



# A critical review of the professional development literature for paraprofessionals supporting students with externalizing behavior disorders

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## Abstract

The present paper serves as the first systematic review of the training, methodologies, and outcomes reported in the professional development (PD) literature for paraprofessionals working with students with or at risk for externalizing behavior disorders. A total of 16 investigations including 332 paraprofessionals and 852 children and adolescents were reviewed and coded on 44 variables across four dimensions (i.e., PD components, intervention components, methodologies used, and outcomes reported). Strengths of the literature were inclusion of multicomponent PD, training on implementation, paraprofessional characteristics, and interrater reliability estimates. All studies reported paraprofessional and/or student outcomes; however, the details of PD components and interventions delivered varied. The majority of the studies used single-case designs or descriptive case studies to evaluate effectiveness. Weaknesses were lack of inclusion and exclusion criteria, student characteristics, adult experiential learning methods, monitoring of implementation fidelity, and use of statistical testing. Implications for research and practice are offered.

## KEYWORDS

externalizing behavior, paraeducator, paraprofessional, professional development, teacher aide

## 1 | INTRODUCTION

With the emphasis on inclusive education of children with disabilities, as well as legal mandates for individualized services, the hiring of paraprofessionals is expected to grow 8% by 2026 and has increased by 49% nationally in the last decade (Chopra, Sandoval-Lucero, & French, 2011; National Center for Educational Statistics, 2009; U.S. Bureau of Labor Statistics, 2019). In 2016, 1,308,100 paraprofessionals were employed in the nation (U.S. Bureau of Labor Statistics, 2019). Paraprofessionals outnumber full-time special education teachers in schools, with 76% of special education services delivered by paraprofessionals (Giangreco, Suter, & Hurley, 2013; U.S. Department of Education, 2012).

Paraprofessionals provide vital support to classroom teachers by offering opportunities for students with or at risk for disabilities in general and special education classrooms to enhance skill development and academic and behavior functioning (Chopra et al., 2011). For example, paraprofessionals prepare academic materials, provide individual and whole-group instruction, communicate with parents and caregivers, and serve as primary implementers of classroom-based behavioral interventions (e.g., Fisher & Pleasants, 2012; Hall, Grundon, Pope, & Romero, 2010; McKenzie & Lewis, 2008; Riggs & Mueller, 2001; Sobeck, 2016). In a large survey of over 1,800 paraprofessionals, 87% reported their most frequent role was delivering individual or small group behavior and social supports to students (Fisher & Pleasants, 2012). While the roles and responsibilities vary for this position, training on evidence-based practices is needed to promote student engagement, learning, and positive behaviors. Likewise, training that enhances paraprofessional knowledge of learning and behavior difficulties, as well as effective methods for collaboration and communication with teachers and parents is necessary for paraprofessionals to be effective in the classroom.

Given paraprofessionals' increasing popularity in working with classroom teachers to address students' learning and behavioral needs, they are often the adults in classrooms most likely to implement and monitor the interventions suggested by school psychologists and other school specialists. School psychologists often work with classroom teachers and paraprofessionals to identify students' academic and behavioral needs, determine antecedent and environmental factors affecting learning, select interventions and support and monitor intervention implementation across learning contexts. Thus, working individually with students, paraprofessionals maintain an important role in addressing the resource demands of a classroom.

Despite their importance in supporting the learning and behavior of students with or at risk for disorders or disabilities, paraprofessionals receive inadequate supervision and little to no training or job-embedded supports to enhance their professional development (PD; Brock & Carter, 2013; Sobeck, 2016). Although Section 1,412 of the 2004 *Individuals with Disabilities Education Improvement Act (IDEIA)* requires that districts appropriately train and supervise paraprofessionals and the *Every Student Succeeds Act (2015)* encourages schools to allocate funds for this purpose, districts have failed to provide paraprofessionals with adequate guidance (IDEIA, 2004; Sobeck, 2016). For some time, special education scholars have raised serious concerns about the extent to which paraprofessionals are trained, utilized, and supervised (e.g., Broer, Doyle, & Giangreco, 2005; Giangreco et al., 2013). In a recent survey of training, PD needs, and knowledge of best behavior management practices, paraprofessionals reported limited training and knowledge, as well as significant PD needs in best teaching and behavior management practices for supporting students with disorders or disabilities, especially students with disruptive behaviors (Dudek, Reddy, & Glover, 2018). Consistent with previous research (e.g., French, 2001; Giangreco, Suter, & Doyle, 2010), the vast majority of paraprofessionals surveyed in this study received no PD on positive behavior management interventions and supports. Thus, the increased presence of paraprofessionals in educational settings with limited instructional and behavior management training has resulted in a major void in personnel preparation and service delivery for students with disabilities.

