Search Strategies

Multiple search strategies were used to compile the articles selected for review. An initial search of four electronic databases was conducted on February 23, 2019. PsychInfo, Academic Search Complete, Education Research Complete, and ERIC via ProQuest were used to search the following terms: paraprofessional* OR paraeducator* OR assistant* OR aide* OR "classroom staff" AND train* OR coach* OR "professional development" AND "intellectual disabilit*" OR "cognitive disabilit*" OR "mental retard*" OR autis* OR "developmental disabilit*" OR

"multiple disabilit*" OR "severe disabilit*" OR "deaf-blind*". This yielded a total of 543 articles. Once duplicates were eliminated, 214 articles remained.

Selection Criteria

Inclusion

To be included in this review, articles were peer-reviewed studies that met the following criteria. First, the date range was from 2004 to February 24, 2019, corresponding to the most recent reauthorization of IDEA in 2004, which emphasized that paraeducators must be "appropriately and adequately trained." Also, this is in line with NCLB and ESSA (2015) that requires that paraeducators be "highly qualified." Second, the studies or articles needed to include direct training, coaching, or professional development of paraeducators serving students with disabilities in U. S. school settings. Third, the article must have been written in English. After 214 abstracts were screened for the inclusion criteria, 75 articles remained for full-text review.

Exclusion

Full- text articles were reviewed for the following exclusion criteria. Two of the 75 articles were noted as "unavailable" via online or library sources. Fifteen unrelated articles were removed. Fifteen articles focused on adults or high school students in community-based settings were also eliminated because the focus of this review was public school classrooms. Other articles were excluded from this review, including 6 systematic literature reviews, and 4 studies not based in the United States. In total, 31 studies met the criteria. Given the research questions, 24 of these studies were excluded from the systematic review because they were implemented by university researchers rather than the local school staff, leaving seven studies where the teacher

served as a trainer and/or a coach. These 7 studies were included in this systematic review (see

fig. 2).
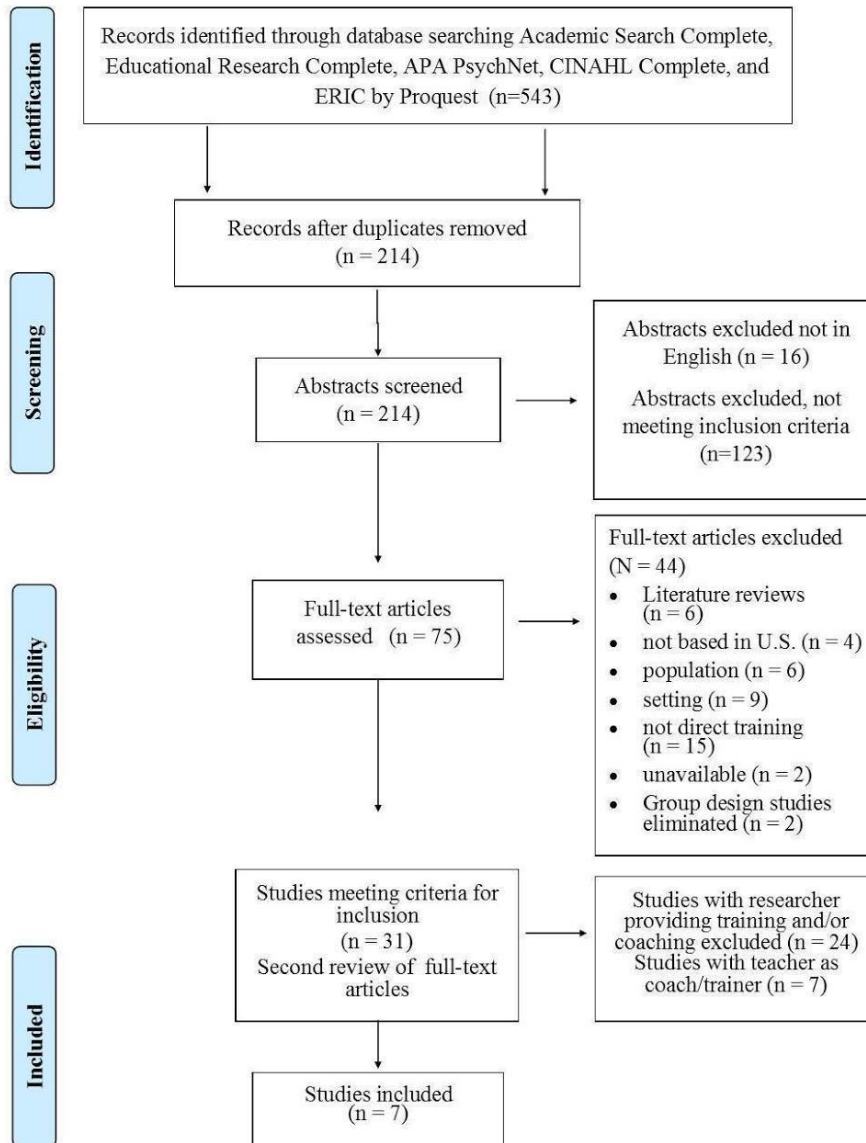
Figure 2 *Prisma Flow Chart*

Review Results

Seven studies met the inclusion criteria, including five multiple baseline across participants, one multiple baseline across settings, and one multiple probe, all single subject designs. These studies examined training and professional development opportunities specific to paraeducators serving students with disabilities in the school setting. The design and length of training included are outlined in Table 1. Components of the training packages were operationally defined and procedures were described in each of the articles.

Participants

Paraeducators

Across the 7 studies, 33 participants (30 female, 3 male) had experience ranging from less than one year to 31 years, averaging 9.16 years of experience. The studies reported level of education for paraeducators ($n = 6$ high school diploma; n =5 associate degree; $n = 12$ bachelor's degree; and $n = 2$ graduate degree). Two additional participants reported either currently or previously attending college. Specific information about paraeducators participating in each study was included in Table 2.

Teachers

Only studies that utilized the classroom teacher as a trainer or coach were included in this literature review. The 25 teachers averaged 10.5 years of experience in the role of a special education teacher, with a range of 1-29 years. The teachers supported a variety of training combinations including didactic training (individual and group, in-person and online), observation with performance feedback, coaching with performance feedback, written study guide/visual checklists, video modeling, self-monitoring sheets, role-play or practice/rehearsal. For specific strategies used in each study and the reported outcome, see Table 1.

Table 1

Studies Examining Professional Development for Paraeducators Serving Students with Disabilities

Article	Description of Participants paraeducators	Setting	Trainer	Paraeducator Target Skill	Description of Support Strategies for Professional Development	Result
Brock et al., 2016	4 triads including 1 student, 1 paraeducator & 1 special education teacher; 10 Peers	Middle school classrooms	Researcher Teacher	Facilitation of peers using prompting, reinforcement, and individualized intervention strategies	4-hour training for special educators; teacher-delivered 2-hour training for paraeducators, two 10-minute video models, then 30- minute observation and performance feedback	paraeducators were able to lead and support peer support arrangement; 3 out of 4 students experienced improvement on individual goals.
Brock & Carter, 2016	Four triads including 1 special education teacher, 1 paraeducator and 1 student	Middle school, general education, and self-contained class	Researcher Teacher	Implementation of peer support arrangement (paraeducators facilitate peers using individualized interventions)	4.5-hour one-to-one orientation to each special education teacher. paraeducators received 2-hour training from teachers, video modeling, and 1-hour follow-up coaching.	Special educators accurately and effectively administered training that enabled paraeducators to implement the peer support arrangement procedures.
Hall et al., 2010	6 paraeducators; 1 special education teacher	Preschool classroom; home-based setting	Researcher Teachers	Use of incidental teaching, Pivotal Response Training, or / discrete trial teaching	1-day workshop including modeling, role-play; performance feedback from teacher	All 6 paraeducators were able to demonstrate the use of targeted strategies.

Mason et al., 2017	5 supervising teachers and 11 paraeducators	Elementary School Special education classrooms	Researcher Teacher	Implementation of discrete trial training (DTT)	AIMS DTT module; Practice-Based Coaching (PBS) from supervising teachers	Teachers can effectively coach paraeducators to increase para's fidelity of implementation.
Mason et al., 2018	3 teacher/paraeducator dyads	Elementary School	Researcher Teachers	Implementation of Momentary Time Sampling (MTS)	Coaching and performance feedback from supervising teacher;	paraeducators achieved reliable and accurate data collection skills.
Scheeler et al., 2018	2 teachers; 4 paraeducators	Elementary school special education classrooms	Researcher Teachers	Increase specific praise given by paraeducators to students	10-15 minute training in the bug-in-ear technology, time for practice; Immediate feedback via Bug-in-ear technology from teachers to para during instruction	Immediate feedback was effective at increasing paraeducator's use of specific praise and more effective than delayed feedback.
Wermer et al., 2018.	1 special education teacher, 1 paraeducator, & 1 student	Private school for students with ASD, other developmental disabilities, and typically developing peers.	Researcher Teacher	Implementation of EBIPs) including Opportunities to respond (OTR), Opportunities to Initiate (OTI), and least-to-most prompting (LTM).	10 to 20-minute training for each EBIP with modeling. Follow-up performance feedback session after each observation.	paraeducators successfully implemented EBIPs, which resulted in increases in student communication.

Table 2

Description of Paraeducator Participants

Author(s)	Race	Sex	Education	Years of experience	Population
Brock & Carter, 2016	AA	M	Some college	14	SD
	W	F	Bachelor's degree	2	SD
	W	F	High school	8	SD
	W	F	Associate degree	14	SD
Brock et al., 2016	AA	F	Associate degree	6	SD
	W	F	Associate degree	12	SD
	W	M	Bachelor's degree	4	SD
	AA	F	Bachelor's degree	5	SD
Hall et al., 2010		F		16	ASD
		F		2	ASD
		M		5	ASD
		F		6	ASD
		F		2	ASD
		F		2.5	ASD
Mason et al., 2017	W	F	Associate degree	9	Mod to SD
	B	F	High School	13	Mod to SD
	B	F	Bachelor's degree	1	Mod to SD
	B	F	Bachelor's degree	15	Mod to SD
	B	F	Bachelor's degree	1	Mod to SD
	H	F	Master's degree	10	Mod to SD
	B	F	Bachelor's degree	4	Mod to SD
	W	F	High School	31	Mod to SD
	B	F	Bachelor's degree	3	Mod to SD
	B	F	Associate degree	14	Mod to SD
	B	f	Bachelor's degree	14	Mod to SD
Mason et al., 2018	AA	F	High School		ASD
	AA	F	High School		ASD
	AA	F	Bachelor's degree		ASD
Scheeler et al., 2018		F	High school	13	ASD
		F	Bachelor's degree	2	ASD
		F	2 years college	28	ASD
		F	Master's degree	<1	ASD
Wermer et al., 2018.	W	F	Bachelor's degree	2.5 year	ASD

Students

Students with disabilities were also identified to participate in the targeted interventions as recipients of the paraeducators' instructional or behavioral support. Five studies included students with autism spectrum disorder ($n = 14$), two studies included students with severe disabilities ($n = 8$), and one study included students identified with moderate to severe intellectual disabilities ($n = 11$).

Setting

The studies took place within public or private school settings where paraeducators support students with disabilities. Six studies were implemented in public school classrooms (one preschool classroom; three elementary special education classrooms; two middle schools). One of the studies took place in an inclusive private school that enrolled both students with disabilities and typically developing students. All of the settings involved paraeducators supporting students with disabilities.

Measures of Quality

Inter-observer Agreement

All of the studies selected for this literature included standards for quality for single-subject design with operationally defined variables, acceptable IOA, and clear experimental effects that followed stable baselines, demonstrating a functional relationship between the paraeducator training and the targeted change in their behavior. Specifically, the IOA for the seven studies was recorded for between 20% and 50% of the sessions. IOA was calculated and ranged from 80 to 100%, which reaches the acceptable levels of greater than 80% (Horner et al., 2005).

Social Validity

Social validity was assessed in all of the seven studies and is crucial to ensure the quality of single-subject research (Barton, et al., 2018; Horner et al., 2005). Social validity surveys or interviews were most commonly used to gather information regarding how the participants valued the training they received for both themselves and perceived outcomes for the students they serve. Paraeducators reported favorable perceptions and made comments regarding the training. One paraeducator indicated that the training would be very likely to implement in similar settings and would recommend it for others (Wermer et al., 2018). Mason and colleagues (2018) concluded that both teachers indicated that the coaching was helpful in improving paraeducator performance in the classroom and indicated that it was possible to find time to teach, coach, and collect data. Paraeducators receiving coaching through the Practice-Based Coaching method indicated that they would like more coaching to improve their skills in other areas (Mason et al., 2017, 2018). Survey results revealed that all participating paraeducators agreed that the training was valuable, feedback from their supervising teacher was valuable, and this training increased confidence and felt that their skills had improved (Brock & Carter, 2016; Hall et al., 2010; Scheeler et al., 2018). In general, teachers surveyed noted the improvement in the skills of their paraeducators across the studies examined.

Treatment Fidelity

Treatment fidelity is a measure of how well the procedures for training or implementation are followed. Five of the seven studies noted a checklist used to measure the fidelity of implementation of the steps of the treatment procedure (Brock et al., 2016; Brock & Carter, 2016; Mason et al., 2017; Scheeler et al., 2018; Wermer et al., 2018). Treatment fidelity

of the procedures was high and ranged from 80-100% for paraeducators and teachers, 66.7-100% for peers (Brock et al., 2016).

Visual Data Analysis

The visual data analysis indicates that the training provided across all studies had a clear and immediate impact on paraeducator performance. Mason et al. (2017) demonstrated change across all paraeducators' implementation of discrete trial instruction with the introduction of teacher-implemented Practice-Based Coaching intervention. Likewise, the implementation of bug-in-ear coaching resulted in an immediate increase in paraeducators' use of specific praise (Scheeler et al., 2018). Wermer et al. (2018) also demonstrated a substantial change in the implementation of communication support strategies. The visual data presented support a functional relationship between the teacher-as-coach model and improvements in momentary time sampling data collection (Mason et al., 2018). Brock and Carter (2016) had inconsistent baseline data, but significant improvement was noted on the targeted paraeducator skills including least-to-most prompting, time delay, and naturalistic communication intervention increased significantly. A more consistent baseline would have helped to establish a functional relationship between the training and the newly acquired skills. The visual data also indicated that while there was an improvement in the implementation of peer support arrangements by paraeducators after training, performance feedback and the introduction of self-monitoring did not further increase this skill (Brock et al., 2016).

