

EVALUATING BEHAVIORAL INTERVENTION TRAINING PACKAGES

EVALUATING BEHAVIORAL INTERVENTION TRAINING PACKAGES FOR
SCHOOL-BASED PARAPROFESSIONALS

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EVALUATING BEHAVIORAL INTERVENTION TRAINING PACKAGES

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ABSTRACT

Paraprofessionals work on a daily basis with students with a variety of challenges and behavioral needs. Many require professional development packages to train on how to implement behavioral change interventions. This review summarized the applied literature on behavioral intervention training packages for paraprofessionals in a school-based setting. The results of this literature review included 12 empirical studies that were selected through detailed search process that evaluated various characteristics including type of professional development, study setting, type of student disability, experimental design, and paraprofessional outcome. Discussion includes primary findings, implications, limitations, and future directions.

Keywords: paraprofessional, support staff, paraeducator, training packages, abbreviated coaching, behavior skills training, video modeling, autism spectrum disorder, intellectual disability

Introduction

Paraprofessionals are integral in special education settings. They help in implementation of school lesson plans, evidence-based practices, and support for students in childcare, general education settings, and special education settings (Department of Education, 2004). Federal regulations require potential paraprofessionals complete two years of study at an institution of higher education and/or graduate with an associate's (or higher) degree (Department of Education, p. 2, 2004). Additionally, paraprofessionals must meet a rigorous standard of quality and be able to demonstrate, through a formal state or local academic assessment, that they are qualified for the position (Department of Education, p., 2, 2004). For the state of Missouri, to qualify for a paraprofessional position, applicants need either: a minimum of 60 college credit hours, passing a paraprofessional assessment, or completing a 20 hour substitute certificate course ("Missouri Department of Elementary and Secondary Education, n.d.) While these requirements are pragmatic to applicants with a variety of backgrounds, the variable level of training/expertise needed to work as a paraprofessional may leave some paraprofessionals in need of more specific trainings suit the challenges of their work environment.

Paraprofessionals work with special and general education teachers to promote the best educational environment for students (Department of Education, p. 1, 2004). The Missouri Department of Elementary and Secondary Education (DESE) provides resources for paraprofessionals employed in the state. Additionally, the Council for Exceptional Children (CEC) provides competency standards in knowledge and skills that paraprofessional can work towards in their work (CEC, 2022). Despite the availability of

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these resources, it is common for paraprofessionals to still feel overwhelmed and underprepared in their jobs. These regulations fail to consider the difficult and strenuous work environment paraprofessionals encounter on a regular basis. Multiple researchers have examined the necessary training and experiences necessary for paraprofessionals to excel in their chosen profession. They often face a variety of challenges including unclear roles and responsibilities in classrooms, lack of respect from coworkers and supervisors, and inadequate training for their position (Fishers & Pleasants, 2012). This lack of preparation can lead to burnout and high rates of job turnover.

Burnout, a state of physical and emotional exhaustion that also involves a sense of reduced accomplishment and loss of personal identity (Mayo Clinic, 2021), is a common problem facing workplaces with a high amount of job stress and limited methods of coping. This is especially true in special education, which is often underfunded and under resourced in the United States (Blad, 2021). Burnout in special education is not a new phenomenon. The earliest article on special educator burnout was published in 1982 (Holland, 1982) and paraeducator burnout in 1985 (Frith & Mims, 1985). This is a problem that has existed for over four decades, and, as a field, are still trying to find adequate solutions. One method of tackling burnout is to identify areas paraprofessionals find the most challenging in order to design future professional development packages.

Fishers & Pleasants (2012) conducted a survey of school paraeducators to assess their jobs, issues of concern, and responsibilities. The survey consisted of 1867 paraeducator responses from an undisclosed midwestern state in the United States. The survey evaluated the primary roles for paraeducators, whether they (paraeducators) felt their roles were appropriate, their major concerns in their job, any differences between

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one-to-one or group settings, and whether those settings affected their overall view of the job. The results of this survey indicated that paraprofessionals are being asked to do more than they are qualified to perform under current IDEIA (2004) guidelines. For example, many indicated that they are being asked to develop lesson plans despite that being beyond their scope of competence.

Another common issue found among paraeducators in this study is that they do not feel valued in their job nor are given fair compensation for their job. These jobs are extremely taxing and require a great deal of physical and mental effort on the part of paraprofessionals. Low compensation can be detrimental to retention of workers.

According to one commenter,

“ We have a problem with major turnover each year because the pay is so low—a grocery store checkout person is paid more! We work directly with the students, yet often the students we work with earn more money at their part-time jobs. This makes it hard to find good paraprofessionals” (Fisher & Pleasants, 2012, p. 292).

Low compensation and low feelings of appreciation from colleagues are factors that contribute to significant burnout and job turnover. Another factor that contributes to staff burnout that has become abundantly clear from the literature is a lack of appropriate training.

Another survey conducted nearly a decade later, Mason et al. (2021), examined the perspectives of special educator including teachers' and paraprofessionals' roles and responsibilities in public education settings. The study included special educator staff who worked with students ranging from kindergarten to fifth grade. The students they

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worked with had disabilities ranging in intensity from mild to moderate-severe. 16 special educators and 14 paraeducators participated in this study. Participants were interviewed in four focus groups as this format facilitated open discussion

and dialogue between compatriots on issues that can affect some if not all involved in the group. The results of the focus groups revealed notable insights into challenges facing paraprofessionals in special education settings. Across all focus groups, paraprofessionals expressed that a lack of training was a primary concern for them in the workplace. One paraprofessional stated,

“Any other type of job, they go through training and you have to sit there and it’s like a week, or maybe two weeks, or maybe 90 days, depending on what kind of training you’re in. As a para there’s no training. We’re working with severe students...” (Mason et al., 2021, pp. 106-107).

In all focus groups, paraprofessionals report that they receive a one-size-fits-all professional development where paraprofessionals working with students with mild disabilities receive the same training as those that work with students with moderate-severe disabilities.

Due to this method of training, many paraprofessionals reported that they did not feel prepared to deal with all types of situations they encounter in their work with students. Additionally, special education teachers who act as supervisors to paraprofessionals feel that they are unsure when and how they are supposed to provide supervision as part of their duties. Notably, in this study, both teachers and paraeducators both recommended how a system to change training methods. Their suggestion involved

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assignments based on assignment with provision of hands-on activities, follow-up, and performance feedback. This is similar to earlier research on effective professional development, which recommends instruction, opportunities for practice, and follow-up and feedback (Conroy et al. 2015). In the following studies that are reviewed, I examined training methods that proved successful with special education teachers. While the focus of this literature review is to examine the use of training packages for paraprofessionals, the relevant literature of how professional development packages for special education teachers should be examined in order to identify ways to generalize techniques towards future research involving paraprofessionals and other support staff.