Given the gap in paraprofessional training, a comprehensive appraisal of the extant PD literature is urgently needed. To date, existing reviews have included paraprofessionals among multiple types of intervention providers or have been limited to only support for students with severe intellectual or developmental disabilities (e.g., Brock

& Carter, 2013, 2017; Douglas, 2012; Garrote, Dessemontet, & Opitz, 2017; Mrachko & Kaczmarek, 2017; Rispoli, Neely, Lang, & Ganz, 2011; Walker & Smith, 2015). Specifically seven reviews have included studies investigating training and supports for paraprofessionals in providing services to students with severe intellectual or developmental disorders or a broad range of disabilities, including core competencies and interventions and supports needed to meet the unique learning and social behavior needs of the students. Findings from the published reviews are important for examining the availability of PD and effectiveness of PD for improving paraprofessionals' skills in serving the unique needs of these student populations.

Although externalizing behaviors represent the most common foci of referrals to child study teams and mental health clinics, and paraprofessionals spend a considerable amount of time working with students with or at risk for externalizing disorders (Allen, 2016; Reddy, De Thomas, Newman, & Chun, 2009), no systematic reviews have examined the efficacy of training and supports for paraprofessionals who support the needs of students in this prevalent population in schools. Given differences in the origin of externalizing behavior disorders and the need for unique behavior interventions to support this student population, a systematic review focused on paraprofessional PD to address externalizing behavior disorders is needed for bridging research to practice and forging new directions for personnel preparation to meet students' needs.

## 1.1 | Needs of students with externalizing behavior disorders

Paraprofessional support for students with or at risk for externalizing behavioral disorders is critical. Externalizing behaviors are the most common foci of referrals to child study teams and mental health clinics and constitute approximately 25% of all special education services in schools in the nation (Allen, 2016; Reddy et al., 2009; Reddy, Newman, & Verdesco, 2015). Support for students with or at risk for externalizing behavioral disorders is crucial given the risk for negative outcomes for such students throughout their life span such as academic underachievement, school dropout, interpersonal difficulties (i.e., family and peer relationship issues), driving accidents, teenage pregnancy, substance abuse, suicide, unemployment, health problems, and incarceration (e.g., Barker, Oliver, & Maughan, 2010; Hodgins, Cree, Alderton, & Mak, 2008; Reddy et al., 2009; Schutter, Van Bokhoven, Vanderschuren, Lochman, & Matthys, 2011; Webster-Stratton & Reid, 2010). If untreated, it is estimated that students with externalizing behavior disorders will cost approximately \$3 million to society, which is more than twice the cost for students without disabilities (Guevara et al., 2003). Disruptive behaviors also interfere with the learning of all students in the classroom. For example, in a survey led by the Education Advisory Board (2019), 1,400 elementary school general education and special education teachers reported, on average, losing nearly two and a half hours of instruction each week due to classroom disruptive behaviors. This is concerning given that lost instructional time has an adverse impact on the learning and social development of all students and even more so for those students with disabilities. Thus, targeted PD that targets school personnel (e.g., paraprofessionals, teachers) skills in implementing behavior interventions and supports early in school are needed to help curtail the development of negative outcomes for this population (e.g., Eyberg, Nelson, & Boggs, 2008; Reddy, Cleary, Alperin, & Verdesco, 2018; Reddy et al., 2009; Wilson & Lipsey, 2007).