Maintenance and Generalization

A measure of maintenance is accomplished if the new skill learned maintains across time after the intervention is complete. Generalization is achieved when the new skill is able to be applied with new students, new content, or new settings. Measures of maintenance and

generalization strengthen the research design (Horner et al., 2005). Wermer et al. (2018) reported

maintenance data weekly for four weeks when the paraeducator continued to maintain

implementation fidelity of communication support strategies. Four of the studies did not report

maintenance or generalization information (Hall et al., 2010; Mason et al., 2017, 2018; Scheeler

et al., 2018).

Discussion of Review Results

The purpose of this literature review was to explore single-subject design studies that

examine preparation for paraeducators supporting students with disabilities. Single-subject

design studies were searched and selected for two reasons. First, single-subject design studies

were selected for their relevance and importance to the classroom context, often referred to as

social or ecological validity (Horner et al., 2005; Ledford et al., 2014) the goal is to uncover

implications for feasible training in school settings. Second, single-subject research continues to

be useful for educators wishing to replicate EBIP in their classrooms and useful for using and

developing interventions (Horner et al., 2005).

The state of paraeducator training in public schools is inadequate. Paraeducators are not

typically fully trained, if at all, and most of the learning occurs on-the-job (Carter et al., 2009;

Giangreco & Broer, 2005; Giangreco et al., 2010). Though rare, training that does happen is

conducted in large group in-services with little or no follow-up (Giangreco et al., 2010). In spite

of being required to provide direct instruction to students with disabilities, paraeducators are

unprepared to do so (Carter et al., 2009). This clearly warrants investigation into practices that

support the professional growth of paraeducators in ways that are effective and feasible.

Widespread recognition of the need for preparation of paraeducators is critical to ensure

appropriate instruction for students with disabilities. Administrators and teachers that supervise

the instruction of students with disabilities must consider both instructional and legal implications. Asking paraeducators that are not prepared to perform direct instructional tasks is unethical and unfair to both the paraeducator and the student (Brock & Carter, 2013). Further, and perhaps more perilous is that in cases where inadequately trained paraeducators provide instruction to students with disabilities rather than a highly-qualified teacher, these students are no longer receiving a free and appropriate public education as required by law (Brock & Carter, 2013; Etscheidt, 2005; Giangreco & Broer, 2005). When paraeducators are the primary provider of instruction, this should only be done under the supervision of a qualified teacher who makes instructional decisions (Carter et al., 2009). Further, paraeducators can effectively provide quality instruction when supported by a qualified teacher providing clear directions, focused training, and ongoing supervision (Brock & Carter, 2013).

The training outlined in this literature review is compatible with adult learning theory. Specifically, adult learners prefer to be an active part of their learning; working collaboratively, teachers and paraeducators can build effective instructional teams, making a positive impact on the students and the overall educational environment (Gregson & Sturko, 2007; Knowles, 1992; Lee, 1998). Further, adult learning theory indicates that adults have widely varied experiences to bring to their learning and can learn from each other. This ongoing collaboration through training with performance feedback through coaching is consistent with the tenets of implementation science, which outlines coaching as more effective than other forms of professional development (Odom et al., 2013).

Limitations of the Literature Review

The focus of this literature review was the impact of teacher-led coaching on paraeducators' implementation of instructional and behavioral practices. The focus was on

paraeducator outcomes and as such student outcome data were not emphasized. Greater

emphasis on student outcomes may have strengthened the review. Second, only the author

conducted the analysis of the search and study results; a second researcher analysis could have

generated agreement to inform and bolster this analysis. Third, some of the participants were

volunteers, indicating that the results may not represent the larger population of special education

teachers, some of whom may require more training to be able to train paraeducators to fidelity.

Lastly, there were 24 articles eliminated because researchers or their staff conducted the training.

The decision was made only to include studies that utilized school staff to bolster the focus on

feasibility of implementation in the classroom setting. Pertinent information from excluded

articles informed this study but was not included in the systematic review.

Conclusion of the Review

Many school districts attempt to meet the need to train paraeducators in EBIP; however,

systems often rely on lecture-style training, which may not be effective (Brock & Carter, 2016).

Supervision and training of paraeducators, then, often fall to special education teachers (Scheeler

et al., 2018). As demonstrated in the studies highlighted in this literature review, teachers are

capable of coaching paraeducators to implement targeted instructional practices and appears to

be a feasible way to address these training needs. Implementing teacher-led coaching to prepare

paraeducators could bring school districts into compliance with federal regulations while making

a difference in the skills of paraeducators. Using the existing staff in a school to provide

coaching increases feasibility. More research is needed to determine if a teacher-as-coach

professional development model could be utilized to build and refine a variety of skills across

paraeducators, skills, and settings.

III.   Method

Current legislation and policy have charged school districts with ensuring that staff members are adequately trained to meet the needs of students with disabilities (ESSA, 2015; IDEA, 2004). The need for training for paraeducators is well-established but determining the most effective and feasible ways to provide this training must be a priority (Brock & Carter, 2016). The purpose of this study was to examine the possibility of embedded coaching by the teacher during the school day through a single-subject research design study. Single-subject research provides a practical but effective way to test interventions in ways that are applicable in the school environment (Horner et al., 2005). I addressed the following research questions:

1. What is the effect of combined training with coaching on the accuracy of paraeducators' recording of student responses during direct instruction?

2. Can a teacher-as-coach model for professional development for paraeducators be efficiently delivered in the classroom with existing time and resources?

Pilot Study

In the summer of 2019, I conducted a pilot study to test the implementation procedure as well as measures for coaching in the classroom. This pilot study led to the procedures and measures outlined for the dissertation research design. In the pilot, I examined the effects of the same teacher-as-coach model that is described in detail in the following sections. The pilot study began following approval from the university Institutional Review Board and a review process in the local school district. The participants in this study included a coach, two paraeducators, (Para

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1 and Para 2), and two students with ASD. Before the implementation of the study, the coach received training in coaching based on the National Professional Development Center on Autism's (NPDC) coaching manual (Kucharczyk et al., 2012) which is also described in detail in the following sections. The skill targeted for improvement was the paraeducator's ability to offer additional prompts after an incorrect response during 1:1 instruction of discrete skills. The study was implemented over the course of four weeks during the extended school year session and incorporated a simple two-phase single case or AB design, with a baseline phase followed by an intervention phase. The results that followed the implementation of 10 to 15-minute coaching sessions were promising. Specifically, Para 1's skill in providing additional needed prompts improved, and Para 2 more easily gained the student's attention prior to delivering the instructional cue. The social validity survey data indicated that both the paraeducators and the coach noticed an improvement in the overall fidelity of implementation of prompting during instruction. IOA was calculated for 40% of sessions and ranged between 90 and 95% for all sessions. The teacher-as-coach model utilized in this pilot study suggests that it is effective for improving implementation. The visual data also indicated improvement in the paraeducator's practice, however, limitations were noted. Due to the simple AB design and lack of experimental control, a functional relationship could not be established, so it is unclear if that was solely due to the coaching intervention (Horner et al., 2005). The short duration and lack of follow-up data were problematic. Another concern was the complexity of the prompting module presented to the paraeducators; it was created for teachers and did not transfer well to the paraeducators in the study. The participants reported that the content and the format of the training were challenging. Additionally, no maintenance or generalization data were collected; it is unknown if the learning was generalized.

The pilot study informed the research design outlined below. A change in design to a multiple-baseline across participants design (MBPD) to strengthen validity through replication is warranted. In addition, a post-intervention phase to examine if the skills gained during coaching will maintain or continue to improve beyond the intervention. An analysis of the coaching logs in the pilot study indicated that many of the questions expressed by paraeducators were not only related to the prompting of students but how to record the prompts and the students' responses during instruction. On eight different occasions, the paraeducators expressed, during the observation or during the post-coaching sessions, that knowing how to record student responses was challenging. The importance of collecting and analyzing student data, the mechanism for identifying learner progress and identifying teaching practices, is noted throughout literature (Brawley & Stormont, 2013; Ruble et al., 2018). The collection of student data links instruction to student performance and behavior and documents program efficacy (Danielson & Rosenquist, 2014). A recent study confirms the need for paraeducator training in collecting student data for progress monitoring, stating that paraeducators are "woefully unprepared" for this task (Mason et al., 2018). Hence, for my dissertation study, the focus of the intervention is paraeducators' accuracy of recording student responses during instruction.

Research Design

A single-subject MBPD was selected to evaluate the effects of the teacher-as-coach model on paraeducators' accuracy of recording student responses. The MBPD was selected for its practical implementation and staggered introduction of the intervention which strengthens experimental control (Gast et al., 2014). The repeated measures across participants enhances internal validity, or likelihood that outcomes observed are due to the intervention rather than other factors. MBPD also demonstrates external validity, or the ways in which the study is likely

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to be useful and generalizable to other contexts (Gast & Ledford, 2018). This design also allows

for the replication of effect across participants and is recommended to determine a functional

relation between the independent variable, teacher-implemented coaching and the dependent

variable, paraeducator recording of student responses (Ledford et al., 2018). Descriptions of the

setting, materials, variables, experimental phases, and data analysis are outlined below.

Study Conditions Due to the Global Pandemic

A declared state of emergency related to the global COVID-19 pandemic mandated

public schools to close in March 2020. Continued pandemic concerns necessitated ongoing

changes to service delivery for the summer and fall semesters of 2020 and continuing into the

spring semester of 2021 for all public school students. The response varied across school districts

as local school boards were tasked with making decisions that best suited their COVID-19

situation and ability to implement mitigation strategies. Some districts allowed parents to

determine whether or not their students would remain virtual or come to school in person, full

time five days per week. Other districts offered a hybrid model where two groups of students

rotated, attending in person two days per week for instruction with instruction delivered through

a virtual or asynchronous model the remaining three days of the week. With this in mind, some

districts provided alternates to these options for students with disabilities (SWD) in accordance

with Individualized Education Plan (IEP) services. According to the state education agency

website, some districts offered only virtual instruction for all students and individualization had

to be determined under the virtual model.

In the school district where the study occurred, Individualized Education Plan teams

determined the services needed for SWD but with some restrictions. In the spring and summer

2020 semesters, according to the school division leadership, the offerings were individualized

under three categories: high tech (instructional packet with virtual instruction and support), low tech/limited internet access (instructional packet and video conferencing or phone support), or no tech/no internet access (paper pencil tasks and activities with instructions for parents or caregivers to follow). Ultimately, no in-person learning was scheduled through August of 2020. Beginning in the fall semester of 2020, the school district determined to allow some face-to-face instruction for students with disabilities through Prioritized Learning Experience. In addition, school buildings across the district opened to afford students with limited or no internet connectivity the opportunity to access virtual learning. The changing nature of this time is reflected in Table 3.

The restrictions necessary for mitigation proved challenging for the intended research model in various ways due to the impact on staff and students. Staff at the research site were impacted in a variety of ways. The delay due to school closure was the first obstacle. Additionally, recruitment and retention of participants was a challenge. Children who were once in school all day were now learning at home. This meant that some paraeducators who had interest in study participation resigned their positions to support their own children who were learning virtually. Because the school schedule was modified, access to students was limited to 2.5 hours per day, four days per week, instead of the typical 5.5 hours, 5 days per week instructional routine. Lastly, because several site teachers were now teaching both in person and virtually, the administrator at the site indicated that the study would be superfluous, given these new demands, excluding participation for several teachers, paraeducators, and students.

Table 3

School District Schedule and Model during COVID-19

Date Range	Model
August 17, 2020- August 29, 2020	All students remained virtual for the first two weeks of school.
	School building were open for students with limited or no internet connectivity
August 31, 2020- October 9, 2020	Prioritized Learning Experience for students with low incidence disabilities which included students supported in specialized special education programs.
	School buildings were open for students within limited or no internet connectivity.
October 9, 2020- January 29, 2021	Hybrid Learning. Students electing to return to in-person learning were divided into two groups and were in person for instruction two days per week (Monday/Tuesday and Thursday/Friday).
	Specialized programs were open four days per week on a modified, half-day schedule or on an individualized schedule, according to IEP determinations.
	School buildings were open for students within limited or no internet connectivity.
February 1, 2021- February 7, 2021	All students returned to virtual instruction per school board decision, including specialized programs.
	School buildings were open for students within limited or no internet connectivity.
February 8, 2021	Hybrid model option reinstated by reversal of school board decision.

Further challenges arose from restriction of school visitors due to COVID-19 mitigations, limiting direct access to participants. Observations and question and answer sessions were thus restricted to a virtual platform. While unexpected, this proved to be the least impactful challenge as the participants were now accustomed to this form of communication.

As a result of the modified instructional format, condensed instructional day, and altered staffing and responsibilities, the availability of participants was reduced. As a result, the planned research design (multiple baseline across participants) was incomplete. Two triads were identified. One identified paraeducator did not qualify to complete the study because her accuracy during the baseline phase was at or near criterion for all five sessions. One triad proceeded through the baseline, intervention, and follow-up phase. This necessitated the presentation of results as an AB Single Case Design with follow-up as outlined in Chapter 4.

Setting

This study took place in a public separate day program within a mid-Atlantic rural and suburban school district that serves 24,000 students. In this district, there are 474 students served under the educational category of Autism, 38 of whom currently attend this program. Designed for students who require a more specialized placement than in a typical public school, this program has a ratio of 1 adult (teacher or para) to every 1.4 students. Instruction is typically delivered one-on-one or in small groups.

At the public separate day school study site, specific services for the hybrid model were determined through each student's IEP but the majority of students attended four days per week for one 2.5-hour session each day. Students attended either a morning or afternoon session. There was time allotted between sessions for cleaning. In accordance with IEPs, some students attended longer sessions or fewer days per week, depending on the team decision. The enrollment for virtual instruction averaged 13 and an average of 35 students attended in-person for at least part of the day under the hybrid model.