One method of staff training and skill acquisition is known as behavior skills training (BST). BST is a system designed for skill acquisition for anyone who works with learners (e.g., ABA clinicians, teachers, support staff, and parents). First described by Sarokoff & Sturmey (2004), BST is an empirically validated training procedure consisting of four main elements: instruction, modeling, rehearsal, and feedback. This method of skill training has been replicated in multiple studies. A review by Kirkpatrick et al. (2019) examined the use of behavior skills training with teachers. The goal of the review was to summarize the research regarding BST and its use with teachers, evaluate the studies for the presence of evidence-based practice (EBP) by the standards of What Works Clearinghouse (WWC; What Works Clearinghouse, Institute of Education Sciences, U.S. Department of Education 2017), and finding any gaps in the literature that needs future research.

The review consisted of 12 studies with 91 teachers in total. BST was implemented on teachers for acquisition of one or more skills in this review. While the

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result of the review greatly supported the use of BST in skill acquisition with teachers, it did not meet the standards of WWC and had a small pool of studies to review. A significant limitation of this review is that it excluded other educational staff such as support staff, teachers' assistants, and paraprofessionals. Due to the strong results of BST, future literature reviews should look at empirical studies that sought to improve skill acquisition of BST with support staff, paraprofessionals, and paraeducators.

Brock et al. (2017) is another review that highlights the benefits of staff training and assesses a variety of training styles. In this review, they included 118 peer reviewed single-case-design studies where researchers evaluated the efficacy of practitioner training on implementation of school related practices on students with disabilities. Practitioners in this study are defined as in-service or preservice teachers, paraprofessionals, or related service personnel. Over the 118 studies included in the review, 475 practitioners were trained to implement interventions for students with disabilities. The success rate of initial training for practitioners was (83%), training on maintenance of practitioner implementation was (79%), and implementation on student outcomes was (67%).

The findings in this review indicated that BST was the most consistent method associated with fidelity improvement among practitioners. Additionally, researchers found that the use of modeling, detailed step by step instructions for implementation, and oral description of implementation steps were statistically significant in increasing fidelity of intervention. There were a few limitations for this review. While the use of BST was associated with the higher amount of fidelity improvement among practitioners, BST is a lengthy process that involves one to one supervision, time to practice, model,

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rehearse, and receive feedback. These are factors that many school based employees have little time to incorporate into their hectic and often chaotic schedules. Modeling, written instructions, and oral feedback are components to staff training that may be more practical in a school setting.

Another method of professional development that has been demonstrated to be effective is abbreviated coaching and immediate feedback. A study by Scheeler et al. (2010) examined the effectiveness of peer coaching through bug-in-ear (BIE) technology. The goal of the study was to examine the effectiveness of immediate corrective feedback on implementation of teaching techniques (i.e., completion of a three-term contingency[TCC]). Three dyads, consisting of a special education teacher and a general education teacher, participated in this study. The study implemented a multiple baseline, across participants experimental design. Feedback was delivered through an earpiece from one teacher to the other to improve implementation of TCC in the classroom. The results of the study saw a dramatic increase in TCC implementation across all dyads and was maintained across intervention, fading, maintenance, and generalization probes. This study demonstrates a method of professional development that is less time consuming than BST and could possibly be more economical in a school setting. However, this method of training may be too difficult to implement given staffing shortages. In instances like this, another method of training known as web-based video modeling and feedback may prove beneficial.

Web-based video modeling is a form of training in which a teacher views someone else demonstrating implementation of a specific procedure with a student (or a confederate playing the role of a student). This method has immense value as this is

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something that can be produced and distributed widely and does not require a great deal of staff or monetary resources. In a study by Brock et al. (2018), they examined the utility of video modeling and brief coaching of teachers on implementation of EBPs for students with severe disabilities. They used a multiple probe across participants experimental design with three dyads of special education teachers and their students with severe disabilities acting as participants. Baseline data was collected with initial correct responding ranging from 0 to 40 percent. Following implementation of video modeling and coaching, teacher implementation of EBPs rose to mastery criteria of 80% or greater. Overall, this study showed that web-based video modeling and coaching is a valuable resource for classrooms and may prove advantageous for paraprofessionals wanting to learn how to implement EBPs in their respective classrooms.

From the brief literature review that has been conducted, one of the issues facing paraprofessionals, support staff, and paraeducators that can be actively tackled is appropriate training for implementation of school based interventions for students with disabilities. BST is a gold standard for staff training, but it requires a lot of work set aside. A number of empirical studies have emerged over the years that include a variety of training methods that may prove beneficial in a school environment. These styles of professional development range from coaching by coworkers or supervisors, web-based video modeling and feedback, and abbreviated performance feedback by teachers or supervisors in the classroom. To this date, there has been no literature review that examines the variety of training methods for paraprofessionals, paraeducators, and support staff from the lens of improved fidelity of implementation of school based

interventions as well as the practical resources often available to typical special education classrooms in the United States.

Purpose & Research Questions

The purpose of the current literature review will be to explore the empirical literature from the passage of the IDEIA 2004 onwards regarding skills training packages for paraprofessionals, paraeducators, and support staff in special education settings. The reason that I chose to choose articles from 2004 onwards is that legislation outlined in IDEIA included raised standards for educators in special education classrooms (Department of Education, 2023). Specifically, this review will examine which training package(s) produce the highest rates of fidelity increases for behavioral skills intervention programs for the student. The review will also look at how various training packages (i.e., behavioral skills training, abbreviated performance coaching/feedback, and web-based video modeling and feedback) compare with one another.

Methods

Search Procedure

I conducted a two-step search process that included (a) a systematic search of electronic databases and (b) an ancestral search of the articles in which citations from relevant studies are used to explore earlier research on which the current study is based. An electronic search for articles was conducted utilizing the following databases: Google Scholar, EBSCO Host, Research Gate, University of Missouri Libraries, Journal Storage (JSTOR), Psychological Information Database (PsychINFO), Education Research Information Center (ERIC), and PubMed Central (PMC). The following terms were

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entered into the keywords field of the databases in pairs using Boolean operators: paraprofessional, support staff, and paraeducators will be paired with professional development, skills training, behavior skills training (BST), video modeling, abbreviated coaching, and performance feedback.

The search was limited to English language, peer-reviewed journals. The abstracts and titles of the articles found by the search were compared against the inclusion and exclusion criteria. Additionally, an ancestral search was performed on the searched articles to identify additional earlier articles that current research is based upon. All studies included in this study were requested from their respective publishers in a digital format. The studies selected for the literature review were entered into a Microsoft excel spreadsheet. The spreadsheet was organized to include basic information about the studies (i.e., title, author(s), year published, and journal), experimental variables (i.e., primary research question(s), participant demographics, setting, experimental design, length of study, independent variable(s), dependent variable(s), and interobserver agreement), and conclusions (results, strengths, limitations, and implications).