## 1.2 | Purpose of study

Paraprofessionals offer important instructional and behavior management supports for students with or at risk for externalizing behavior disorders despite receiving limited PD training and supports in schools. Further, they are often those most likely to implement and monitor the behavioral interventions suggested by school psychologists and other school specialists. Given the need to take stock of the state of research and practice on PD for paraprofessionals on behavioral supports, a systematic review is needed. To this end, we synthesized the PD

literature for paraprofessionals who work with students with or at risk for externalizing behavior disorders. This article constitutes the first systematic review that examines PD training available for paraprofessionals working with students with or at risk for externalizing behavior disorders. Specifically, this article synthesizes the following for research on paraprofessional PD: (a) components of the PD process, (b) components of interventions in which paraprofessionals are trained, (c) research methodologies used in investigating PD, and (d) outcomes reported in the PD research. Based on the findings, strengths and limitations of the literature are identified for bridging PD research with practice for this population.

## 2 | METHOD

### 2.1 | Literature search approach

We conducted a comprehensive literature search (1979–2018) on studies using the key terms of paraprofessional, paraeducator, instructional assistant, educational assistant, teacher aide, classroom aide, instructional coach, coaching, training, PD, development, and education. The following databases were used: Articles+, Google Scholar, and ProQuest. Also, a review of selected peer-reviewed journals known to publish literature pertinent to the fields of special education, PD, and education were conducted to ensure a comprehensive literature search (e.g., *Review of Education Research*, *Exceptional Children*, *Journal of Educational and Psychological Consultation*, and *Remedial and Special Education*).

Because supporting students with or at risk for externalizing behavior disorders represents almost 25% of all special education services and is paraprofessionals' most frequent job responsibility (Carter, O'Rourke, Sisco, & Pelsue, 2009; Fisher & Pleasants, 2012; Giangreco et al., 2013), we chose to limit our search to research focused on the effect of paraprofessional PD (e.g., workshop, educational materials, intervention training, coaching, etc.) on behavior supports for students with or at risk for externalizing behavior disorders. Studies published before 1979 conceptualized paraprofessionals as aides working in a hospital setting, counseling center, and so forth. Initially, seven published reviews were identified that included paraprofessionals, however the reviews included studies of paraprofessionals among multiple types of intervention providers and/or were limited primarily to the provision of supports for students with disabilities (i.e., Brock & Carter, 2013, 2017; Douglas, 2012; Garrote et al., 2017; Mrachko & Kaczmarek, 2017; Rispoli et al., 2011; Walker & Smith, 2015). These seven reviews and the studies found in the aforementioned databases and peer-reviewed journals yielded a total of 108 articles. From the 108 articles, we then focused our inclusion criteria on studies that examined PD designed for school-based paraprofessionals that support Kindergarten through 12th-grade students with or at risk for externalizing behavioral disorders. Given the focus on paraprofessional PD we reviewed behavioral supports for students with or at risk for behavior disorders. Research on PD for supporting students with primary diagnoses of Autism Spectrum Disorder (ASD), Pervasive Developmental Disorder (PDD), and/or Intellectual Development Disorder (IDD) was excluded. This resulted in the identification of 11 published articles. The search was expanded to include unpublished dissertations using the same search terms and inclusion/exclusion criteria via the ProQuest Dissertations & Theses Global Full Text databases. The final search included 5 dissertations and 11 peer-reviewed studies (see Table 1).

### 2.2 | Structured review coding system

Consistent with previous publications on children and adolescents (e.g., Reddy et al., 2018), a systematic coding procedure was designed to review the literature on four dimensions (44 variables): (a) components of the PD process, (b) components of interventions in which paraprofessionals are trained, (c) research methodologies used in investigating PD, and (d) outcomes reported in the research. The dimensions and specific variables selected for this