The paraeducators in this setting receive training regularly but it is limited to one or two general district-level professional learning opportunities each school year. In addition, the state

requires that all staff that work with students with ASD participate in a one-time training. Beyond this required training, additional training received is left to the program administrator who is a licensed special education teacher and a Board Certified Behavior Analyst (BCBA) or to the special education classroom teachers. The director overseeing special education in the district reported that current training is insufficient to adequately prepare the paraeducators, especially given the systematic nature of the instruction in this program (personal communication, August 6, 2019). The instructional practices include Discrete Trial Instruction, Reinforcement, Task Analysis, Functional Behavior Assessment, and other EBIP. The program consistently experiences higher turnover of paraeducators than any other program in the district and results in a continuous cycle of new personnel without prior training.

Participants

Requirements

To participate in the study in the role of coach, special education teachers held a current state license, served as the lead teacher in a classroom setting at the public separate day school, and had at least three years of experience teaching students with ASD. Paraeducator participants were employed in the PSDS in a classroom with at least one student who also participated in the study, and had no previous training in data recording. Participating paraeducators also demonstrated inconsistent and inaccurate recording of student responses through teacher observation and interactions during the baseline phase. One of the consenting participants did not meet this threshold and her participation was discontinued during the baseline session. Students were enrolled in the separate day program and receive special education services through an Individualized Education Plan (IEP) and between the ages of 6 and 17.

Recruitment

The participants in this study included special education teachers serving as coaches, paraeducators, and students. Coaches and paras were paired by classroom to support the relationship beyond the study. It was the goal to recruit and retain at least three coach-paraeducator pairs as a minimum of three is recommended to determine a functional relationship in this type of study (Gast & Ledford, 2018).

Coach and paraeducator participants were recruited via an email invitation. Potential participants were identified by the supervising building administrator. Once potential participants were identified, an email call for volunteers to participate was sent. Interested participants were asked to complete a short orientation form with their name, years of experience, and previous training. Following this, an orientation was scheduled. This session included information about the study and the rights of participants in this research. All consent forms were distributed at that time. The email invitation and orientation script are available in Appendix A. Consent form examples for paraeducators, coaches, and students are available in Appendix B.

Three paraeducators and three teachers initially indicated that they would like to participate. Unfortunately, the timing of the COVID-19 mandatory school closure immediately followed the initial information session where participants were recruited. The closure continued through the summer of 2020. The study resumed when school opened in September 2020. At this time four paraeducators and two teachers showed interest in participation. Two interested paraeducators resigned their positions due to the stressors of educating their own children virtually while also trying to work. One teacher and one paraeducator declined to participate for similar reasons, indicating that teaching some students in person while teaching others in a virtual model was challenging and they did not want to add anything to this stressful time. A new

paraeducator was recruited but she did not meet the requirements for the study as she showed high proficiency during baseline. The paraeducator that remained and the teacher in that classroom ultimately finished the study.

Parents of potential student participants were contacted individually by the research assistant by phone and/or email to inquire about participation for students in the spring and again after the school closure. Consent forms with all human protection information were also distributed via email. An in-person meeting was also offered to answer questions, but that was declined by all consenting parents. Parental consent was obtained in order for students to participate. It is important to note that no student data were analyzed to answer the research questions, but consent was obtained because the student responses would be recorded by the paraeducator and the instructional sessions would be video recorded.

Coach

Meg, a 40-year old Caucasian female, participated in the study as the coach with three years teaching experience. She was fully licensed as a special education teacher with a Master's Degree in education. Meg worked in the private sector as a daycare administrator before coming to public school. At the time of the study she supported five in-person students in her classroom with a staff of four paraeducators. Upon arrival to the program Meg and all teachers received training in the data collection system used at the school and was shown ways of using the data to make instructional decisions. The program administrator also routinely conducts professional learning sessions to review and analyze data. Meg also received general training in data collection as part of her graduate work.

Paraeducator

Mary has worked at the SPDS for two years as a paraeducator. She is a 55-year old Caucasian female. She has worked in the same classroom since she arrived at the SPDS and has received some feedback from the classroom teacher, program administrator, and other paraeducators in the classroom. Prior to this study, however, she had only received a very basic overview of data collection with her orientation and occasional comments regarding her data from the classroom teacher.

Student

Kevin, an eleven-year-old African American student, receives special education under the educational category of Autism Spectrum Disorder (ASD) and also has a corresponding medical diagnosis. Kevin's Individualized Education Plan (IEP) indicated that Kevin's impact of disability includes global developmental delays, stereotypy, and behavior associated with challenges with expressive communication. His preferred method of communication was pointing, or taking someone to what he wants and he sometimes utilized an iPad application as a communication system, though this was inconsistent. Kevin's IEP goals spanned all areas of development with an emphasis in functional communication. His teacher stated that Kevin enjoyed academic tasks and learned best in a one-to-one teaching situation with visual supports and manipulatives. In addition to specially designed instruction, Kevin received related services including speech-language therapy, occupational therapy, and adapted physical education.

Participant Training

Paraeducator and coach participants received training for participation in this study. Prior to the implementation of the study, coaches received training specific to coaching to improve EBIP. Coach training materials are available in Appendix C. As the researcher, I provided the 2-hour training, which included specific examples, discussion, and opportunities for practice with

the use of researcher-developed data collection tools for this study. The training included

coaching principles based on the NPDC coaching manual (Kucharczyk et al., 2012). Following

the training, a questionnaire designed to check-for-understanding was administered and all

participants scored 100%. Should they have scored less than 100%, additional support would

have been offered until that criterion was reached. The presentation, fidelity check, and check-

for-understanding questions are available in Appendix D).

After a baseline phase (described below) was complete, the researcher conducted a

virtual in-service training specific to recording student responses during one-to-one instruction

for paraeducators and coaches. This training included a combination of presentation, discussion,

and opportunities for practice. The opportunities for practice were evaluated on a fidelity check

to ensure that learning opportunities are presented. Learning was considered sufficient for use in

the study when the paraeducator reaches 80% accuracy. The training following baseline were

conducted virtually via Google Meet due to restrictions in the school division necessitated by the

COVID-19 pandemic. The fidelity check was developed based on the expectations of the

program and was adapted from the National Professional Development Center on ASD

Prompting (Sam et al., 2015) and Discrete Trial Teaching (Sam et al., 2016) modules.

A research assistant and I served as the primary data collectors. The research assistant

was previously trained in coaching and data collection but also participated in a training on the

data collection procedures for this study. Opportunities to discuss and practice the observation

tool and coaching log were provided. The research assistant also participated in the coaches'

training and completed the Coaching Training Learning Check, achieving the passing criterion of

100%.

<center>**Measures**</center>

Single-subject research utilizes one or more dependent variables that must be operationally defined that allow observation and measurability to ensure validity and fortify replication (Horner et al., 2005). The procedures to examine the dependent and independent variables included in this study were adapted from previous studies (Giles et al., 2018; Mason et al., 2017, 2018; Scheeler et al., 2018; Wermer et al., 2018) and are outlined below.

Dependent Variable

This study focused on teacher-implemented coaching to improve the procedures that paraeducators used to record student responses during one-on-one instructional sessions. The coach utilized a researcher-developed observation tool; embedded in this observation tool as an opportunity for the coach to record the student responses during instruction, which could be compared to the paraeducator's recording of the same student responses. This tool included skills or steps that the paraeducator must follow to record student responses accurately. The steps included utilization of a data sheet to review the following: the skill the student would be demonstrating, the criterion for a correct response, and the procedures for presenting that skill. The para was expected to immediately record each response with fluency as to not halt instruction. The observation tool also consisted of simultaneous recording of the student responses both by the coach and the paraeducator so that agreement, or lack thereof, in the data recorded was discussed during the post-observation coaching session. The Observation Tool is available in Appendix E.

Independent Variable

In single-subject research, the independent variable is the intervention under investigation and the fidelity of implementation of that practice is documented (Horner et al., 2005). For this

study, the coaching of paraeducators by special education teachers was the independent variable under examination. A task analysis of the coaching process was completed, and a researcher-developed coaching log was developed to document the three phases of the coaching process (pre-observation, observation, and post-observation); this procedure is outlined below. The coaching log is available in Appendix F.

Procedures

The impact of the coaching was measured through an analysis of observational data, IOA, and treatment fidelity. The observations took place during one-to-one instructional sessions. All instructional activities during these observations were based on student responding related to goals written in the student's IEP. In addition, coaching session videos were examined for qualitative data in addition to the data collected from observations.

Baseline Phase

First, a baseline phase (A) was conducted consisting of five observations of typical instruction sessions where one-on-one instruction is provided by the paraeducator. The para was expected to record student responses as she normally would. The coach observed and recorded simultaneously. After five sessions were completed, the data were analyzed to determine if the intervention phase could begin. The criterion to move to the next phase was that the mean percentage of correct responses needed to be less than 80% and demonstrate a level or downward trend.

During the baseline phase, data was collected while the coach observed. Observations were 10-25 minutes in duration, one to two sessions per day. The coach observed and recorded data using the researcher-designed Observation Tool. The student's responses as well as the paraeducators recording were noted. The consistency and fluency of the recording was also

included in the coach's notes. In addition, sessions were video recorded for review to determine procedural fidelity as well as inter-observer agreement (IOA).

Intervention Phase

During the intervention phase (B), the coaching process was implemented in three phases for each coaching session. First, a 5-10-minute pre-observation session to discuss the plan for the observation and any reminders of protocol for recording student responses occurred. As they progressed, the pre-coaching sessions also included reminders of feedback from previous coaching sessions. Next, a 10-25-minute observation was conducted during instruction. Following the observation, a 5-10-minute post-observation coaching session took place for the coach to provide feedback and give the paraeducator an opportunity to ask clarifying questions. The coach documented the coaching process on the researcher-developed Coaching Log to ensure treatment fidelity of all three phases of the coaching process. As in the baseline phase, the coach utilized the researcher-developed Observation Tool to analyze the fidelity of the paraeducator's recording of student responses.

The intervention phase had a staggered start. This staggering of intervention creates a replication of the previous baseline in the absence of intervention and establishes a pattern to potentially show a stronger relationship between the intervention and any change (Horner et al., 2005) and demonstrates reliability (Gast et al., 2018). Because there was only one triad, the intervention phase continued for ten sessions. A behavior change was noted compared to baseline through visual analysis.

Follow-up Phase

After the completion of the implementation phase, and a ten-week period of no intervention, three observations were conducted to determine if the paraeducator maintained

accuracy in recording of student responses. The coach utilized the same Observation Tool used in the baseline and implementation phases. I also reviewed the video-recorded observations to ensure procedural fidelity and IOA.

Threats to Validity

To lessen threats to internal validity, a MBPD was planned. Threats due to history and maturation are controlled when the intervention is staggered (Gast & Ledford, 2018). External validity is strengthened through the replications in the design (Horner et al., 2005). One set of participants does not meet the standard to demonstrate a functional relation. Two baselines are the minimum to meet the standard and even then requires that the behavior change be extremely clear to show a relationship between the intervention and the change (Kazdin, 2011). Because only one triad completed the study, inferences about the impact of the intervention could not be definitively made.

IOA was calculated and fidelity of implementation was emphasized across the study components to help to control for threats to internal validity (Horner et al., 2005). Interobserver agreement (IOA) documents the degree to which two or more independent observers report the same observed values after measuring the same events (Cooper et al., 2019). It is a measure of the integrity of data collection as inconsistencies or variation in data procedures is a threat to the internal validity of any study (Ledford et al., 2018; Kazdin, 2011). IOA is calculated using: $Frequency\ Ratio = \frac{smaller\ total}{larger\ total}\ x\ 100$. The observation tools were utilized to document the process and ensure consistency. A research assistant also reviewed 46.6% of instructional sessions to further ensure IOA.

Some other threats to validity included maturation, or the development of the participant by other means than the intervention. This is due to sometimes lengthy baseline condition in the

staggered design, especially for participants who receive the intervention later in the study (Gast et al., 2014). Testing effects are also a concern, meaning that change can occur due to the baseline condition alone. Attrition, or losing the participants during the study, can obviously impact the outcome as well (Gast et al., 2014; Horner et al., 2005). In this study, however, the participating paraeducator was not impacted by a lengthy baseline. The testing effects were possible merely because attention was drawn to recording of student responses. This heightened focus could have impacted the paraeducator's performance and must be considered.

Inconsistent effects, or very different results, between the participants was also a concern. Although the paraeducators that signed up for the study had varied life and professional experiences that could have influenced the implementation of the instruction, both initial participants received the same training and had no previous training regarding data recording procedures.

Measures of Quality

Social Validity

A 5-point Likert scale survey was distributed to the paraeducators and the coaches to rate their level of satisfaction regarding the training, coaching, and implementation. The survey was adapted from a previous study (Mason et al., 2018) and ranged from *5 – strongly agree* to *1 – strongly disagree*. The overall response to the survey was considered as well as the response to individual questions. The teacher serving as the coach and the paraeducator were surveyed. The participant's role was identified so that responses were comparable. Specifically, the participants reported levels of satisfaction with the coaching procedures, implementation of instructional practices, and their confidence in the ability to implement these practices in this setting in the future. In addition, the participants rated their perception about the impact of this model on

student outcomes. The survey questions are available in Appendix H. Additionally, following the submission of this survey, I also conducted a semi-structured, virtual interview with participants via Google Meet to gain additional information about the study's efficacy, see Appendix I.

Treatment Fidelity

This measure allows the researcher to make decisions about the impact and sufficiency of the training that the participants received. It can also help the researcher make decisions about the intervention as well as explain any variability that may have resulted from the implementation (Gast and Ledford, 2014). Careful attention to fidelity was built into the study for training and implementation. Checklists to ensure treatment fidelity of coaching were embedded into the coaching log and Observation Tool used by the coach for the coaching process. I also collected data using the same either via video recorded sessions for each coaching triad.

Maintenance and Generalization

Follow-up observations were completed to examine the continued application of skills acquired during the coaching sessions. The observations focused on the accuracy of the paraeducator's recording of student responses across instructional goals, which was the behavior targeted for intervention.

Visual Analysis of Data

The results of this study were analyzed through visual analysis of data graphed to show levels, trends, and variability of responding across phases and participants. Particularly, the data were examined for the immediacy of the effect of the intervention (coaching), any overlapping data across phases, and the magnitude of the changes (Horner et al., 2005). This examination was

used to discuss the possible impact of the intervention. Calculations for both within and between

phases is outlined in the following chapter.