Inclusion/Exclusion Criteria

Studies in this review were included if they met five criteria. First, the study included paraprofessionals, support staff, or paraeducators age 18 years or older. Second, studies included participants who work in an educational environment such as a self-contained classroom setting, a general education classroom, or an alternative academic setting (e.g., a specialized day school). Third, studies compared an experimental condition in which paraprofessionals received training and support to implement an intervention compared to a control condition in which paraprofessionals did not receive

training. Fourth, participants in this study worked with students who are eligible under the individuals with disabilities education improvement act of 2004 to receive support services in a school setting. Fifth, studies in the review had as a goal to improve skill acquisition of EBPs to support students in educational settings.

Studies were excluded from this review if the participants did not include paraprofessionals, paraeducators, and support staff for children with disabilities in a school setting. Additionally, studies were excluded from the review if they were qualitative in nature as they do not include introduction of an experimental condition to be examined against a control (baseline) condition at the beginning of the study. Studies were excluded from this review if the study only reported student outcomes as the dependent variable and did not include practitioner implementation fidelity of behavior interventions. Studies that only included assessment data, but no delivery of an intervention were also excluded from this review.

Interobserver Agreement (IOA)

A coding sheet (Appendix A) was used to summarize each study based on the inclusion criteria listed earlier. The coding sheet evaluated (a) participant characteristics, (b) study characteristics, and (c) eligibility checklist. To assess interobserver agreement (IOA), an ABA masters student in the 2023 cohort at the University of Missouri coded 30% of included studies in this review. Studies were picked at random and coded by the second observer using the inclusion and exclusion criteria listed earlier in the method section. The articles sent to the second rater included a selection of studies included and excluded from the review by the primary observer. The two raters evaluations were discussed along with the number of agreements and disagreements. Additionally, four

randomly selected empirical studies were sent to the second rater to score based on the effectiveness of intervention using a Likert score created by the primary author. These were also included in Appendix A. Any disagreements were resolved through meetings between the primary author and second observer to come to a consensus. For the studies that were reviewed for this literature, average IOA for inclusion/exclusion criteria was 91%. The IOA score for Likert ratings of 4 empirical studies included in this review was 100%.

Analysis of Articles

The selection of the studies included in this study are shown in Figure 1. Each of the studies were given a Likert score assessing the amount of improvement of behavioral interventions following introduction of the professional development package examined in the study. The scores ranged from 1 – 5: 1 stood for minor effect (i.e., intervention had little to no improvement of program implementation for paraprofessionals [+0-20% Fidelity]); 2 for marginal effect (i.e., intervention had a minor effect on improving program implementation for paraprofessionals [+20-40% Fidelity]); 3 for moderate effect (i.e., intervention had a moderate effect on improving program implementation for paraprofessionals [+40-60%]); 4 for above average (i.e. intervention had an above average effect on improving program implementation for paraprofessionals [+60-80%]); and 5 for positive effect (i.e., intervention had a positive effect on increasing improving program for paraprofessionals [+80% or above]). Additionally, scores were evaluated whether they met mastery criteria if paraprofessional fidelity scores were 80% or above after intervention. A breakdown of the distribution of Likert scores is listed below in Table 1.

Results

The results of the literature search are shown in Table 2, with the initial search yielding 47 articles that included any of the keywords: paraprofessional, support staff, and paraeducators paired with professional development, skills training, behavior skills training (BST), video modeling, abbreviated coaching, and performance feedback. Upon further screening of the studies using the inclusion and exclusion criteria listed above, the author identified 12 relevant studies to be included and examined.

Overview of Studies

101 people including teachers, paraprofessionals, and students participated in these studies. The terminology for support staff varied across studies in this literature review. The term paraprofessional was used in 9 out of the 12 scored studies (75%). Teacher aides, assistant teachers, and instructional staff were each used in 1 study out of the 12 studies (8% respectively) included in this literature review. The support staff examined in these studies served students with various diagnoses. 6 of the 12 studies (50%) had student participants with an autism diagnosis, 3 of the 12 studies (25%) had student participants with a speech/language impairment, 2 of the 12 studies (17%) had student participants with an intellectual disability, and 3 of the 12 studies (25%) had student participants with multiple/undisclosed disabilities.

The most common form of professional development package given to paraprofessional participants was a mixed methods design implemented in 6 out of the 12 scored studies (50%). Coaching/performance feedback was used in 4 out of the 12 studies

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(34%) in the literature review. Video modeling was used in 1 out of the 12 studies (8%) and behavior skills training were only used in 1 of the 12 studies (8%).

Studies examining paraprofessional training packages were implemented across a wide range of settings with most occurring in a private school, charter school, or non-public day school for children with autism and other developmental disabilities in 5 out of 12 studies (42%). Training packages were implemented in special education classrooms or self-contained classrooms for 4 out of 12 studies (33%). Studies were conducted in general education classrooms in 2 out of the 12 studies (17%). One study out of the 12 studies (8%) did not specify which classroom setting (i.e., no indication of whether the classroom was general or self-contained) was used.

The majority of studies coded in this literature review used a multiple baseline experimental design in 9 out of 12 studies (75%). Multiple probe experimental designs were used in 2 out of 12 studies (17%). One study out of the 12 coded (8%) used a randomized controlled experiment comparing an experimental and comparison group.

Once the relevant studies were identified, reviewed studies were broken down based on the type of professional development package. These studies were divided into 3 sections: abbreviated coaching/performance feedback (3 articles), behavior skills training (1 article), and mixed methods (9 articles). Video modeling is a mode of teaching that uses recorded videos to teach and visually model a particular skill or behavior (McCoy & Hermansen, 2007). These videos can be accessed online or via other formats (e.g., DVDs, Blu-ray discs, etc.). Abbreviated coaching/performance feedback is a form of professional development where constructive criticism is provided immediately to an individual by a supervisor or observer to improve behavioral intervention delivery.

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BST, as discussed previously in this literature review, is a form of skill teaching and acquisition that has four main components: instruction, modeling, rehearsal, and feedback (Sarokoff & Sturmey, 2004). This category is distinct from abbreviated coaching/performance feedback because BST requires all four components to be implemented whereas abbreviated coaching can include just feedback and no further instruction.

The last category of professional development packages was called mixed methods. This is a catchall category for professional development packages that borrow from various training methods (e.g., video modeling plus BST). This category was created so that studies were not incorrectly assigned to the wrong professional development package category as well as not excluding studies that do not fit into one type of professional development.

Video Modeling (1 Study)

A study by Walker et al. (2019) examined the use of an online learning module for paraprofessionals to increase mand training in a classroom setting. The training module consisted of videos and content related to constant time delay (CTD). Constant time delay is a technique that involves immediate delivery of a prompt after an instructional cue (e.g., Asking what snack a child wants and then immediately placing the child's hand on a preferred snack card). Over time, the delay is increased to allow for more independent choosing by the student after manding by touching a picture has been demonstrated to engage immediate reinforcement.