**TABLE 1** Literature on paraprofessional PD training for students with externalizing behavior disorders (*n* = 16)

Study	Student sample	Paraprofessional sample	Research design	Paraprofessional PD training	Outcome
Cowen et al. (1979)	234 15 paras; 10 experimental and 5 controls	15 paras; 10 experimental and 5 controls	Quasi-experimental group design (pre/posttest)	Primary Mental Health Project; 10 weekly, 1.5 hr lecture-discussion sessions covering the therapeutic relationship, the reflective technique, characteristics of children who act out, consequences of acting-out behavior, therapeutic intervention and limit setting, and advanced considerations (e.g., handling ambivalence). Lectures were followed by 10 weekly, 1.5 hr group supervision using videotapes of the paraprofessionals' work with target students. During the program's second year, paraprofessionals met for 7 additional group supervision sessions.	Students of trained paraprofessionals showed greater reductions in acting-out behavior and overall maladjustment than students of untrained paraprofessionals.
Price, Buchman, Toburen, and Goetz (1979)	19	1	Single-subject design, multiple baseline Across Behaviors	The training package consisted of defining and modeling of paraprofessional teaching skills: (a) verbal attention, including reinforcing comments for appropriate behavior or time-out procedures for inappropriate behavior; (b) verbal preacademic instructions; and (c) verbal and nonverbal behavior for correcting student's incorrect responses. Visual performance feedback (graphs) was provided on the	Results indicated that training positively affected three paraprofessional teaching skills within four or five training sessions (sessions ranged from one minute to ten minutes).

(Continues)

TABLE 1 (Continued)

Study	Student sample	Paraprofessional sample	Research design	Paraprofessional PD training	Outcome
Giangreco, Backus, Cichoskikelly, Sherman, and Mavropoulos (2003)	No student sample	213 Paraprofessionals took the course Paraeducator Entry-Level Training for Supporting Students with Disabilities; 105 of the 213 took the course "Supporting Students with Challenging Behaviors: A Paraeducator Curriculum."	Program Evaluation. Posttest only, no controls	Two courses: (a) Paraeducator Entry-Level Training for Supporting Students with Disabilities and (b) Supporting Students with Challenging Behaviors: A Paraeducator Curriculum were taught to paraprofessionals.	Findings indicate that course objectives and course materials were highly rated by paraprofessionals and course instructors; Paraprofessionals gained new knowledge, perspectives, and skills that assisted the provision of special education services for students with disabilities.
Slider (2004) Dissertation	No student sample	4	Single-subject, multiple baseline design	Paraprofessional reviewed written take-home manual, summary card (steps or elements and operational definitions of behavior management skill), and modeling video tape on three behavior management skills: instruction-giving, praise, and time-out. Performance feedback was provided (e.g., review of steps, implementation data, etc.). A written test was administered before and after each training phase until the paraprofessional demonstrated mastery of knowledge.	Results indicated that paraprofessionals could be taught to implement behavior management techniques, but that the intensity of training efforts varied across participants and behaviors. Overall, the paraprofessionals demonstrated increases in correct implementation of behavior management techniques. Student behaviors did not reveal changes during and following training. A possible reason for this overall finding is that observed student behavior were near a ceiling for desirable behaviors.
Malmgren et al. (2005)	3	3		Three hours of individual paraprofessional training that	Rates of peer interaction increased for all student participants and

**TABLE 1** (Continued)

Study	Student sample	Paraprofessional sample	Research design	Paraprofessional PD training	Outcome
Uhland-Nova (2005) Dissertation	No student sample	3	Single-subject design, multiple baseline across subjects	<p>focused on enhancing perspectives, importance of interactions, and increasing the paraprofessional knowledge of strategies for facilitating peer interaction. Strategies taught included four facilitative strategies: (a) teaching or modeling interaction skills; (b) highlighting similarities between students or strengths of the target students; (c) interpreting peer behaviors for the target student or a peer; and (d) moving students to work in close physical proximity to one another.</p> <p>Paraprofessional group training on types of praise using the program <i>Enhancing Skills of Paraeducators</i>. They were taught specific praise through lecture, homework, modeling, instructive feedback, and training materials. A tactile signaling device that vibrated at 1.5 s intervals, prompted paraprofessionals to give specific praise.</p>	<p>rates of paraprofessional facilitative behavior increased only slightly. Paraprofessionals used facilitative behavior of modeling skills more than other strategies.</p> <p>Specific praise increased from 13% at baseline to 31% following group-based training. Group training plus use of the signal device increased praise from 48% (baseline) to 61% (posttest). Paraprofessional knowledge increased from 77% (baseline) to 92% (posttest).</p>
Petscher and Bailey (2006)	11	3	Single-subject design, moving treatment multiple baseline across behaviors	Paraprofessionals provided brief in-service training on implementing token economies (i.e., managing disruptions, prompting appropriate student behavior, and bonus-point delivery); tactile prompts; and	<p>Results indicated that use of tactile prompts and self-monitoring with accuracy feedback improved token economy implementation for all participants.</p>