IV. FINDINGS

The purpose of this study was to increase the accuracy of paraeducators' recording of

student responses during direct instruction through teacher-implemented coaching. This study

also set out to determine if teacher-implemented coaching was feasible in the classroom with

existing time and resources. From onset in March 2020, this study was executed in the ever-

changing environment in public schools due to the COVID-19 pandemic. The unforeseen impact

of the pandemic included mandatory school closures, modifications to the instructional schedule

and format, and the implementation of significant mitigation strategies beginning in the spring of

2020 at least through the date of this publication. The public separate day school (PSDS) where

the study took place was permitted to open with approximately 50% of students returning to the

building in the fall 2020, while the remaining students continued virtual learning. Consequently,

as noted in Chapter 3, one triad proceeded through the baseline, intervention, and follow-up

phase, consistent with the original study design. The reduced number of participants necessitated

the presentation of results as an AB Single Case Design with follow-up to determine

maintenance. The results are outlined below.

Effects of Training and Coaching Interventions

Visual analysis was used to examine both the accuracy of recording of student responses

and the percentage of student responses recorded during each session. The graphic representation

of the data is presented in Figure 3. Data were examined both within each condition and between

conditions for changes in mean, median, level, overlap, and trend direction. These measures are presented in Table 4 for within condition/phases and in Table 5 for between phases. This systematic measurement of the outcome data is consistent with the quality indicators of single subject design (Horner et al., 2005; Kratochwill et al., 2012).

A checklist including key skills for recording student responses was embedded in the Observation Tool for the coach to consider. The Observation Tool is described in Chapter 3 and available in Appendix E. The checklist allowed the coach to conveniently note strengths or needs with key skills during the observation. It was then easily accessible for reference during coaching sessions. These key skills included having the data sheet out and ready for recording, reviewing the instructional item and criterion, recording each response that the student gave including any prompts, and keeping the tempo of instruction.

Mary's Accuracy

Mary's recording is documented in two ways. First, the percentage of the student responses that Mary recorded is compared to the teacher-coach's recording. Second, the accuracy of Mary's recording is determined by the agreement with the teacher-coach. These are demonstrated in Figure 3.

Baseline Phase

During the baseline phase, Mary's recording was inconsistent. When working with the student, Mary did not record all of the responses. The student responded to multiple items in a row before Mary recorded them. Mary missed recording several student responses, as was evidenced in the discrepancy between Mary's recording and the coach's recording. It was also visibly evident in the video recordings when Mary would remember to write down the responses. There were omissions of responses as well as inaccuracies within some responses, both

consistent with the delay in recording. During one baseline observation, Mary stopped instruction to ask questions of the coach. The coach reminded Mary that the time for questions would come after the observation. On two occasions, Mary did not record for the entirety of an activity even though the student was actively participating and had multiple opportunities to respond.

Intervention Phase

Once coaching began, Mary began to improve, though not immediately. The immediacy of her response is one indicator of effect of the intervention and is calculated as an absolute change, as noted in Figure 3. Improvement was steady and reached criterion (100%) within five coaching sessions. This is noted in the change in the trend line moving from a downward, deteriorating direction to an upward and improving trend. After seven coaching sessions, her accuracy reached and maintained at 100%. The percentage of responses recorded improved at similar rates, likely demonstrating the impact of missed or delayed recording. Overall, Mary's accuracy went from a mean of 52% (range 27-80%) skills completed independently during the baseline condition to a mean of 91% (range 53-100%) during the intervention phase. In the follow-up phase, Mary completed 100% of the skills independently. Please see Figure 3 for a summary of Mary's student response data.

Regarding the coaching intervention, the teacher-coach Meg reported that she scheduled each of the ten coaching sessions so that she could focus on the coaching sequence. The sessions were scheduled intermittently to accommodate the classroom schedule and typical classroom interruptions, such as student behavior or staff absences. The latency between coaching sessions ranged from 1 school day to 5 school days. The duration of the 10 coaching sessions spanned 6 weeks.
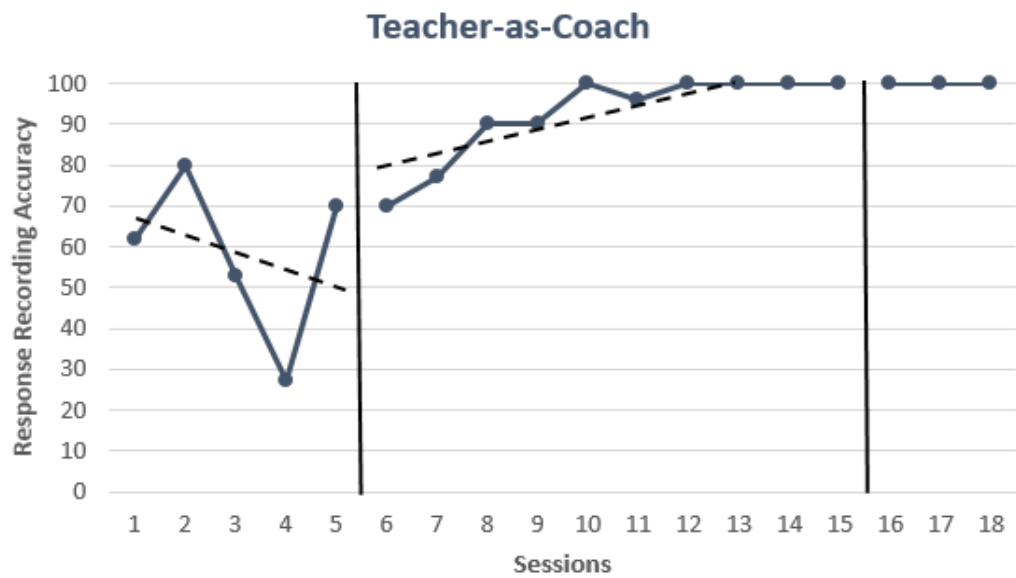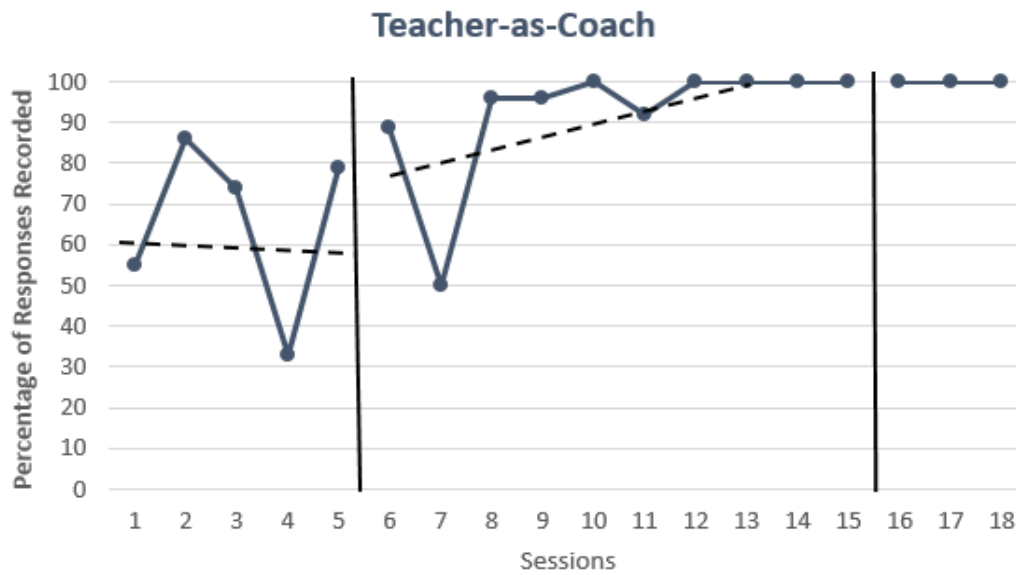
Figure 3

Teacher-As-Coach Visual Data

The coaching logs document the observation averaged 17 minutes, ranging between ten and 39 minutes. Contents of the pre-and post-observation conversations are also logged, which

were verified by the researcher via video recordings. These logs document areas of focus for each observation which included immediacy and accuracy of recording, delivery and recording of prompts, organizing materials prior to and during instruction, and strategies to gain the learner's attention. The video recordings of the pre- and post-observation meetings demonstrate increasing participation on the part of Mary, who was quiet in the first sessions, saying only one or two words to answer questions to the tenth session where she was visibly more comfortable, smiling and more relaxed, as well as willing to answer questions freely.

Follow-up Phase

Three follow up observations, identical to the baseline phase, were conducted to examine the maintenance of the accuracy of recording and were completed 11 weeks after the last coaching session. Visual analysis was used to determine that skills were maintained at the previous intervention phase. Mary's accuracy was noted at 100% across the maintenance observations and she recorded 100% of responses. The coach noted on the data sheet Mary's organization and tempo of instruction were maintained as well. One item noted for further coaching was to ensure that Mary had the attention of the learner prior to giving an opportunity to respond.

Treatment Fidelity

Treatment fidelity is a measure that examines the implementation of the independent variable or intervention and how well the planned procedures were followed (Kennedy, 2005; Ledford et al., 2014). For this study, a treatment fidelity checklist was developed and for each phase of the coaching intervention (Kucharczyk et al., 2012) including the completion of the pre-observation session, observation, and post-observation session. During the pre-observation sessions, the coach must state the purpose of the meeting or revisit the steps outlined in the

previous session, identify the focus and skill targeted in the next observation and discuss the criterion for achieving the target skill. During the coaching sessions, the coach must observe with a clear view of the student and the paraeducator, record the student responses on the Observation Tool, and note the paraeducator's performance and areas for focus. In the post-observation sessions, the coach must review the information gathered during the observation, ask open-ended questions, and make suggestions to enhance the skill targeted. The fidelity checklist is available in Appendix G. Fidelity of implementation was calculated as the number of checklist items implemented correctly divided by the total number of items and multiplied by 100.

High fidelity (98%) for coaching was achieved, encompassing the pre-observation conference, observation, and post-observation conference. All of the coaching sessions (pre-observation, observation, and post observation) were video recorded so that the researcher could verify that treatment procedures were followed using the fidelity checklist. For one coaching sequence, the post-observation conference was delayed until the following day due to an incident in the classroom that required the teacher-coach's attention. That conference was held for the next morning.

Interobserver Agreement Results

For this study, Interobserver Agreement (IOA) was collected using randomly selected video recorded sessions for each of the three study phases. Data were collected for 40% of baseline sessions, 50% of intervention sessions, and 33% of maintenance sessions. IOA was calculated for two of the five baseline sessions and was calculated as 92.5% (range 90-95%). Five of the ten intervention sessions were observed for agreement and calculated to be 93% (range 92.5-98%). One out of the three maintenance sessions was calculated at 100% agreement.

Social Validity

Social validity was measured in two ways with both participants: through a 10-question survey and an open-ended interview. The open-ended interview was also conducted with another paraeducator in the classroom and the SPDS administrator.

Survey

Following the completion of the intervention, a 10-question survey with a 5-point Likert scale aimed at assessing aspects of social validity was given to both participants. Rather than asking respondents simply whether they agree or accept an opinion statement, the Likert scale allowed items to reflect how strongly they agree or disagree with it, usually on a 5-point scale, from 1 (= strongly agree) to 5 (= strongly disagree), with 3 being a neutral feeling or category (Likert, 1932). The survey used in this study asked participants to reflect on both the accuracy of the paraeducator's recording, the coaching process, the impact of the experience on all participants, and the feasibility of coaching during the school day with existing staff and resources (See Appendix H). The combined responses resulted in a mean of 4.9 out of a possible 5. Both the paraeducator and the teacher-coach noted that they strongly agreed that this intervention improved the consistency and accuracy of classroom data collection and it was likely that this had an impact on student outcomes, though that was not directly examined in this study. The participants also strongly agreed that the feedback received through the coaching process was helpful and they would participate in this kind of PD again. Both participants also noted that paraeducators are capable of taking accurate data.

Table 4

Within Condition Analysis

Measure	Calculation/Explanation	Accuracy of Responses Recorded		Percentage of Responses Recorded	
		Baseline (A)	Intervention (B)	Baseline (A)	Intervention (B)
Condition Length	This is calculated by counting the number of items within a condition/phase.	5	0	5	10
Level Median	The median is calculated by ordering the value of each data point within a condition/phase. If it is an odd number of data points, it is the middle one. If there is an even number, an average of the two middle points is taken.	62	98	74	96
Level Mean	This is the average of all of the values of data points within a condition/phase.	58	91	65	92
Level Range	The range between the value of the data points from low to high within a condition/phase.	27-80	53-100	33-86	50-100
Stability Envelope Range	This is a percentage of the data points that fall within 25% of the median. 80% of data points within 25% of the median indicate stability. This is calculated once in the original condition for each behavior.	(80/25=15.5) variable 60%	stable 80%	(80/25=18.5) stable 90%	stable 90%

Level Change (Absolute)	Identify the ordinate value of the first and last data point, subtract the smallest from the largest value and note whether the change is improving or deteriorating.	53 Deteriorating	47 Improving	53 Deteriorating	50 Improving
Trend Direction	This is the slope of the trend is the steepness of the data points over time within a condition/phase. Trend direction identifies if the trend is accelerating or decelerating and improving or deteriorating.	decelerating & deteriorating	accelerating & improving	decelerating & deteriorating	accelerating & improving
Trend Stability	Like level stability, this is calculated by counting the number of data points that fall within 25% of the median. If 80% of data points fall within this value from the trend, it is considered stable.	Variable	stable	variable	stable

Note. Adapted from Visual Analysis of Graphic Data (pp. 176-210) by D.L. Gast and A. D. Spriggs in D. L. Gast & J. R. Ledford (Eds.) Single Subject Research Methodology: Applications in Special Education and Behavioral Sciences. Copyright 2014 by Taylor & Francis.