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Participants in this study consisted of two classroom team members (a special education teacher and a paraprofessional) and one student diagnosed with multiple disabilities. For the purposes of this literature review, only the paraprofessional was scored using the Likert scale discussed further in the analysis section of the study. Sessions were conducted in a self-contained classroom in a rural public elementary school in Midwestern state of the United States. A multiple probe across different settings experimental design was used in this particular study. After baseline data were collected via a consultant, a doctoral student in special education trained in support needs assessment and planning (SNAP), the classroom team underwent training utilizing the online training module mentioned above. Following training, data was collected on classroom team fidelity of implementation and independent mands for the student. The paraprofessional team and students reached mastery criteria levels of implementation and manding. The paraprofessional team member received a Likert score of a 5 indicating a positive improvement (80% or above) compared to baseline.

Abbreviated Coaching/Performance Feedback (3 Studies)

A study by Coddling et al. (2008) evaluated the application of performance feedback to improve treatment integrity of class wide behavior. This particular study evaluated the treatment integrity for classroom aides based on reactivity. In this study, reactivity is the phenomenon where one's behavior changes when they know they are in the presence of an observer. The observer in this study was someone who worked with the special education program and school for 3 years. The study consisted of one special education teacher, two classroom aides, and seven students. For the purpose of this literature review, only the two classroom aides were given a Likert score of fidelity

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improvement. During baseline, the observer watched classroom aides under observer-present and observer-absent conditions. Using a multiple baseline across staff members with alternating treatments, the observer measured the effect their presence had on paraprofessionals implementing class wide programs. Overall, the presence of an observer had no observable effect on paraprofessional implementation. Both paraprofessionals were able to meet mastery criteria of program implementation and were given Likert scores of 4s indicating above average fidelity improvement.

Leblanc et al. (2005) conducted a study to assess the effectiveness of abbreviated performance feedback on DTT instruction for paraprofessionals in a school setting. In this study, the participants consisted of 3 dyads with 3 assistant teachers acting as paraprofessionals in the classroom and 3 students diagnosed with autism spectrum disorder. The study was run in a private school for children with developmental disabilities. Using a multiple baseline across participants experimental design, researchers observed implementation of DTT skills by paraprofessional participants and provided abbreviated performance feedback on 10 discrete trial instructional skills. The trainer only provided verbal feedback; they did not provide any modeling, role play, or opportunities to practice skills. This distinction separates this study from other professional development packages that focus on BST. Following implementation of the abbreviated performance feedback, percentages of discrete trial instruction skills implemented correctly rose for all dyads resulting in mastery criteria (i.e., 80% or above) during intervention and follow up sessions. Paraprofessional participants in this study earned Likert scores of 3, 4, and 3 indicating a moderate to above average improvement in fidelity scores.

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Gregori et al. (2022) examined the use of teacher implemented coaching of paraprofessionals on their fidelity of functional communication training (FCT). Additionally, the study sought to see the effect of paraprofessional implemented FCT on challenging behavior and communication attempts on students with disabilities. The study consisted of two teachers, three paraprofessionals, and three students. Sessions were run at a special education preschool in a classroom before school or during lunch. The dependent variables for this experiment included percentage of FCT steps implemented by paraprofessionals correctly, percentage of intervals with children engaging in challenging behavior, and frequency of functionally equivalent mands made by students.

Student participants underwent a functional behavior assessment (FBA) consisting of indirect assessments, direct observations, and a trial-based functional analysis (TBFA). These assessments were used to better inform how to structure FCT to reflect the student requesting what they want instead of engaging in problem behaviors. Teacher participants were trained in how to conduct FCT by the first author of the study. Once the teachers reached mastery criteria, they were additionally trained how to provide coaching to paraprofessionals in the study. Teachers would then train the paraprofessionals on how to conduct FCT in the classroom with the student participants. Following paraprofessionals being trained in FCT, they received weekly coaching sessions delivered by teachers for improvement of FCT implementation. Using a nonconcurrent multiple baseline across participants experimental design, teachers scored paraprofessional implementation of FCT over several weeks. During the intervention phase, all three paraprofessional met mastery criteria for FCT implementation. For the

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student participants, the introduction of paraprofessional FCT coaching and implementation saw a decrease in challenging behavior for all three students and improved communication in two out of three of them. Paraprofessional participants in this study earned Likert scores of 3, 4, and 3 indicating a moderate to above average improvement in fidelity scores. Regarding mastery criteria, 2 out of 3 paraprofessional participants met mastery criteria.

Behavior Skills Training (BST) (1 Study)

Hogan et al. (2015) evaluated the use of BST in school settings with school staff who were not trained teachers. The purpose of the study was to extend previous research on the beneficial value of BST in a special education setting. The participants in this study were four dyads consisting of four special education students and four female instructional staff at a nonpublic day school for children with autism and/or other developmental disabilities who engaged in severe problem behavior. Using a concurrent multiple-baseline experimental design across student-staff dyads, staff were trained using the four elements of BST (i.e., instruction, model, rehearsal, and feedback) to implement three key parts of their students BIPs: differential reinforcement of alternate behavior (DRA), noncontingent reinforcement (NCR), and extinction. Following implementation of BST procedures, all four dyads saw school staff reach mastery levels of BIP implementation by the post-training stage of the experiment. Whereas all paraprofessional participants met mastery criteria, Likert scores for these participants ranged widely from 1 to 4 indicating no improvement in fidelity to above average improvement in fidelity.

Mixed Methods (7 Studies)

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A study by Brock & Carter (2015) was conducted to evaluate the use of professional development package for paraprofessionals in special education settings. The training package for the participants included video modeling and abbreviated feedback in the form of coaching called Video Modeling Plus Abbreviated Coaching (VMPAC). This form of training is designed to incorporate key parts of one-to-one coaching while considering the logistical and resource limitations of most public school systems. The purpose of this study was to evaluate how a combination of a workshop and follow-up VMPAC training package compare with a stand-alone training workshop to improve paraprofessionals' implementation of constant time delay. (Note: Constant time delay is a strategy to systematically fade instructional prompts to increase independent action on the part of the student.) Additionally, the study examined the effect of the individual components of the package including just video modeling or only coaching on implementation fidelity. Finally, the study examined the coaching component compared with a combination of coaching and video modeling.

The study participants included 25 paraprofessionals who work with children with disabilities within one school district in the southeastern United States. Participants were divided into an experimental and comparison group. In addition to the 2-hr training workshop on instructional prompting strategies including time-delay, the experimental group viewed a 15-min constant time delay instructional video every week for three weeks. By contrast, the comparison group viewed a different 15-min video social inclusion through natural support strategies for three weeks. Afterwards, both groups received 1-hr coaching session targeting constant time delay implementation. Participants in both groups were evaluated on their implementation fidelity in the classroom. The

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results of the study indicated that, for both the experimental and comparison group, inclusion of coaching saw drastic improvements in implementation fidelity of constant time delay. Paraprofessional participant reached mastery criteria for implementation of procedures but received a fidelity score of 1 and 2 indicating no improvement in fidelity to small improvement in fidelity.