(Continues)

TABLE 1 (Continued)

Study	Student sample	Paraprofessional sample	Research design	Paraprofessional PD training	Outcome
Bessette and Wills (2007)	1	1	Single-subject research design (alternating treatment design)	Paraprofessionals training on functional behavior analysis and function-based intervention development.	Paraprofessional demonstrated good fidelity with functional behavior analysis and intervention development; rated intervention development as highly acceptable. Student decreased inappropriate behaviors and increased on-task behaviors following intervention.
Gonzalez-Lopez (2007) Dissertation	3	3	Single-subject, multiple baseline design	Paraprofessionals were provided individual coaching focused on: (a) reflecting on interactions with students and teachers, (b) analyzing possible causes (i.e., antecedents, consequences) of student behaviors, and (c) reviewing strategy implementation of the student's behavior support plans.	Results indicated improved implementation of student behavior plans following a few coaching sessions while ongoing coaching was needed to maintain intervention integrity. Despite evidence that the implemented interventions had positively affected the students' behavior, paraprofessionals affirmed that factors outside their control caused the behavioral improvements. Students rated liking the positive support offered.
Deardorff et al. (2007)	No student sample	37	Program evaluation, no controls	The Team Approach to Paraeducator/Supervisor Professional Development (TAPS) Model was used to train paraprofessionals. This	Paraprofessionals took end of unit exams resulting in an overall mean score of 95.5%. Paraprofessionals indicated



**TABLE 1** (Continued)

Study	Student sample	Paraprofessional sample	Research design	Paraprofessional PD training	Outcome
Helker and Ray (2009)	32, 19 Experimental and 13 controls.	12 Paraprofessionals, 6 each in experimental and control groups	Quasi-experimental repeated measures group design	Child Teacher Relationship Training (CTRT) was provided to 6 paraprofessional and teacher dyads; an intensive 2.5-day training on intervention skills (e.g., reflective listening, recognizing and responding to children's feelings) were taught. Coaches modeled CTRT skills with students and observed teacher and paraprofessionals implement interventions. Weekly supervision was held. A classroom management program and social emotional curriculum was provided to the 6 paraprofessional and teacher dyads in active control group.	<p>increases in knowledge in self-assessment of their learning. Paraprofessionals and supervisors rated the TAPS Model highly.</p> <p>model consists of four components: (a) assessment of learning needs, (b) formation of an individualized professional development plan, (c) participation in self-directed training using the TAPS curriculum materials, and (d) feedback and support provided by the supervisor.</p> <p>Compared to controls, CTRT teachers and paraprofessionals had greater improvements in relationship-building skills. Students in the CTRT treatment group made greater improvements in externalizing problems than students in the control group. Negative correlations between teacher CTRT relationship-building skills and student externalizing behaviors were found.</p>
Maggin et al. (2012)	4	3	Single-subject design: concurrent multiple baseline design	Training procedures included (a) an initial didactic introduction to the group contingency procedures modeled after the Good Behavior Game, (b) modeling of the intervention program within the classroom setting, and (c) the	<p>Results indicated that training related to paraprofessional intervention fidelity. Group contingency implementation by paraprofessionals improved rates of: (a) interactions between paraprofessionals and</p>

(Continues)

TABLE 1 (Continued)