Table 5

Between Condition Analysis

Measure and Explanation	Calculation	Accuracy of Responses Recorded	Percentage of Responses Recorded
		Intervention (B) / *Baseline (A)*	*Intervention (B)* / *Baseline (A)*
Number variables changed	Only one variable should change between conditions. It must be specified.	1 Coaching began in intervention (B)	1 Coaching began in intervention (B)
Trend: direction change	Helps to determine the effect of the conditions on the dependent variable.	*accerlerating (upward t⋯* / *decelerate (downward t⋯*	*accerlerating (upward t⋯* / *decelerate (downward t⋯*
Trend effect relative to objective	Helps to determine the effect of the conditions on the dependent variable.	improving	improving
Level: relative change This calculation indicates whether a change occurred with the implementation of the intervention.	Identify the median value of the last half of the A and the first half of B, subtract the smaller from larger and note whether the change is improving or deteriorating.	20 Improving	13 improving
Level: absolute change This calculation examines change between conditions and	Examines the last data point of A and the first data point of B. Subtract the smaller number from	27 deteriorating	36 deteriorating

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the immediacy of the effect of the intervention.	the larger and note whether the change is improving or deteriorating.		
Level: median change This calculation indicates improvement or deterioration.	This compares the median in A and the median in B. Subtract the smaller from the larger to indicate the median change.	36 Improving	18 improving
Level: mean change Indicates improvement or deterioration.	This compares the mean in A and the mean in B. Subtract the smaller from the larger to indicate the mean change.	33 Improving	27 improving
Data overlap: Percentage of No Overlapping Data (PND) The higher the percentage of PND, the greater impact of the intervention.	Determine the range of data points in A, count the number of data points in B, count the number of data points in B that fall outside the range in A. Divide the number of data points that fall outside by the number of data points then multiply by 100.	80%	90%

Note. Adapted from Visual Analysis of Graphic Data (pp. 176-210) by D.L. Gast and A. D. Spriggs in D. L. Gast & J. R. Ledford

(Eds.) Single Subject Research Methodology: Applications in Special Education and Behavioral Sciences. Copyright 2014 by Taylor

& Francis.

Regarding feasibility, both participants indicated that it was possible to find time in the day for the coaching. The response was "agree" (not "strongly agree"), which might suggest more apprehension regarding scheduling. This is consistent with information gleaned from the open-ended interviews that followed.

Open-Ended Interviews

Interviews via phone or Google Meet video-conferencing were conducted with the paraeducator and the teacher-coach. Additional interviews were conducted with a paraeducator from the learning environment that did not receive coaching and the program administrator. The open-ended interview consisted of six questions regarding what the participants learned, how they felt about the model, and how it could be improved. Participants were also asked about the outcome of the coaching for all participants and if the result was worth the effort. An open question for any other pertinent information was also posed. As the interviews progressed further questions were asked for more information or clarification. Interview responses were then coded using a collaborative approach (Braun & Clarke, 2006; Richards & Hemphill, 2018). The interview responses were analyzed looking for the most prominent patterns of responses (Richards & Hemphill, 2018). Three doctoral candidates analyzed the four interviews without any preexisting frame of reference. The doctoral candidates and I collaboratively defined the themes. As a result, three themes emerged: 1) Lack of Preparedness; 2) Trust; and 3) and Self-efficacy/Confidence. A code book defining the identified themes with specific excerpts from the interviews is outlined in Table 7. Overall, the open-ended interviews revealed that for the teacher, paraeducator, and classroom, coaching made an impact. The recording accuracy of the paraeducator improved, the teacher-coach reported a newfound appreciation for this method of professional development, and the impact of the study extended out into the classroom as

evidenced by the observations of Sallie, a classroom paraeducator, and Jessica, the program

administrator. All participants felt that this project was worthwhile and hope to incorporate

coaching into the classroom as a regular way to train new or struggling staff.

Table 6

Phases of Thematic Analysis of Participant Interviews

Phase	Description
1. Preliminary organization, planning, and coding	Coding team members read and reread the data (interview transcripts) until familiar, noting initial ideas for themes. Excerpts from the transcripts are noted to support those themes.
2. Develop initial codebook	Coding team members gather to compile common themes, from individual work noted in phase 1, forming a draft of the list/codebook of common themes.
3. Review and test codes	Team members independently code the transcripts against the themes in the codebook, noting any changes or new themes that emerge. Excerpts from the transcripts are compiled for confirmation.
4. Define themes	Team members compile findings of their independent analysis and work together to develop definitions of the themes.
5. Prepare the analysis	Team members review the final themes for one last analysis. Once consensus is reached, the analysis can be finalized, taking into consideration the research questions and the story the data tells.
6. Finalize the analysis for reporting.	The outcome of the team's work can be compiled, utilizing excerpts from the text to support each theme and reported. The final analysis should include how the themes tell a story related to the research questions or the development of other questions for future research

Note. Adapted from Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology.

Qualitative Research in Psychology, *3*(2), 77–101 & Richards, K. A. R., & Hemphill, M. A.

(2018). A Practical Guide to Collaborative Qualitative Data Analysis. *Journal of Teaching in*

Physical Education, 37(2), 225-231.

Table 7

Theme Codebook

Theme	Definition	Excerpt
Lack of Preparedness	the feeling that there is not adequate training or support to complete the tasks asked; for the paraeducators with delivering instruction and the teachers for supporting or training the paraeducators	Para A: "Well, if you think about it, I was here doing this for two years. I was kind of thrown into it. Orientation is not enough. Not enough." Coach: "Coaching helped me with patience. (Before) I didn't take the time to watch and help, instead of just offering correction. I am seeing the way this works." Observer: "Really there is no training. They give you the basics but then you are just tossed into it and told to learn."
Trust	the firm belief in the reliability, ability, or strength of someone; trust in the professional relationship	Para A: "Before I would not have asked for feedback or help but now I do." Coach: "The more we did it, the more comfortable she got." Observer: "The relationship between para and teacher took a dynamic turn. It made them closer and so that say Para A did have questions then she didn't feel like she was taking away from the teacher's time."
Self-efficacy/ Confidence	The feeling of self-assurance arising from one's appreciation of one's own abilities or qualities; having the confidence in one's ability to deal with a situation without being overwhelmed (Hira, 2010; Lown, 2011)	Para A: "I think I am better with the students now and know more what I am supposed to do." Coach: "She is so proud of the new skills she has. Even her posture is different." Observer: "There is an up-step in the way she carries herself when working with the student"

Mary's Interview

Mary fully engaged with the researcher throughout the interview and did not hesitate to answer any questions. Mary was quick to comment about the way she was trained:

> I was here doing this for two years. I was kind of thrown into it. Orientation was not
>
> enough. You can ask questions and they will help you, but I sort of picked up my own
>
> way of doing it and for me, a lot of that was wrong.

Mary noted that she was anxious at first, especially with being video recorded. She stated:

> The camera makes you feel self-conscious, but I resigned to the fact that I had to do it. I
>
> was struggling and everyone knew that it was hard for me – the working with students on
>
> my own. It was good for me to learn the correct way to do things. It really helped me and
>
> my confidence grew.

When asked about the challenges Mary laughed and stated:

> Finding time to do the sessions was hard because so many things happen in the
>
> classroom, or meetings and things like that, but we worked it out. I really ended up
>
> enjoying it and I cannot believe I am saying that.

Meg's Interview

Meg expressed that the coaching helped her realize that paraeducators need more training. She indicated she felt before she was just offering correction when something was not done in the way she expected. She said, "I expect to need to do that with students, but I didn't have the same patience for the adults, and they need it, too. They learn differently." Meg reported that some of the challenges had to do with the pandemic, "Kids out, paras out, it has been a struggle. It took strategizing to get it done." When asked if she thought it would be feasible under normal conditions, she reluctantly responded:

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I am not sure, depending on the time of year, health of the staff, meetings, and

turnover…In this setting the 1:1 instruction is so important, if I have staff out, it would be

challenging to take time away from instruction to do coaching.

Meg went on to say that she thought the coaching was worth the effort. "When we started, Ms.

Mary did not take feedback well. I think maybe she took it as negative criticism. At first she

didn't have the confidence to answer questions during our sessions. One day in the beginning

Ms. Mary appeared anxious about the session, so we waited until the next day." She went on to

say that she discovered that Ms. Mary did not want the students to get a low percentage as she

saw it as a bad grade rather than data. "She wanted to give them a + for trying. Now she sees that

the prompting and strategies lead the students toward independence. She is seeing it all

differently now."

Sallie's Interview

Sallie is another paraeducator in the same classroom where the coaching took place. She

is the most experienced paraeducator in the classroom and began her tenure early in the

program's history in 2006. She joined the staff when the total student enrollment was three. She

received direct training from the division's autism specialist and had the opportunity to receive

frequent feedback from the teacher. She feels this was possible because the program was much

smaller. Sallie reported that the program is so large now and the training that the paraeducators

receive is limited. When asked about the feasibility of coaching as a way of training

paraeducators, Sallie said that it is possible. Further she expressed that the challenges might

include "Organization. You would have to plan so that all of the student's instruction is covered.

The teachers and paraeducators are usually engaged with students all day, so you would need to

plan differently who supported who during the coaching." Sallie went on to say, "It would take,

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at the most, 2 weeks with an hour or two a day with new paras. Everything could be covered in that amount of time. Look what happened to Ms. Mary." Sallie expressed that other staff in the classroom noticed the change in Ms. Mary's skills. Sallie expressed, "Mary's confidence increased and coaching really helped everyone feel more comfortable asking questions."

Jessica's Interview

Jessica, the SDPS program administrator also participated in an open-ended interview. Although she was not directly involved in the study, she had the opportunity to see the classroom throughout the three phases. Jessica reported, "It clearly made a significant impact, especially with the one teacher and the one para, but I think others gained skills as well. I wish that I could replicate that for every employee, especially the new or struggling ones." She sighed and referenced the pandemic, "Adding new things is very challenging right now." When asked if she had plans to routinely implement coaching, she continued,

> I am hoping to see more coaching going forward. Hopefully in the fall. Right now we have training set up on Google Classroom so that it can be accessed from anywhere. We are trying to continue PD, understanding the amount of stress that our staff is currently experiencing. I am reluctant to add new things to plates right now when we are ping-ponging from virtual to in-person and back again. Another challenge is to prioritize coaching and not get complacent. The instructional day is packed. I also see a challenge as teachers recognizing this as their job, training paraeducators. Once they recognize the power of coaching, they will not want to do it any other way. We will get there.

V. DISCUSSION

The purpose of this study was to examine a teacher-as-coach professional development model for special education paraeducators and to investigate the feasibility of embedding this model into the instructional day with existing staff and resources. I examined a combination of training and coaching to determine if it is effective for increasing the accuracy of paraeducators' data collection; specifically, the recording of student responses, and whether or not this model can be feasibly implemented by teachers within the school routine with existing time and resources.

The Impact of the Global COVID-19 Pandemic

The COVID-19 mandatory school closure repeatedly interrupted the momentum of recruiting, causing a six-month delay in starting the study and necessitated changes to the setting and format of instruction for students. These required changes caused some paraeducators to resign their positions to stay at home with their own children who were learning virtually. Once the program was permitted to open in the Fall of 2020 for both virtual and in-person learning, there was significant impact to staff and to students, which inevitably affected the study. Per the COVID-19 mitigation strategies in place, I was not allowed to be on site and relied mainly on virtual communication and video recordings of sessions. While this minimized interference that an additional person can bring to a setting, it limited my ability to observe the environment in

person. Teachers in the program were now teaching virtual and in-person, sometimes simultaneously. This sudden shift limited their ability to participate a well. As a result, the study was completed with only one triad of participants: one paraeducator participant, one student, and one teacher. This limited the ability to establish a functional relation between the independent and dependent variables.

Importance of Training Paraeducators

An increasing number of paraeducators provide direct instruction to students with disabilities (Giangreco et al., 2010). The instruction provided must be specially designed as described by the Individuals with Disabilities Education Act (2004). Paraeducators must have an understanding of these requirements and what that entails to do their job effectively and with confidence. Evidence-based instructional practice requires systematic implementation. As noted by the participants in this study and in research, professional development for paraeducators is minimal (Douglas et al., 2019; Giangreco et al., 2002). As a result, without a comprehensive training process, some teachers attempt to fill that training and preparation gap to increase the efficacy of instruction provided by paraeducators.

Theoretical Alignment

Adult Learning Theory confirms that adults learn differently from traditional or school-age students (Knowles, 1992; Lee, 1998). Adults seek knowledge to solve relevant problems and want to immediately apply what they learn to their work (Lee, 1998). Implementation science research indicates that enlightened professional development includes systematic coaching and supports which have a higher return in the classroom than the traditional lecture-style training (Cook & Odom, 2013) as evidenced for the teacher-coach and the paraeducator in this study.

In this study, paraeducators received a two-hour training with the goal of gaining a common understanding of collecting data during instruction. Next, the skills targeted in the training were implemented in the classroom and observed through the coaching process. The coaching process allowed the coach to identify errors and target discussion to address those errors (Brock & Carter, 2016).

The Impact on Participants

The paraeducator, Mary, had two years of experience prior to entering this study. When she began her job, she was provided a brief orientation and the teacher has provided intermittent support over the past two years. During the baseline phase, her accuracy of data collection was quite variable due to a combination of error, delay in recording, or neglecting to record some of the student responses. Her mean percentage of accuracy during baseline was 58% (range 27-80%). However, over the course of the intervention phase, Mary made significant gains in her accuracy, reaching and maintaining 100%. Although there was not an immediate change with the onset of the intervention, and some overlapping data were noted, the mean accuracy during the intervention phase increased to 91% (range 53-100). Eleven weeks after the intervention phase was completed to examine maintenance of these skills, Mary's mean accuracy remained at 100%; a clear improvement and demonstration of acquisition and maintenance of the targeted skills. For Mary, coaching improved her data recording skills and helped her to understand the value of the data she collected for driving instructional decisions.

The social validity results were consistent with findings in the literature review, indicating an appreciation for coaching and benefit in the classroom. Mary reported that coaching was quite helpful and not only improved her skills but her confidence as well. Others' comments supported Mary's reports. Positive changes were noted by the teacher-coach, another

paraeducator in the classroom, and the program administrator. The responses from the interviews consistently referred to the change that occurred, not only in Mary's accuracy, but in her confidence. During the open-ended interview, Mary attributed her improvement to the coaching sessions to having the teacher-coach there to provide feedback. She noted that she now enjoys coming to work and is more confident to ask questions to get the information that she needs.