Brock & Carter (2016) investigated the effectiveness of teacher-delivered professional development to paraprofessionals to implement peers support arrangements for students with disabilities. The participants in this study consisted of four dyads (paraprofessional and student with developmental delays), a supervising special educator for the professional, and eleven peers to act as supports for the student participants. Using a multiple-probe-across-participants design, experimenters intermittently measured the dependent variable (percentage of intervals with paraprofessional facilitated social interactions and interactions between students with disabilities and their peers). Following baseline measurements, special educators received a 4.5-hr one-to-one orientation that focused on peer-support implementation and professional development elements for paraprofessionals.

Special educators trained paraprofessionals for 2 hours on how to facilitate peer interactions for students. This training included elements of behavior skills training (BST), video modeling, and self-monitoring in the case of one paraprofessional. The results of the study showed that paraprofessionals were able to implement peers support arrangements with high degrees of fidelity. For the student participants, three out of four of them displayed improved social interactions due to the peers support system. Overall, this study demonstrates a successful method of special educators teaching

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paraprofessionals how to implement EBPs in the classroom. All paraprofessional participants were able to meet mastery criteria. However, due to the structure of the study and graph, a Likert score was unable to be determined for this particular study.

A study by Cardinal et al. (2017) examined the use of a professional development package for paraprofessionals using web-based video modeling. This study examined the viability and efficacy of web-based video modeling to teach discrete trial training (DTT) to paraprofessionals in a three-tiered structure. Using a multiple-baseline across participants experimental design, participants in this study consisted of four dyads of one paraprofessional and one student with autism or another form of developmental delay. Professional development in the form of web-based video modeling was administered to participant dyads using a tiered structure with three phases (skill-specific WBVM, general DTT WBVM, and brief corrective feedback). Following implementation of the tiered WBVM, paraprofessionals reached mastery criteria for DTT intervention by the third phase of intervention. In addition to improvement of paraprofessional DTT fidelity, the student participants saw mastery level improvement of skills in the study. All paraprofessional participants for this study received a Likert score of 3 denoting a moderate improvement in fidelity scores.

Koegel et al. (2014) evaluated a training package designed for paraprofessionals to promote social interaction and socialization in students with autism. In this study, participants consisted of three paraprofessional-student dyads. Each paraprofessional worked with a student with an autism diagnosis who displayed low rates of social interaction or other forms of peer socialization. Paraprofessional participants were observed with their student partners during recess periods by a graduate student providing

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no input during baseline. Once baseline data was collected, paraprofessional participants attended a didactic training workshop that focused on incorporating student interests into social games/activities, providing cooperative arrangements with typical peers, and maintaining an appropriate distance from students close enough to help out if needed but not to the point of hovering. During this workshop, paraprofessionals were also shown video clips demonstrating the skills mentioned above.

Following the workshop, paraprofessional participants were observed in the same setting as during baseline. Constructive feedback was provided to the participants if needed by the observer. Following intervention, all paraprofessional participants met mastery criteria of 80% or above for all three skills taught during the workshop. Additionally, student rates of initiation and socialization increased as well demonstrating a correlational effect on the strength of the professional development package. All paraprofessional participants in this study received Likert scores of 5s indicating a positive improvement in fidelity scores.

Werner et al (2019) examined the use of a paraprofessional training package consisting of modeling, role-play, and performance feedback to promote mand training for a student with multiple disabilities. The participants in this study consisted of a teacher, a paraprofessional, and a student diagnosed with autism and intellectual disability. Sessions were conducted during snack time in a private school and therapy center for students 3 to 16 years old with ASD, other developmental disabilities, and typically developing peers. Using a multiple-baseline-across-behaviors experimental design, a teacher trained the paraprofessional to implement techniques to increase communication. These consisted of providing frequent opportunities to respond (OTR),

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manipulating environments or routines to set up opportunities to initiate (OTI), and least-to-most prompting (LTM). Following training sessions involving modeling and role-play, performance feedback was provided after each observation session during intervention. During intervention paraprofessional rates of OTR, OTI, and LTM increased substantially from baseline. Correspondingly, the student participant's communication attempts increased as well. Due to the reporting of results and the structure of the graph, a Likert score was not able to be determined. Additionally, mastery criteria could not be determined for this study.

Walker & Snell (2017) examined the effects of workshops and coaching on paraprofessionals' implementation of function-based intervention (FBI) strategies and the effects these strategies had on students with autism and intellectual disability (ID). The study was conducted in two elementary school classrooms and one middle school classroom. Participants in this study included three paraprofessionals and three students. Using a multiple baseline across individuals experimental design, researchers observed paraprofessionals interact with students exhibiting problematic classroom activities previously identified by a functional behavior assessment (FBA).

Once baseline data on FBI strategy implementation was collected, paraprofessionals received two 1-hr workshops conducted by a coach (i.e., a doctoral student in a special education graduate program). The workshops focused on FBAs, FBI strategy development and intervention, student specific strategies, and monitoring of student progress. Following the workshops, participants received weekly coaching sessions in the form of supervisory coaching and side-by-side coaching. Following the coaching and workshop interventions, rates of paraprofessional implementation and

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student appropriate behavior rose to mastery criteria of 80% or higher. Conversely, student challenging behavior dropped precipitously for all students. All paraprofessional participants were able to reach mastery criteria by the end of the study as well as receiving Likert scores of 3, 5, and 5 indicating an moderate to positive improvement of fidelity scores.

Walker et al. (2019) evaluated the use of teacher delivered training to promote the application paraprofessional led instruction in a classroom. The study consisted of one special education teacher and three paraprofessionals. The study was conducted in an urban public elementary school. Training sessions for paraprofessionals were conducted by the teacher in a classroom separate from students and other adults before and after school. The skill that was taught to the paraprofessionals by the teacher was CTD. Once the special education teacher received training on how to implement CTD by a university researcher, baseline data was collected. During baseline, paraprofessionals were instructed to implement CTD in the classroom after receiving a handout outlining step-by-step instructions of how to implement it in the classroom. Baseline levels of fidelity implementation of CTD averaged below 20%. Once baseline levels were collected, paraprofessionals received a 1 hour workshop which included a PowerPoint presentation and video models of how to conduct CTD. Following the workshop, paraprofessionals asked to conduct CTD in the classroom. During intervention, paraprofessionals would receive in-person coaching on how to do CTD until they reached a mastery criteria of 90% across two sessions. After implementation of in-person coaching, 2 out of 3 paraprofessionals met mastery criteria. Additionally, paraprofessional participants

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received Likert scores of 4,5, and 4 indicating the intervention had an above average to positive effect on improving fidelity scores.

Analysis of Treatment Effects

Of the 59 Likert scores assigned to paraprofessional participants, 20 of the 60 scores (33%) were 1s indicating no improvement. 15 of the 60 Likert scores (25%) were 2s indicating a minor effect on skill improvement. 10 of the 60 Likert scores (17%) were 3s demonstrating a moderate effect on intervention improvement. 8 of the 60 Likert scores were (13%) 4s denoting an above average effect on fidelity score improvement. Finally, 7 out of the 60 Likert scores were 5s indicating the intervention had a positive effect on skill improvement. Studies were also evaluated based on whether or not the paraprofessional participants met mastery criteria. Mastery criteria was defined as meeting or conducting interventions with 80% fidelity or above. Mastery criteria was achieved for 54 of 57 paraprofessional participants (95%).