Study	Student sample	Paraprofessional sample	Research design	Paraprofessional PD training	Outcome
Dulfer (2013) Dissertation	90	17	Program evaluation, no controls	delivery of performance feedback to support paraprofessionals use of the intervention procedures (the protocol comprised 13 steps designed to systematize the delivery of classroom expectations and consequences for appropriate and inappropriate behaviors).	students, (b) teacher instruction, and (c) student aggressive behavior. High rates of socially validity were reported by teachers and paraprofessionals.
Krieger (2013) Dissertation	6	1	Group case study	Teacher and paraprofessionals were trained on reactive and proactive approaches to classroom management; Strategies were discussed and modeled. In class support included strategy modeling, prompting, forecasting possible situations, use of specific praise, and feedback.	Paraprofessionals reported increased knowledge of behavioral management and academic instruction strategies. Goals for strategy use in the classroom were not fully met.
				Teacher and paraprofessionals were trained on reactive and proactive approaches to classroom management; Strategies were discussed and modeled. In class support included strategy modeling, prompting, forecasting possible situations, use of specific praise, and feedback.	Paraprofessional reduced use of reactive strategies following training but was inconsistent with use of proactive strategies. Students engaged in fewer problem behaviors after training, but improvements on other student outcome measures (e.g., compliance) were not consistently observed. Social validity measures indicated some satisfaction with the training and reductions in staff stress levels related to classroom management, but the training did not reduce stress associated with teacher-student relationships.

**TABLE 1** (Continued)

Study	Student sample	Paraprofessional sample	Research design	Paraprofessional PD training	Outcome
Da Fonte and Capizzi (2015)	24	3	Single-subject, multiple baseline design	Three modules in effective/appropriate use of instructional strategies of praise, pause, and prompts. Paraprofessionals were observed and provided corrective feedback on strategies.	Paraprofessionals increased their accurate use of praise and pause following training; two paraprofessionals increased their accurate use of prompts. Paraprofessionals showed variability in strategy use. Social validity for the modules was weak.
Anderson, Blitz, and Saastamoinen (2015)	425	16	Program evaluation, posttest only, no controls	Paraprofessionals were provided four workshops that covered: (a) information on the neurohormonal impact of trauma and toxic stress on children's behavior and learning; (b) positive behavioral strategies; (c) stress reduction and relaxation techniques; and (d) cognitive behavioral strategies for classroom intervention.	Post workshop surveys indicated greater paraprofessional awareness of the relationship between stress and problem behavior. Workshops were overall rated as helpful. Many paraprofessionals did not understand how adult behavior in school contribute to students' stress; many believed that an aggressive tone or strong words were necessary for effective discipline.

Abbreviation: PD, professional development.

review were based on previous meta-analytic review of school-based training and interventions (Reddy, Newman, De Thomas, & Chun, 2009). The goal of the current review was to offer a rigorous evaluation of key components of PD, interventions delivered, methodologies used, and outcome reported in the paraprofessional training literature.

For the first dimension, *PD components*, six variables were coded. Paraprofessional PD components included: (a) training on intervention delivery; (b) skill development (i.e., behavior interventions, knowledge); (c) trainer information; (d) duration; (e) number of sessions; and (f) information on training elements (i.e., rationale, description, intervention script, fidelity checklist, training materials, modeling, role play, instructive feedback, self-monitoring, lecture, and follow up).

For the second dimension, *intervention components*, seven variables were coded. Intervention components pertained to what, if any, intervention(s) the paraprofessional delivered to the students and included: (a) the name of the intervention; (b) duration; (c) number of sessions of the intervention; (d) setting(s); (e) whether an outcome (measure of student behavior and skill) was measured; (f) whether, in addition to the paraprofessional, there were other implementers (e.g., teacher, parent.); and (g) assessment of intervention integrity.

The third dimension, *research methodology used*, included a total of 29 variables that were grouped into one of four broad categories: sample characteristics, research design, data collection, and data analysis. Sample characteristics included seven variables that were coded for students and seven variables for paraprofessionals. Student descriptors included: sample size, age, gender, ethnicity, inclusion and exclusion criteria, as well as special education classification and DSM diagnosis provided. Paraprofessional descriptors consisted of sample size, age, gender, ethnicity, education level, years of experience as a paraprofessional, and classroom experience with specific disabilities. Research design used included type of research design, use of a control group, use of a comparison group, use of random assignment, and reporting of attrition. Data collection consisted of method of data collection (observations, rating scales), measures used and psychometrics reported, stages of data collection (baseline, posttest, follow-up), and estimates of inter-rater reliability reported. Finally, data analyses deployed included descriptive statistics, use of statistical tests to assess outcomes, type of statistical tests used, use of clinical significance tests to assess outcomes, and type of clinical significance tests used.