Also of note was the change in the teacher-coach. Meg, a special education teacher with three years' experience, indicated that she learned new ways to communicate and support the paraeducators in her classroom. Meg said that she previously corrected errors, but she did not take the time to explain or thoroughly answer paraeducators' questions. Meg reported that she now sees the value in building rapport and a relationship with her paraeducators. Meg also realizes that previously she did not have high expectations for change, but now feels that coaching can be quite powerful. Meg noted an improvement in the level of decisions that she can make about the student's program because the data collected by the paraeducator is more accurate.

When asked about feasibility, the teacher-coach, the paraeducators, and the program administrator, all responded that it is indeed feasible, which is in line with existing coaching literature (Brock & Carter, 2016). The respondents also commented that there is variability during the instructional day and that flexibility is critical in the implementation of coaching. Thus, the teacher-coach's availability is dependent on the fluctuating needs of the students in the classroom, a flexible coaching model with an intermittent schedule would be optimal and feasible. This is consistent with the implementation of coaching in this research study. The coaching sessions were intermittent, ranging 1-5 days between sessions, partially due to the impact of the changes in school routine and staffing necessitated by the pandemic. This impact is

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not unlike what a classroom may experience with smaller, but inevitable change. Commonly experienced changes may include the addition of a new student, a change in staff, variability in student behavior, or the impact of inclement weather.

<div align="center">**Implications for Practice**</div>

Teacher Preparation

In this study, the special education teacher served as coach. Meg, who oversees six paraeducators, found that she gained insight into how to provide support to her classroom staff. She found that prior to learning coaching techniques, she did not have training in working with paraeducators. Teacher preparation programs as well as school or program onboarding should prioritize instructing special education teachers in classroom management, including supporting and training paraeducators (Brock & Carter, 2016; Mason et al., 2017; Scheeler et al., 2018). Support is also needed once teachers begin their career, both with implementing evidence-based instructional practices and managing classroom staff. Bertuccio and colleagues (2019) recommended mentorship programs that allow in-service special education teachers or other experts in the community to support paraeducators and other teachers working with students with disabilities. Thus, teachers should be provided with mentorship opportunities as well as continued professional development opportunities on coaching and supporting their own paraprofessionals in the classroom.

Paraeducator Preparation

When interviewed, Mary and Sallie, both paraeducators in the study setting, indicated that paraeducators are often placed in the job without adequate preparation. Both indicated that a small orientation is provided, but it is not enough to feel prepared to provide instruction to students. Mary indicated that she learned to do things on her own, not knowing that many of her

self-discovered practices were not in line with the expected EBIPs. Specifically, for this study, Mary did not understand the data recording system she was asked to complete and did not fully understand how that data was used to make changes to instructional activities intended to increase student progress. Once she received coaching, she gained the knowledge that helped her to improve her practice. Ongoing coaching should be part of every special education classroom, especially in classrooms where paraeducators are providing direct instruction to students with disabilities.

Administrator Support

In order for coaching to be successful, teachers and paraeducators need the support of the school or program administrator. Time and resources for planning and coaching and other professional development must be prioritized, and this often requires support from administrators, including principals and special education leadership (Brock et al., 2016). Administrators should support special education classrooms by regularly checking in with teachers and supporting their role with the paraeducators. One way to provide support is to conduct evaluations for paraeducators that align with classroom expectations, and providing advice to that end (Douglas et al., 2016; Knight, 2009). School systems should institute training, coaching, and general expectations for instructional practices and build evaluation systems for paraeducators aligned with these instructional expectations, as they do for teachers. With this systematic approach, regular performance feedback around those expectations is crucial (Brock & Carter, 2013; Rispoli et al., 2011; Walker & Smith, 2015; Walker et al., 2019).

Coaching for Evidence-Based Instructional Practice

The social validity results of this study indicated that all involved, given the opportunity, would participate in coaching again. Interviews further revealed that the participants suggested

coaching should be part of the regular onboarding process for new or struggling paraeducators in the program. The program administrator reported that she plans to implement coaching as a regular part of their staff development plan once the school schedule is more typical. Joyce and Showers (2002) indicated traditional training leads to low attainment of knowledge and skills, while the addition of coaching leads to increased knowledge, skills, and implementation. Mary's success with coaching supports this premise. Mary received an orientation when she began and since has had occasional interactions with the classroom teacher to her answer questions or receive error correction. This had little yield toward Mary's ability to understand or accurately record student responses. Conversely, ten sessions of coaching with opportunities for feedback greatly improved her data collection accuracy. Special education teachers should be afforded the opportunity to learn coaching practices and be allowed to embed opportunities to train and coach the paraeducators in their charge. The outcome of this small study indicates that coaching should be widely implemented as teachers serving as coaches can elicit an increase in the effectiveness of paraeducators' practice. As noted in Chapter 4, Mary not only learned the recording procedures but also how the data is used to lead students to greater independence.

Paraeducator Self-efficacy

An increase in confidence was noted not only by Mary herself, but also the teacher-coach, the program administrator, and a fellow paraeducator in the classroom. Notably, Mary's frequent smile, intentionality as she prepared to work with a student, and a change in the way Mary carried herself at work changed, showing an increase in her confidence. Mary noted, "Everyone knew that it was hard for me, the working with students on my own. It was good for me to learn the correct way to do things. It really helped and my confidence grew." A significant

change in the behavior of the paraeducator impacts the climate of the classroom and the efficacy of practice, further demonstrating the need for ongoing training and coaching.

Limitations and Directions for Future Research

A few limitations were noted in the current study. These included a small sample size, the adjusted implementation procedure due to the pandemic, and the lack of student outcome data. Despite these limitations, this study provides directions for future research.

Generalization

The limited number of participants and the specific setting of a public separate day school diminish the ability of this study to be generalized to a larger or more diverse group. Because there was only one paraeducator and one teacher-coach, the ability to compare and contrast individual characteristics of participants was not possible. The small number of participants also precluded the replication and the establishment of a functional relation between the intervention and the outcome. A replication of this study when schools return to a more normal routine would likely render a more generalizable outcome and could establish a functional relation between the coaching intervention and the positive outcomes for paraeducators and classrooms. Though feasible with existing time and resources under the conditions of this study, more investigation is needed to determine feasibility under more typical conditions.

This study was completed on a small scale with students with significant impact of autism spectrum disorder; further research across disabilities and settings is needed. The systematic literature review completed for this study focused on teachers and paraeducators that support students with low incidence disabilities including autism spectrum disorder and intellectual disabilities. Teacher-as-coach studies were not explored for school staff who support students with higher incidence categories, such as Learning Disabilities or Other Health

Impairment. Further investigation into a teacher-as-coach model for all settings where students receive specially designed instruction from paraeducators is warranted.

Student Outcomes

This study did not examine student outcomes, but concentrated on the coaching process and outcomes for the paraeducator's recording accuracy. Future studies that focus on instructional practices should include a student engagement measure or performance data. Information correlating paraeducator performance and student learning outcomes should be a focus area of future research.

Paraeducator Self-efficacy

A significant finding through the exploration of social validity of this study indicated that there was an increase in the confidence of the paraeducator through coaching, which was noticeable by others in her environment. Further exploration of increases in paraeducator self-efficacy as it relates to the implementation of evidence-based instructional practices may be another direction for research. Similarly, the characteristics of successful teachers, staff, or classrooms where coaching results in positive outcomes would add to the body of literature and provide practical implications for classroom settings.

Impact of the COVID-19 Pandemic and the Research Design

Lastly, this study was completed during an uncertain and challenging time in education. The impact of the collective stress of the COVID-19 pandemic on public school stakeholders is yet to be determined. Specific to this study, the stops and starts associated with quarantines, illness, quarantine of family members, and related shifts in the instructional format also did not

allow the intervention to be continuous. While this study did indicate that intermittent coaching led to improvement for Mary, and latency between sessions did not appear to halt her progress, further investigation into intermittent coaching versus consecutive coaching sessions is also warranted.

However, from the observations conducted during this study, the demonstration of perseverance among the staff in this setting was commendable and effective. Within miles of this SPDS program, there were private day schools for SWD that remained closed throughout the duration of this study. Exploring the supports and strategies that enabled this program and ones like it to remain open could certainly contribute to the literature. Moreover, other questions were raised: What were the services offered to SWD across the United States during the pandemic? What were the commonalities among programs and schools that were able to persist through this time and successfully execute specially designed instruction? What are the implications for programs and schools who could not?

Implications for Policy

The Individuals with Disabilities Education Act (2004) requires that paraeducators serving students with disabilities be adequately trained, yet this training is not defined. With mounting research indicating the value of coaching on the fidelity of implementation of EBIP, there is a need for more specificity in federal, state, and/or local policy. The Council for Exceptional Children (CEC), in collaboration with the National Resource Center for Paraeducators, developed a set of preparation standards including essential knowledge and skills for paraeducators who serve SWD in school settings (CEC, 2015). The expectation of *adequate training* found in regulations should align with the standards that have been developed and verified by these professional organizations. One step further would be training and/or coaching

toward the fidelity of implementation of EBIP for each standard. Subsequently, the paraeducator's annual evaluation and any needed support should be tied to those standards and practices. The same adherence to standards and EBIPs should be connected to professional development and evaluation of special education staff as well.

Conclusion

Paraeducators now fulfill an integral role in providing specially designed instruction to students with disabilities in public schools. Yet, required adequate training is often insufficient to deliver evidence-based instructional practices. In spite of the limitations noted, this study demonstrated how one paraeducator's accuracy of recording student responses significantly increased through the support of a training followed by intermittent coaching by the special education teacher. Also significant is the increase in confidence noted by the paraeducator after ten sessions of coaching. This investment of a relatively small amount of the teacher's time had a large impact on the paraeducator and the setting as a whole. The results of this study are consistent with existing literature and show promise for improving preparation and ongoing professional development (Brock et al., 2016; Brock & Carter, 2016; Hall et al., 2010; Mason et al., 2017, 2018; Scheeler et al., 2018; Wermer et al., 2018). Feasibility of teachers coaching in the classroom was also posed as a research question. The results of this study, specifically the information shared during the social validity interviews indicated that it is feasible for a special education teacher to provide short periods of coaching during the instructional day with positive outcomes for the teacher as well as the paraeducator.

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Appendix A

Recruiting Materials

Participant Orientation Form

Please complete this form for participation in the paraeducator coaching study.

Please plan to attend a short orientation on Thursday, November 14 right after school.

Name_____

2. **How many years of experience do you have working as a paraeducator?**

Circle the best answer.

Less than one year

1-3 years

4-9 years

More than 10 years

3. **Have you taken the state required training in autism spectrum disorder?**

Circle the best answer.

YES

NO

4. **Have you ever received specific training and/or coaching in how to prompt students?**

Circle the best answer.

YES

No

5. **Would you be willing to volunteer a few hours after school for specific training related to this study?**

Circle the best answer.

Yes

No

Orientation Meeting for Paraeducators and Coaches

A RESEARCH STUDY: Coaching Paraeducators to Accurately Record Student Responses during Direct Instruction of Students with Autism Spectrum Disorder

What is the study about?
- This study is designed to increase paraeducators' instructional skills. The skill to be targeted during coaching sessions is effective data collection.
- This study is expected to add to the body of evidence that coaching supports learning in professional settings. It could add information training tools that increase the likelihood of accurate data collection that supports instructional decisions.

What will I need to do?
- Paraeducators:
- 2-hour training on data recording
    - Information on data different methods of data recording
    - Opportunities to practice
    - Q & A session
- Coaching
    - Participate in coaching'
    - Get support and feedback
    - Be video recorded

What's in it for me?
- Staff development
    - Hone instructional skills
    - Boost confidence
    - Knowing you are helping to further science

What are the risks?
- You may feel nervous at the idea of being observed or video recorded.
- You may feel that there could be a loss of privacy or confidentiality
- Not everyone is going to be participating this time around, so there is the risk of relationship issues that come with some staff members participating and some not.

What safeguards are in place?
- The videos will <u>not</u> be shared. Once they are coded for the research project, they will be permanently deleted.
- The coaching process is completely confidential. Only the coach, student researcher, and her advisor will see the data collected.
- The coaching process is supportive and should reduce nervousness.

What will be done with the information?
- The information collected will be compiled and analyzed.
- This information will be used to inform a larger study about coaching paraeducators.
- The results may be shared in an article for a professional journal.
- No names or identifying information will be used.
- What if I decide I don't want to participate?
- You may withdraw from the study at any time without consequence or impact to your work here.

How do I sign up?
- Complete this google form:
- https://forms.gle/47jqtQNBX7JPoU9V8
- At least one paraeducators from each coaching classroom and an alternate will be selected to participate.
- Alternates will be able to access the training and be coached at a later date.

Thank you for coming.
- Questions?

Consent Forms

RESEARCH PARTICIPANT INFORMATION AND CONSENT FORM
Paraeducator

STUDY TITLE: Coaching Paraeducators to Accurately Record Student Responses during Direct Instruction of Students with Autism Spectrum Disorder

VCU INVESTIGATOR: Dr. Yaoying Xu; Paige J. Carter, student researcher

NOTE: In this consent form, "you" always refers to the research participant.
Please read, or have someone read to you, the rest of this document. If there is anything you don't understand, be sure to ask the study staff.

ABOUT THIS CONSENT FORM
You are being invited to participate in a pilot research study. **It is important that you carefully think about whether being in this study is right for you and your situation.**

This consent form is meant to assist you in thinking about whether or not you want to be in this pilot study. **Please ask the study staff to explain any information in this consent document that is not clear to you.** You may take home an unsigned copy of this consent form to think about or discuss with family or friends before making your decision.

Your participation is voluntary. You may decide not to participate in this study. **If you do participate, you may withdraw from the study at any time.** Your decision not to take part or to withdraw will involve no penalty or loss of benefits to which you are otherwise entitled.

AN OVERVIEW OF THE STUDY AND KEY INFORMATION

Why is this study being done?
The purpose of this research study is to find out about the impact of coaching paraeducators who provide direct instruction. We think that coaching may support instruction because it provides direct support and feedback in the classroom. This study will allow us to learn more about it. The focus of the coaching will be accurate data collection.

What will happen if I participate?

In this study, you will you will participate in a 2-hour training related to response recording/data collection. You will also be asked to be observed during instruction, both live and via video recordings approximately 5-10 minutes each day during the study. You will also be asked to meet with a coach to talk about the instruction you are providing. Your participation in this study will last up to five weeks. Approximately 6 paraeducators will participate in this pilot study.