Discussion

The purpose of this literature review was to evaluate the research on behavioral intervention professional development packages for school-based paraprofessionals. This review of 12 studies showed improvement after professional development packages were given to paraprofessionals. The review of these 12 studies has shown the value of investing in staff training for paraprofessionals so that they can better serve the children they work with daily.

Percentage of Fidelity Improvement / Mastery Criteria / Limitations

Studies in this literature review were judged on two different rating systems: a mastery score of whether or not they met mastery criteria in their respective study and a Likert score judging their efficacy in improving fidelity of intervention. Taken separately, these two forms of measurements tell two different narratives. If we judged solely on the Likert scores, then the majority of studies could be interpreted as not being effective. The majority of Likert scores (33%) given to paraprofessionals were 1s in this literature review. This would indicate that the interventions had little to no effect on fidelity implementation improvement. However, this is only part of the overall picture. Likert scores do not consider two important factors. One that lower Likert scores do not necessarily indicate that paraprofessionals had not met mastery criteria. For instance, in Hogan et al. (2014), baseline scores for one staff member averaged at 91%, well above the mastery criteria threshold of 80% or above. Following intervention, their fidelity scores increased to 100%. This paraprofessional was given a Likert score of 1 indicating no effect of intervention. If we judged the study solely on its Likert score, it would have been considered a failure had not mastery criteria been taken into consideration.

Secondly, large improvements in Likert scores are not a guarantee that paraprofessional participants achieved mastery criteria. In Gregori et al. (2022), two paraprofessionals saw an increase in fidelity implementation ranging between 40-70% giving them a Likert score of 3 and 4 which denote moderate to above average improvement in fidelity scores. Despite these promising rates of improvement, the two paraprofessionals did not meet mastery criteria for this study. If we were to judge the study solely on whether or not participants met mastery criteria, we would limit the

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instructional gains made by participants after receiving professional development and training. It is the combination of these two forms of assessment that studies can be fully evaluated to see the effectiveness of a particular type of intervention. It is best not to judge a study solely on whether it was a technical success (i.e., meeting mastery criteria) without considering the potential improvements that can come from training (i.e., high Likert scores).

Student Participants / Limitation

A limitation in this literature review is that only 7 out of 12 studies (58%) included student outcomes. The studies that did include student outcomes saw improvements in 16 out of 19 student participants (84%). The behaviors targeted in studies that included student outcomes varied widely from successful manding attempts, decreases in challenging behavior, and successful discrete trial teaching (DTT) sessions. Future studies examining paraprofessional training packages should incorporate student data to see if the intervention was successful in targeting the behavior intervention taught to paraprofessionals.

Experimental Design

The majority of the collected studies used a multiple baseline across participants design to demonstrate experimental control. The multiple baseline across participants design should be continued to be used in future research. This particular experimental design allows for the elimination of external variables that may produce undue influence on the study. Additionally, in studies that examine professional development packages, a multiple baseline design allows for increased internal validity of observation of the

experimental condition and increased external validity allowing for better generalization of the independent variable(s). This method is particularly useful for the mixed methods group of studies examined in this review. Studies that used a mixed methods approach to professional development borrowed successful elements from other forms of paraprofessional training (e.g., peer coaching, video modeling, rehearsal, etc.). The use of a multiple baseline experimental design allows for researchers to measure if participants are responding to the actual intervention and not outside variables. Future studies that incorporate mixed elements from various studies should do so with a multiple baseline design.

Terminology

The terminology for support staff is increasingly varied across literature including studies that were scored in this literature review as well as those discussed in the introduction. Support staff can be otherwise known as paraprofessionals, paraeducators, teacher aides, instructional aides, and assistant teachers. While the various terminology may be confusing, this is fairly common as the terminology can change depending on the specific educational environment or school district (Mauro, 2023). In future studies, researchers should create a wide pool of search terms for support staff to minimize incidental exclusion from review.

Setting

Studies examined across this literature review took place in a variety of settings. These included self-contained or special education classrooms, general education classrooms, private schools, public schools, specialized day-schools, charter schools, and

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therapy centers for children with autism and other developmental disabilities. While experimental studies conducted in controlled settings are ideal for data collection to eliminate extraneous variables that could impact the data, it is in the best interest of future studies that examine paraprofessional training packages to do so in the schools as generalization of training packages is a key factor in the success of the intervention.

Limitations

A limitation for this literature review was the low number of studies that were included. This is possibly due to the limited amount of published research devoted solely to paraprofessional training and professional development. As the number of autism cases continue to increase due to better diagnosing and cultural awareness (Bendix, 2023), future studies may want to incorporate more studies featuring paraprofessional participants given that children with autism will require some form of assistance in school whether they are in a general education classroom or a special education classroom.

Summary

In summary, 12 studies were reviewed evaluating the effectiveness of professional development packages of behavioral interventions administered by paraprofessionals in a school-based setting. It was revealed that a majority of studies used a mixed methods approach as opposed to a particular type of training method such as video modeling or BST. This approach can be interpreted as reflective of the individual needs of each school district. Not all school districts will have the same resources as one another. Due to this variable nature, schools need to be able to craft professional development packages that

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best reflect the resources that are available to them. Regardless of the type of training, a majority of studies showed that implementation of professional development packages saw improvements in interventions across paraprofessional participants and improvements in certain behaviors for studies that included student outcomes.

Future directions for this research could include expansion of training packages to other staff (e.g., residential facility staff, daycare workers, or homeschool professionals) that work with children with developmental delays regularly. Additionally, researchers could examine professional development from an organizational standpoint from the point of view of school and district administrators whose job it is to decide allocation of time and resources for staff training. Either of these avenues could reveal new areas to explore in applied research for the training of paraprofessionals.

The use of professional development packages in applied settings has shown that investment in support staff in educational settings is worth the time and resources. As discussed in the introduction, previous research has primarily focused on teacher implementation of behavior interventions. Once teacher implementation was shown to be effective in number of studies (Kirkpatrick et al., 2019; Brock et al., 2017; and Scheeler et al., 2010), it was logical to see if behavior intervention teaching practices could be extended to support staff. This review suggests further studies to expand the body of literature regarding paraprofessional training and development so that the body of research can be refined to develop a clearer message. The more we are able as a field to better train and equip our staff to handle complex behavior interventions, the better they will be able to serve the students they work with on a daily basis.