WHAT ARE THE RISKS AND BENEFITS TO PARTICIPATING?
There are both risks and benefits of participating in research studies. We want you to know about a few key risks right now.

Risks:
There is a chance that you would be uncomfortable with being video recorded. This video recording allows the researcher to view the sessions as well. You will also be asked to meet with a coach to work on response recording/data collection skills to use when you are providing direct instruction. As with any novel procedure or intervention, there may be an anxious feeling while learning the new strategy. Because of this, any discomfort or nervousness associated with the process will be addressed through consistent communication. There is also a risk that confidentiality or privacy could be compromised. All information collected will be deidentified.

Benefits:
The benefits of this study are that you will have the opportunity for training and coaching that will increase your skills and benefit you in your work. There is evidence that coaching is effective in increasing the effectiveness of teaching practices. This study may help the investigators learn things that may help other people in the future.

WHAT ALTERNATIVES ARE AVAILABLE?
Any staff members that do not receive the coaching intervention will be able to access free online modules.
WHAT ARE THE COSTS?
There will be no costs associated with this study.

WILL I BE PAID TO PARTICIPATE IN THE STUDY?
No. There is no compensation for participation.

CAN I STOP BEING IN THE STUDY?
You can stop being in this research study at any time. Leaving the study will not affect your medical care, employment status, or academic standing at VCU or VCU Health. Tell the study staff if you are thinking about stopping or decide to stop.

HOW WILL INFORMATION ABOUT ME BE PROTECTED?
VCU has established secure research databases and computer systems to store information and to help with monitoring and oversight of research. Your information may be kept in these databases but are only accessible to individuals working on this study or authorized individuals who have access for specific research related tasks.

Identifiable information in these databases are not released outside VCU unless stated in this consent or required by law. Although results of this research may be presented at meetings or in publications, identifiable personal information about participants will not be disclosed. The video recordings will be destroyed once data collection is complete.

Once the study has been completed, we will send you a summary of all of the results of the study and what they mean.

In the future, identifiers might be removed from the information you provide in this study, and after that removal, the information could be used for other research studies by this study team or another researcher without asking you for additional consent.

WHOM SHOULD I CONTACT IF I HAVE QUESTIONS ABOUT THE STUDY?

If you have general questions about your rights as a participant in this or any other research, or if you wish to discuss problems, concerns or questions, to obtain information, or to offer input about research, you may contact:
    Virginia Commonwealth University Office of Research
    800 East Leigh Street, Suite 3000, Box 980568, Richmond, VA 23298
    (804) 827-2157; https://research.vcu.edu/human_research/volunteers.htm

Do not sign this consent form unless you have had a chance to ask questions and have received satisfactory answers to all of your questions.

Signature Block for Enrolling Adult Participants

_____
Adult Participant Name (Printed)

_____   _____
Adult Participant's Signature   Date

_____
Name of Person Conducting Consent Discussion (Printed)

_____   _____
Signature of Person Conducting Consent Discussion   Date

_____   _____
Principal Investigator Signature (if different from above)   Date

STUDY TITLE: Coaching Paraeducators to Accurately Record Student Responses during Direct Instruction of Students with Autism Spectrum Disorder

VCU INVESTIGATOR: Dr. Yaoying Xu; Paige J. Carter, student researcher

NOTE: In this consent form, "you" always refers to the research participant.
Please read, or have someone read to you, the rest of this document. If there is anything you don't understand, be sure to ask the study staff.

ABOUT THIS CONSENT FORM
You are being invited to participate in a pilot research study. **It is important that you carefully think about whether being in this study is right for you and your situation.**

This consent form is meant to assist you in thinking about whether or not you want to be in this pilot study. **Please ask the study staff to explain any information in this consent document that is not clear to you.** You may take home an unsigned copy of this consent form to think about or discuss with family or friends before making your decision.

Your participation is voluntary. You may decide not to participate in this study. **If you do participate, you may withdraw from the study at any time.** Your decision not to take part or to withdraw will involve no penalty or loss of benefits to which you are otherwise entitled.

AN OVERVIEW OF THE STUDY AND KEY INFORMATION

Why is this study being done?
The purpose of this research study is to find out about the impact of coaching paraeducators who provide direct instruction. We think that coaching may support instruction because it provides direct support and feedback in the classroom. This study will allow us to learn more about it. The focus of the coaching will be accurate data collection.

What will happen if I participate?
In this study, you will you will participate in a coaching training. You will also receive a 2-hour training related to response recording/data collection. You will also be asked to observe up to two paraeducators when they are providing direct instruction and take video recordings approximately 5-10 minutes each day during the study. You will record student responses as well as the data collection taken by the paraeducator. During the intervention phase, you will provide coaching toward improved response recording/data collection as an instructional tool. You will also be asked to meet with the paraeducators to talk about the response recording/data collection prior to and following each coaching session. Your participation in this study will last up to five weeks, or 30 school days. Up to 8 teacher-coaches and 8 paraeducators will participate in this pilot study. Alternate participants (teacher-coaches and paraeducators) will also be identified should someone decide not to participate.

WHAT ARE THE RISKS AND BENEFITS TO PARTICIPATING?
There are both risks and benefits of participating in research studies. We want you to know about a few key risks right now.

Risks:
There is a chance that you would be uncomfortable with coaching or data collection. Training will be provided to minimize this. You will also be asked to meet with paraeducators to work on specific response recording/data collection skills. As with any novel procedure or intervention, there may be an anxious feeling while learning the new strategy and coaching paraeducators through this may be challenging. Because of this, any discomfort or nervousness associated with the process will be addressed through consistent communication. There is also a risk that confidentiality or privacy could be compromised. All information collected will be deidentified.

Benefits:
The benefits of this study are that you will have the opportunity for training on both coaching and recording of student responses/data collection that will increase your skills and benefit you in your work. There is evidence that coaching is effective in increasing the effectiveness of teaching practices. This study may help the investigators learn things that may help other people in the future.

WHAT ALTERNATIVES ARE AVAILABLE?
Any staff members that do not receive the coaching intervention will be able to access free online modules.

WHAT ARE THE COSTS?
There will be no costs associated with this study.

WILL I BE PAID TO PARTICIPATE IN THE STUDY?
No. There is no compensation for participation.

CAN I STOP BEING IN THE STUDY?
You can stop being in this research study at any time. Leaving the study will not affect your medical care, employment status, or academic standing at VCU or VCU Health. Tell the study staff if you are thinking about stopping or decide to stop.

HOW WILL INFORMATION ABOUT ME BE PROTECTED?
VCU has established secure research databases and computer systems to store information and to help with monitoring and oversight of research. Your information may be kept in these databases but are only accessible to individuals working on this study or authorized individuals who have access for specific research related tasks. The video recordings will be destroyed once data collection is complete.

Identifiable information in these databases are not released outside VCU unless stated in this consent or required by law. Although results of this research may be presented at meetings or in publications, identifiable personal information about participants will not be disclosed.

Once the study has been completed, we will send you a summary of all of the results of the study and what they mean.

In the future, identifiers might be removed from the information you provide in this study, and after that removal, the information could be used for other research studies by this study team or another researcher without asking you for additional consent.

WHOM SHOULD I CONTACT IF I HAVE QUESTIONS ABOUT THE STUDY?

If you have general questions about your rights as a participant in this or any other research, or if you wish to discuss problems, concerns or questions, to obtain information, or to offer input about research, you may contact:

      Virginia Commonwealth University Office of Research
      800 East Leigh Street, Suite 3000, Box 980568, Richmond, VA 23298
      (804) 827-2157; https://research.vcu.edu/human_research/volunteers.htm

Do not sign this consent form unless you have had a chance to ask questions and have received satisfactory answers to all of your questions.

Signature Block for Enrolling Adult Participants

_____

Adult Participant Name (Printed)

_____   _____

Adult Participant's Signature   Date

_____

Name of Person Conducting Consent Discussion (Printed)

_____   _____

Signature of Person Conducting Consent Discussion   Date

_____   _____

Principal Investigator Signature (if different from above)   Date

---

Student

STUDY TITLE: Coaching Paraeducators to Accurately Record Student Responses during Direct Instruction of Students with Autism Spectrum Disorder

VCU INVESTIGATOR: Dr. Yaoying Xu; Paige J. Carter, student researcher

NOTE: In this consent form, "you" always refers to the research participant.
Please read, or have someone read to you, the rest of this document. If there is anything you don't understand, be sure to ask the study staff.

ABOUT THIS CONSENT FORM
Your child is being invited to participate in a pilot research study. **It is important that you carefully think about whether your child being in this study is right for you and your situation.**

This consent form is meant to assist you in thinking about whether or not you want your child to be in this pilot study. **Please ask the study staff to explain any information in this consent document that is not clear to you.** You may take home an unsigned copy of this consent form to think about or discuss with family or friends before making your decision.

Your child's participation is voluntary. **If you no longer wish for your child to participate, you may withdraw from the study at any time.** Your decision not to take part or to withdraw will involve no penalty or loss of benefits to which your child is otherwise entitled.

AN OVERVIEW OF THE STUDY AND KEY INFORMATION

Why is this study being done?
The purpose of this research study is to find out about the impact of coaching paraeducators who provide direct instruction. We think that coaching may support instruction because it provides direct support and feedback in the classroom. This study will allow us to learn more about it.

What will happen when my child participates?
Your child will continue with instruction as is typical during the school day, receiving direct instruction from the teacher and paraeducators. The impact of the study will be that the paraeducator working with your child may be being observed by a coach. The coach will also video the instruction for a period of 10-15 minutes each day for about 10 days. The entire study will last 4-5 weeks. Your child's name or image will not be used in the study or publicized in any way.

WHAT ARE THE RISKS AND BENEFITS TO PARTICIPATING?
There are both risks and benefits of participating in research studies. We want you to know about a few key risks right now.

Risks:
There is a slight risk that your child could be distracted by the presence of the coach or the video recording. Effort will be made to minimize this risk.

Benefits:
The benefits of this study are that staff will have the opportunity to build skills instruction skill that could increase the quality your child's instruction. There is evidence that coaching is effective in increasing the effectiveness of teaching practices. This study may help the investigators learn things that may help other students in the future.

WHAT ALTERNATIVES ARE AVAILABLE?
The alternative for your child to not participate and instruction would continue as normal.

WHAT ARE THE COSTS?
There will be no costs associated with this study.

WILL I BE PAID TO PARTICIPATE IN THE STUDY?
No. There is no compensation for participation.

CAN I STOP BEING IN THE STUDY?
Your child can stop being in this research study at any time. Leaving the study will not affect your child's education. Tell the school or study staff if you are thinking about withdrawing consent.

HOW WILL INFORMATION ABOUT ME BE PROTECTED?
VCU has established secure research databases and computer systems to store information and to help with monitoring and oversight of research. Your information may be kept in these databases but are only accessible to individuals working on this study or authorized individuals who have access for specific research related tasks.

Identifiable information in these databases are not released outside VCU unless stated in this consent or required by law. Although results of this research may be presented at meetings or in publications, identifiable personal information about participants will not be disclosed.

Once the study has been completed, we will send you a summary of all of the results of the study and what they mean.

The videos collected as part of this study will not be used or distributed for future research studies, even if identifiers are removed. The videos will be destroyed once data collection is complete.

WHOM SHOULD I CONTACT IF I HAVE QUESTIONS ABOUT THE STUDY?

If you have general questions about your rights as a participant in this or any other research, or if you wish to discuss problems, concerns or questions, to obtain information, or to offer input about research, you may contact:

Virginia Commonwealth University Office of Research
800 East Leigh Street, Suite 3000, Box 980568, Richmond, VA 23298
(804) 827-2157; https://research.vcu.edu/human_research/volunteers.htm

Do not sign this consent form unless you have had a chance to ask questions and have received satisfactory answers to all of your questions.

Signature Block for Enrolling Child Participants - Parent/Guardian Permission

_____
Name of Child/Youth Participant

_____
Name of First Parent/Legal Guardian (Printed)
Study team – verify that this individual is the child's parent or legal guardian.

_____   _____
(Required) First Parent/Legal Guardian Signature   Date

_____   _____
(Optional) Second Parent /Legal Guardian's Signature   Date

Paige J. Carter_____   _____
Name of Person Conducting Parental Permission Discussion   Date

_____   _____
Signature of Person Conducting Parental Permission Discussion   Date

_____   _____
Principal Investigator Signature (if different from above)   Date

Appendix C

Coaching Training Materials

Coaching Training Script

Coaching Principles and Practices
National Professional Development Center on Autism Spectrum Disorders. (2010, October)
Coaching: Principles and Practices
Activity: What are the qualities of an effective coach?
● Think of a time in your life when you had an experience with a coach.
● Write down the qualities of the coach on a piece of paper.
● What were the positive qualities of the coach?
● If the experience was not positive, what would have made the experience positive?
An Overview of Coaching
● Understand the role of coaching in technical assistance
● Identify elements of successful coaching
● Recognize effective communication behaviors
● Identify and address barriers to coaching
● Describe, practice, and critique the implementation of the coaching process

Coaching leads to improvement in:
● instructional capacity - increasing teachers' ability to apply what they have learned to their work with students
● instructional culture of the school
● a focus on content which encourages the use of data to inform practice

Training Outcomes Joyce and Showers, 2002.