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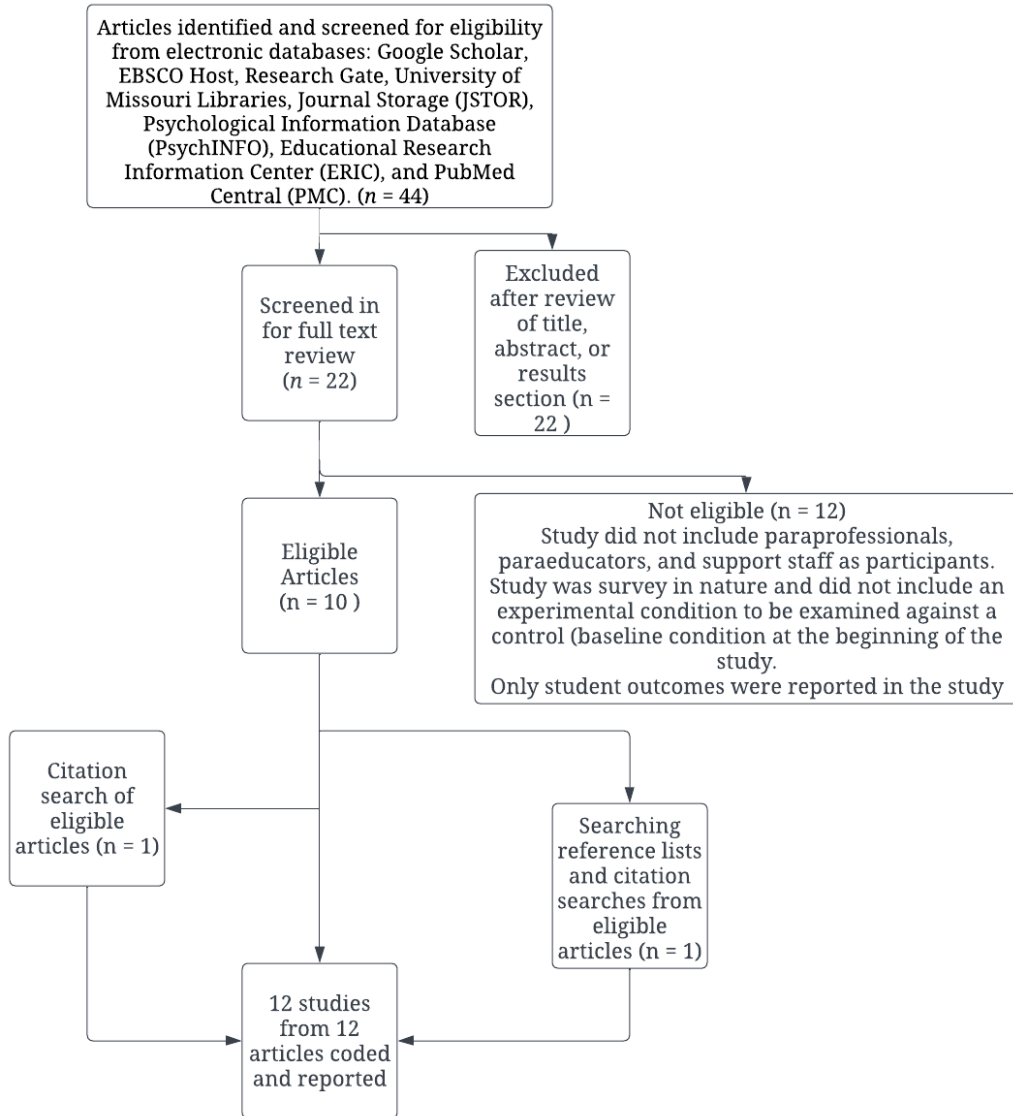
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Figure 1: Search Process for Literature Review



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Table 1. Distribution of Likert scores across Training Packages

| Type of Paraprofessional Training Package | Paraprofessional Likert Scores | | | | |
|---|--------------------------------|----|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Video Modeling | | | | | 1 |
| Abbreviated Coaching / Performance Feedback | | | 3 | 5 | |
| Behavior Skills Training (BST) | 8 | 2 | | 2 | |
| Mixed Methods | 12 | 13 | 5 | 2 | 6 |

| Table 2: Summary of Scored Studies | | | | | | | | |
|---|---|--|--------------------------|---|--|--|--|------------------------|
| <u>Author(s)</u> | <u>Participants</u> | <u>Student Disability</u> | <u>School Level</u> | <u>Training Package</u> | <u>Setting</u> | <u>Experimental Design</u> | <u>Paraprofessional Outcome</u> | <u>Student Outcome</u> |
| Brock & Carter, 2015 | 25 paraprofessionals | Undisclosed Disabilities | Elementary – High School | Video Modeling Plus Abbreviated Coaching (VMPAC) (Mixed Methods) | Unspecified classrooms | Randomized controlled experiment examining experimental group and comparison group | Experimental Group (n = 12): 1 Mastery Criteria: Yes Comparison Group (n = 13): 2 Mastery Criteria: Yes | No |
| Brock & Carter, 2016 | 12 (Four students with severe disabilities, four paraprofessionals, four special educators) | Intellectual Disability, Attention Deficit Disorder (ADD), Speech Impairment, Hearing Impairment, and autism spectrum disorder | Fifth – Eighth Grade | Initial orientation, video modeling, and brief coaching with performance feedback (Mixed Methods) | Self-contained Classrooms and General Education Classrooms | Multiple-Probe Across Participants | N/A Mastery Criteria: Paraprofessional 1: Yes Paraprofessional 2: Yes Paraprofessional 3: Yes Paraprofessional 4: Yes | Yes |
| Cardinal et al., 2016 | 4 dyads (1 paraprofessional and 1 special education student) | Autism Spectrum Disorder | Elementary School | Web-Based Video Modeling with brief in-person verbal corrective feedback (Mixed Methods) | Suburban charter school for children with ASD | Multiple baseline across single subject research design | Paraprofessional 1: 3 Mastery Criteria: Yes Paraprofessional 2: 3 Mastery Criteria: Yes Paraprofessional 3: 3 Mastery Criteria: Yes Paraprofessional 4: 3 Mastery Criteria: Yes | Yes |

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| Table 2 Continued | | | | | | | | |
|--------------------------|---|--|----------------------|---|---|---|--|-----|
| Codding et al., 2008 | Three teachers (1 special education teacher and 2 classroom aides) 7 students | Attention deficit hyperactivity disorder (ADHD), Bipolar Disorder, Conduct Disorder, and Anxiety Disorder | Seventh-Eighth Grade | Performance Feedback (Coaching/Performance Feedback) | Private School for students with acquired brain injury who exhibited significant behavior problems | Multiple Baseline across Staff Members | Paraprofessional 1: 4 Mastery Criteria: Yes Paraprofessional 2: 4 Mastery Criteria: Yes | No |
| Gregori et al., 2022 | 8 (Two teachers, three paraprofessionals, and three children) | Developmental Delay, Other Health Impairment, Autism Spectrum Disorder, Speech-Language Impairment, and Seizure Disorder | Preschool | Teacher-Paraprofessional Coaching (Coaching/Performance Feedback) | Special Education Preschool and Classroom | Nonconcurrent Multiple-Baseline Across Paraprofessional-Child Dyads | Paraprofessional 1: 4 Mastery Criteria: Yes Paraprofessional 2: 4 Mastery Criteria: No Paraprofessional 3: 3 Mastery Criteria: No | Yes |
| Hogan et al., 2015 | Four instructional staff | Autism and other developmental disabilities | Fourth – Fifth Grade | Behavior Skills Training (BST) | Nonpublic Day school for children with autism and other developmental disabilities who engaged in severe problem behavior | Concurrent Multiple Baseline across Staff-Student Dyads | Paraprofessional 1: 1,1,1 Mastery Criteria: Yes Paraprofessional 2: 2,1,1 Mastery Criteria: Yes Paraprofessional 3: 4,1,1 Mastery Criteria: Yes Paraprofessional 4: 4,1,2 Mastery Criteria: Yes | No |

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| Table 2 Continued | | | | | | | | |
|--------------------------|---|---|----------------------|---|--|---------------------------------------|--|-----|
| Koegel et al., 2014 | Three dyads (Three paraprofessionals and four students) | Autism Spectrum Disorder (ASD) | Second – Fifth Grade | Didactic Training Workshop (included instruction and video modeling) with Subsequent Feedback (Mixed Methods) | Three general education in three different public elementary schools | Multiple Baseline across Participants | Paraprofessional 1: 5 Mastery Criteria: Yes Paraprofessional 2: 5 Mastery Criteria: Yes Paraprofessional 3: 5 Mastery Criteria: Yes | Yes |
| Leblanc et al., 2005 | 3 assistant teachers and 3 students | Autism Spectrum Disorder (ASD) | N/A | Abbreviated Performance Feedback (Coaching/Performance Feedback) | Private school for children with developmental disabilities | Multiple Baseline across Participants | Paraprofessional 1: 3 Mastery Criteria: Yes Paraprofessional 2: 4 Mastery Criteria: Yes Paraprofessional 3: 3 Mastery Criteria: Yes | No |
| Walker & Snell (2017) | 3 paraprofessionals and 3 students | Autism, Speech Impairment, Intellectual Disability, | N/A | Training workshop and Coaching (Mixed Methods) | Two elementary school classrooms and one middle school classroom | Multiple Baseline across Individuals | Paraprofessional 1: 3 Mastery Criteria: Yes Paraprofessional 2: 5 Mastery Criteria: Yes Paraprofessional 3: 5 Mastery Criteria: Yes | Yes |

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| Table 2 Continued | | | | | | | | |
|--------------------------|--|--|--------------------------------------|--|---|---------------------------------------|--|-----|
| Walker et al., 2019 | 2 classroom team members (1 special education teacher and 1 paraprofessional neither had received professional development on mand training) 1 student | Multiple Disabilities (Cerebral Palsy, Speech Impairment) | N/A | Online learning module (Video Modeling) | Self-contained classroom in a rural public elementary school catering to students with intellectual disability, autism, and speech/language disorders | Multiple Probe across Activities | Paraprofessional 1: 5 Mastery Criteria: Yes | Yes |
| Walker et al., 2019 | 1 special education teacher and 3 special education paraprofessionals | Multiple Disabilities | Kindergarten – 1 st Grade | Workshop session, video modeling sessions, in-person coaching sessions with performance feedback (Mixed Methods) | Special education classroom | Multiple Baseline across Participants | Paraprofessional 1: 4 Mastery Criteria: Yes Paraprofessional 2: 5 Mastery Criteria: Yes Paraprofessional 3: 4 Mastery Criteria: Yes | No |
| Werner et al., 2018 | 1 special education teacher, 1 paraprofessional, and 1 student | Autism Spectrum Disorder (ASD) and Intellectual Disability | N/A | Ongoing performance feedback (Coaching/Performance Feedback) | Private School and Therapy Center for students with ASD | Multiple-Baseline-Across-Behaviors | Paraprofessional 1: N/A Mastery Criteria: N/A | Yes |

Appendix A: Reliability Coding Sheet

Reliability Information:

For each assigned study:

-Inclusion Criteria

- Directions: mark an X if a study met inclusion criteria and leave blank if it did not. Calculate percentage of criteria met over total criterion at the end and multiply by 100.

-Exclusion criteria

- Directions: mark an X if a study met exclusion criteria and leave blank if it did not. Calculate percentage criteria met over total criterion at the end and multiply by 100.

Appendix A Continued

Reliability Scoring Sheet

Inclusion Criterion

_____ Study MUST include paraprofessionals, support staff, or paraeducators 18 years or older.

_____ Study MUST include participants who work in an educational environment such as a self-contained classroom setting, a general education classroom, or an alternative academic setting (e.g., a specialized day school).

_____ Study MUST compare an experimental condition in which paraprofessionals received training and support to implement an intervention compared to a control condition in which paraprofessionals did not receive training.

_____ Study MUST use participants in this study that include paraprofessionals, support staff, or paraeducators who work with students who are eligible under the Individuals with Disabilities Education Improvement Act (IDEIA) of 2004 to receive support services in a school setting.

_____ Study MUST have a goal to improve skill acquisition of evidence-based practices (EBPs) to support students in educational settings.

Number of Marked Criterion / Number of Total Criterion X 100 = Validity Score

Exclusion Criteria

_____ Study MAY NOT BE INCLUDED if it did not include paraprofessionals, paraeducators, and support staff for children with disabilities in a school setting.

Appendix A Continued

_____ A study MAY NOT BE INCLUDED if they are survey in nature as they do not include introduction of experimental condition to be examined against a control (baseline) condition at the beginning of the study.

_____ A study MAY NOT BE INCLUDED if the study only reported student outcomes as the dependent variable and not include practitioner implementation fidelity of behavior interventions.

_____ A study MAY NOT BE INCLUDED if it only included assessment data but no delivery of an intervention.

Number of Marked Criterion / Number of Total Criterion X 100 = Validity Score

Appendix B: Likert Reliability Scoring Sheet

Likert Scale Reliability Information:

If the study meets inclusion criteria for this literature review, please score it's overall improvement of participant implementation using the Likert scale listed below.

1 – No Effect (Intervention had little to no improvement of program implementation for paraprofessionals [+0-20% Fidelity])

2 – Minor Effect (Intervention had a minor effect on improving program implementation for paraprofessionals [+20-40% Fidelity])

3 – Moderate Effect (Intervention had a moderate effect on improving program implementation for paraprofessionals [+40-60%])

4 – Above Average (Intervention had an above average effect on improving program implementation for paraprofessionals [+60-80%])

5 – Positive Effect (Intervention had a positive effect on increasing improving program for paraprofessionals [+80% or above])

For each assigned study, score each participant on their overall rate of improvement (e.g., If their baseline average was 40 percent and their post intervention score was 90 percent, they would receive a 3).

Study 1 Likert Scores: _____

Study 2 Likert Scores: _____

Appendix B Continued

Study 3 Likert Scores: _____

Study 4 Likert Scores: _____