	Knowledge of Content	Skill Implementation	Classroom Application
Presentation /Lecture	10%	5%	0%
Add demonstration	30%	20%	0%
Add practice	60%	60%	5%
Add Coaching	95%	95%	95%

Underlying Assumptions What Coaching Is and Is Not…..
● Collegial not competitive
● Professional not social
● Confidential not public
● Specific not general
● Assisting not evaluating
● Dynamic not static
Successful Coaching Relationships
● Trust and mutual respect
● Training
● Willingness to change
● Professional attitude
● Reciprocity
● Communication
Coaching and Communication
Potential Barriers to Communication
Advising • Anticipating • Avoiding •
Cross-Examining • Denying Others' Reality
• Diagnosing • Directing • Judging •
Lecturing • Moralizing • Praising •
Reassuring • Teasing
Open vs. Closed Communication
Closed Questions: Are, Have, Should, Will, Would, Can
Open Questions: Tell, How, Describe, What, Why

Leveling Statements
You seem to be very concerned about this important topic, and rightfully so (acknowledgement of another's claims as valid). I know that you have worked diligently on this issue (confirmation of another's competence). Is there something we can do to address this issue (request for compromise or negotiation)? Leveling is incompatible with submission or intimidation.
Conventions for Communication
Nonverbal Skills • Attention cues •Response cues • Focus on content of verbal statements • Focus on the speaker's feelings • Social Conventions • Turn-taking •Appropriate distance •Encouragers
Coaching Participants Inviting Partner
● Focuses on self-improvement of instruction by enhancing or developing skills
● Selects evidence-based instructional practice (EBIP) that will positively impact student performance
Coach:
● Engages in focused conversation
● Observes the IP while working
● Uses questioning and communication skills to empower the IP to reflect on practices
● Helps IP to incorporate evidence based instructional practices
● Engages in focused conversation
● Observes the IP while working
● Uses questioning and communication skills to empower the IP to reflect on practices

● Helps IP to incorporate evidence based instructional practices

Types of Coaching

Mentor

Peer

Reflective Consultation

Mentor:
● Coaching is one-way
● Coach shares knowledge, expertise and guidance
with the IP
● Coach provides direction in
● Defining the target behaviors
● Targeting evidence-based instructional practice for IP
● Identifying data collection method
● Interpreting IP performance

Peer:
● Coaching is reciprocal
● Each member coaches the other
● Inviting partner's role: selects and defines
coaching target and data collection
● Coach's role
● Is non-authoritarian
● Guides IP to identifying coaching targets
● Offers nonjudgmental comments
● Promotes reflection in the IP

Reflective Consultation:
Support for coaches include:
● Provide directions for:
○ Training of a new coach
○ Challenging coaching situation
● Provide opportunity for coach to reflect upon their own practice
● Utilize questioning and reflective listening to develop an action plan to improve coaching practices

The Three Components of Coaching
Pre-observation conference
Observation
Post-observation conference

Pre-Observation

Inviting Partner's Role
● State the purpose
● Negotiate coaching target
● Reach consensus on concern
● Agree on observable IP and student behavior
● Negotiate data recording
● Share agreement on criteria
● Describe etiquette
● Negotiate dates/times for observation and

post-observation conference
Coach's Role
● Complete coaching log
● Guide selection of coaching target
● Verify understanding through questioning
● Introduce mastery and maintenance criteria
● Identify and confirm the recording method
● Clarify etiquette
● Summarize the pre-observation conference
● Negotiate dates/times for observation and
post-observation conference

Observation
Inviting Partner's Role:
● Provide a location for the coach to view the target behavior
● Provide observation space
● Create barrier-free access to data collection area
● Provide and test recording materials and take sample data
● Prepare students for coach's arrival
● Prepare plan to be implemented if a student talks to the
coach
● Begin lesson at agreed upon time
● Do not signal or include coach in lesson
Coaches Role:
● Arrive and leave at the agreed upon time
● Follow the agreed upon script if a student attempts to
engage coach
● Do not signal or talk to the IP during observation
● Do not participate in lesson Activities
● Collect data
● Summarize data
● Complete observation portion of the coaching log
● Provide copy of data to IP before post-observation
conference
Post-Observation
Inviting Partner Role:
● Review data and data summary collected during
observation
● Make self-evaluative statements based on the
data
● Suggest methods to enhance skills
● Finalize action to improve performance
● Negotiate date/time for next pre-observation
conference
Coach's Role:
● Present data, data summary, and notes

- Solicit self-evaluative statements
- Suggest/prompt IP to develop solutions
- Suggest/prompt IP to develop a plan of action based on the data
- Provide feedback on the IP's performance
- Invite discussion and sharing of ideas
- Decide on future plans
- Schedule next pre-observation conference & observation
- Complete coaching log

Overcoming Barriers
Administrative support:
- Provide release time to IP and coach
- Provide recognition of coaches
- Provide recognition of coaching as a school or district priority
- Respect confidentiality of teams around the coaching process

Time:
- Investigate how other schools ensure time for coaching
- Present to administrator a schedule for negotiation
- Discuss with administrator non-teaching time for IP to meet with coach

Building Coaching into your Day
- Build time with the para you are coaching into the day
- Be data-focused

Questions?
For a complete reference list, please contact: pjcarter@mymail.vcu.edu
Information can also be found at: https://autismpdc.fpg.unc.edu/national-professional-development-center-autism-spectrum-disorder & www.vcuautismcenter.org

Coaching Training Learning Check
This form is designed to confirm participation and check knowledge from the coaching training.

* Required

1. **What are the steps/components of the coaching process? Select 3. ***
• Observation
• Mid-coaching
• Pre-coaching
• Pre-observation
• Post-Observation

2. **Each time the coaching process is completed coaches will complete a coaching ___. ***
Mark only one.
• paper
• log
• call
• journal

3. **According to research, what are the two biggest barriers to successful coaching. Check all that apply. ***
• Time
• Money
• Administrative Support
• Teacher Buy-In

4. **What is the percentage of success with skill implementation, knowledge of content, and application in the classroom when coaching is added for professional development? ***
Mark only one.
• 50%
• 30%
• 95%
• 5%

5. **It is the job of the coach to evaluate the inviting partner. ***
• True
• False

Appendix D

Data Recording Training Materials

Training Slides

Why record data? What is the purpose?
• To monitor progress (Is what we are doing working?)
• To determine supports for the student (What will help them to do well?)
• To determine the function of a behavior
 (How can we help replace this behavior with a new positive behavior?)
• To provide evidence of responses to instruction (What have we tried so far?)
• To determine what we teach next (What else does this students need to know?)

What does it tell us?
•What the student already knows
•Current performance under different conditions
• materials, locations, people
• *Under what conditions is the student more likely to be successful?*
• *Under what conditions is the student more likely to be successful?*
•What we need to change about our instruction
•What goals to address next (IEP)

Who can record student responses?
•Teachers
•Paraeducators
•Students
•Parents
•Basically, anyone who has been trained to do so

Different Ways to Collect Data at School
•Use data sheets as directed
•Notes – "anecdotal"
•Behavior data (A-B-C)
•Student work samples

•Tests and quizzes
•And many more!

"Accurate Recording of Student Responses"
•Use data sheets as directed so that we know:
•Did the student respond to the instruction independently?
•If so, great! Moving on.
•If not, then what else is needed?
•Prompts?
• Different materials?
• Different instructional strategy?

Prompts. What are they?
•A prompt is a cue given to assist the student with correctly responding
•It is intentional and targeted for instruction
•Prompts should be faded immediately, on the very next presentation.

Kinds of Prompts:
Verbal/Auditory
Gestural
Physical (partial or full)
Proximal/Positional
Textual/Written

Knowing Your Target
• **How do you know what you are teaching?**
• Written directions
• Ask the teacher for clarity
• **How do you know if or how to prompt?**
• A quick review of the data sheets from previous days
• Ask the teacher for a demonstration

Opportunity for Practice
Accurate data recording is critical for instructional planning and student success,
but it takes practice!

Questions, Discussion, and Review
• What is the purpose of recording data?
• What do you do when you are unsure about the activity or the recording of the
student's responses?
• Who can record data?
• Who makes instructional decisions based on the data?
• How do you know what kind of data to record? Where do you look?
• What kind of recording do we do regarding behavior? What if this behavior is during
instruction?
• When in doubt about anything, what should you do?

Response Recording Fidelity Check

Participant: _____   Date_____

Response Recording/Data Collection:

Skill/Step	✓ /	✓ /	✓ / -	Notes
datasheet out and available				
review item description and criterion				
response recorded for each response or nonresponse				
data coded correctly (+,-,o or as determined by goal)				
the tempo of instruction (not halted for data collection)				

Practice trial-by-trial recording sample											
Demo											
Practice											
Practice											

Notes:

Response Recording Learning Check

Select the best answer:

If I am not sure how to mark a student response, I should:
- just guess and keep going
- ask the teacher
- skip that activity
- give the student all "+" so I do not penalize the student

The purpose of recording student responses is to:
- determine how the student is performing right now
- determine under what conditions the student will likely do well
- decide what to teach next
- all of the above

Student responses can be recorded:
- On a data sheet or in notes
- On student-produced work
- On video or audio recording (with the parent's permission)
- All of the above

True or False: As a paraeducator, I decide what the learning objectives will be.
- True
- False

True or False: As a paraeducator, I am not allowed to record student responses.
- True
- False

If a student correctly responds without additional prompts, on a data sheet I should record:
- –
- o
- +
- /

If I am recording the words a student uses (voice or assistive device), I would:
- Write down what was said word-for-word
- Write down some of the words
- Try to remember what the student said later and record it on the data sheet
- Tell them "Good job' and keep going

If the student is engaging in behavior that is impeding the learning activity, I should:
- Follow the student's behavior plan
- Record any responses the student does make
- Record behavioral information
- All of the above

Data recording is crucial for:
- Implementation of the IEP
- Determining goals and objectives
- Documenting progress over time
- All of the above

Appendix E

Observation Tool

Observation Tool   Coach_____   Para_____

Circle phase: Baseline   Intervention   Follow-up/Maintenance

Date_____   Time Begin_____   Time End_____

Response Recording/Data Collection:

Skill/Step	+/-	Notes
1. datasheet out and available		
2. review item description and criterion		
3. response recorded for each response or nonresponse		
4. data coded correctly (+,-,o or as determined by goal)		
5. the tempo of instruction (not halted for data collection)		

+ completed   - not completed

Simultaneous recording (coach and paraprofessional during instruction)									
Student obj/goal:									
Para Recording									
Coach Recording									
Student obj/goal:									
Para Recording									
Coach Recording									
Student obj/goal:									
Para Recording									
Coach Recording									
Student obj/goal:									
Para Recording									
Coach Recording									

Key for recording student responses: + correct - incorrect o – prompt

_____Observer Initials

123

Appendix F

Coaching Log

Directions: Please check each box as you complete it for each coaching session to ensure all components are addressed. Make notes regarding the discussion.		
❏ **Pre-Observation Conference**	Date:	Time:
Notes/Focus of the Observation:		
❏ **Observation**	Date:	Time:
See also Observation Checklist. Notes:		
❏ **Post-Observation Conference:**	Date:	Time:
Observation Debrief: What is going well? What is not going well? What is one thing we can do to improve?	❏ Focus of next Observation:	

Fidelity Checklist

Coaching Reference Sheet Fidelity Check
Pre-Observation Conference
- Schedule pre-observation conference the same day as the observation   - State the purpose of the coaching sessions   - Identify target skill/concern   - Discuss/share agreement on criteria for targeted skill observation
Observation
- Observe with clear view of para and student   - Record student responses   - Note strengths and concerns re: targeted skill   - Note items for future focus
Post-Observation Conference
- Schedule post-observation same day as observation   - Review observations   - Ask open-ended questions for discussion   - Make suggestions to enhance skill   - Discuss next steps

Appendix H

Social Validity Surveys

Follow-up Survey – Paraeducator
The training and coaching improved your implementation of data collection procedures.
Strongly Disagree 1 2 3 4 5 Strongly Agree

The training and coaching improved student outcomes.
Strongly Disagree 1 2 3 4 5 Strongly Agree

The training and coaching will help me with instruction in the future.
Strongly Disagree 1 2 3 4 5 Strongly Agree

Coaching improved my ability to record data during direct instruction.
Strongly Disagree 1 2 3 4 5 Strongly Agree

I would participate in this kind of professional learning again.
Strongly Disagree 1 2 3 4 5 Strongly Agree

Coaching was possible during the school day with existing staff and resources.
Strongly Disagree 1 2 3 4 5 Strongly Agree

I was able to accurately record student responses.
Strongly Disagree 1 2 3 4 5 Strongly Agree

Feedback from the teacher-coach was a helpful part of the coaching process.
Strongly Disagree 1 2 3 4 5 Strongly Agree

It is possible for teachers to coach paraprofessionals effectively within the school day.
Strongly Disagree 1 2 3 4 5 Strongly Agree

Please provide any other comments you would like to make about the coaching process or your experience participating in this study. Use the back for your responses if needed.

Follow-up Survey - Coach

Please complete the following survey based on your experience in the coaching study.

The training and coaching improved the paraeducator's implementation of data collection.

Strongly Disagree 1 2 3 4 5 Strongly Agree

The training and coaching improved student outcomes.

Strongly Disagree 1 2 3 4 5 Strongly Agree

The training and coaching will help with instruction in the future.

Strongly Disagree 1 2 3 4 5 Strongly Agree

Coaching improved data collection during direct instruction.

Strongly Disagree 1 2 3 4 5 Strongly Agree

I would participate in this kind of professional learning again.

Strongly Disagree 1 2 3 4 5 Strongly Agree

Coaching was possible during the school day with existing staff and resources.

Strongly Disagree 1 2 3 4 5 Strongly Agree

Paraeducators were able to accurately record student responses.

Strongly Disagree 1 2 3 4 5 Strongly Agree

Providing feedback was a helpful part of the coaching process.

Strongly Disagree 1 2 3 4 5 Strongly Agree

It is possible to coach paraprofessionals effectively within the school day.

Strongly Disagree 1 2 3 4 5 Strongly Agree

Please provide any other comments you would like to make about the coaching processor your experience participating in this study. Use the back to write your response.

Appendix I

Open-Ended Interview Questions

- What did you like most about the training and coaching model for recording student responses?

- How could this model be improved?

- Is this type of training something you will continue beyond this study?

- What did you learn?

- Do you feel the learning was worth the effort of the training and coaching process?

- Do you feel this was of benefit to the students? If so, why?

- Is there anything else you would like to say that would be helpful to someone planning professional development for paraeducators?

Vita

Paige Carter was born on in 1969 in McAlester, Oklahoma and is an American citizen. She graduated from McAlester High School in 1987. She received her Bachelor of Science from East Central University in Ada, Oklahoma in 1991. She received a Master of Education, focusing on Early Childhood Special Education in 1997 from Virginia Commonwealth University in Richmond, VA. In 2006, she earned distinction as a National Board Certified Teacher. In 2010, she attended the University of North Texas for coursework to obtain licensure as a Board Certified Behavior Analyst. Paige has served as a special education teacher, early childhood special education teacher, autism specialist, and administrator in Virginia public schools for 30 years. Currently, she serves as the Director of Special Education for Caroline County Public Schools in Bowling Green, Virginia.