The fourth dimension, *outcomes reported*, included two variables. We specifically coded recipients of outcomes (i.e., paraprofessionals, students) and type of outcomes (e.g., skills, knowledge, behavior).

The lead author trained coders on the systematic coding procedure via several methods used in previous reviews (Reddy et al., 2018) and meta-analytic reviews (Reddy et al., 2009). Specifically, coder training entailed review and detailed discussion of variables to be coded followed by independent practice of the procedure on two articles not included in this review. Practice coding of articles was reviewed by the lead author and feedback to enhance accuracy was provided until all coders reflected agreement to criteria. Coders independently reviewed all studies. The first and second authors reviewed all completed coding forms, discussed coder differences, and established consensus on codes. Overall, percent of coder agreement was 99%.

## 3 | RESULTS

### 3.1 | PD components

Several methods of training were used in this review. Seven studies used one-on-one teaching sessions, five studies used large group-based trainings (i.e., weekly lectures and PD workshops); two studies used small (defined as equal or less than three paraprofessionals) group-based trainings (i.e., PD workshops); one study (Helker & Ray, 2009) conducted group training and then met with participants in smaller groups, and one study (Uhland-Nova, 2005) conducted a small group training and then met individually with participants. The foci of the training varied and included general behavior management knowledge and/or skills, therapeutic skills (e.g., reflective statements), specific behavior management practices (e.g., specific praise, correction), and intervention implementation (i.e., functional analysis, facilitation of peer interactions, the good behavior game, and the token economy). Fifteen of the

16 studies (94%) provided a range of information pertaining to the facilitators of the training. Training facilitators included the study's author(s), "teacher trainers," "special educators," "small private college professors," "school based instructors," "therapists," and "research assistants." Ten of the 16 studies (63%) provided information regarding the number of sessions and duration of training, which varied considerably from 1 to 10 sessions and a total of 15 min to 42 hr.

Across the 16 studies, 11 specific PD components were coded (see Table 2). Twelve of the 16 studies (75%) included four or more PD components and four studies (25%) had two to three components described. Training materials were used in 13 of the 16 studies. Instructive feedback was the second most commonly used training component (12 studies). Ten studies each reported description and modeling, while eight studies reported rationale for practices and lecture. Less common were the use of role playing (5 studies), use of fidelity checklists and follow-up support (4 studies each). Self-monitoring and intervention scripts were each used in only two of the 16 studies.

### 3.2 | Intervention components

In 12 of the 16 studies (75%), paraprofessionals were trained to implement a range of interventions for managing behavior in schools. For example, interventions included classroom management strategies (e.g., proactive classroom management program, good behavior game, token economy), functional based intervention strategies (e.g., antecedent modifications), play therapy, psychotherapy, strategies designed to facilitate student peer interactions, and the use of specific praise. Table 2 displays more details regarding interventions (e.g., Krieger, 2013 for classroom management strategies; Gonzalez-Lopez, 2007 for functional based strategies; Helker & Ray 2009 for play therapy; Cowen, Orgel, Gesten, & Wilson, 1979 for psychotherapy; Malmgren, Causton-Theoharis, & Trezek, 2005 for facilitative student peer interaction strategies; and Uhland-Nova, 2005 for use of specific praise). Only seven studies contained information regarding the duration of the intervention delivery, which ranged from 30 min per day to the entire school day for 7 weeks to one school year. Out of the 12 studies, only three reported that both teachers and paraprofessionals implemented interventions. Nine of the 16 studies reported using methods to assess the fidelity of interventions in which paraprofessionals received training.

**TABLE 2** Description of professional development (PD) components

PD component	Description
Rationale	The importance for training and/or selected intervention is provided. This often connects objectives/goals with training/intervention.
Description	Training and/or intervention is explained.
Intervention script	Explicit directions are provided to paraprofessionals for what they should say to student(s) when implementing an intervention.
Fidelity checklist	Printed list of intervention steps is shared.
Training materials	Training resources (e.g., Powerpoint slides) are shared.
Modeling	In-person or video representation of intervention implementation is provided.
Role playing	Paraprofessionals practiced intervention or strategies with other adults.
Feedback	After implementation, paraprofessionals are given feedback/directions on how to improve knowledge and/or skills.
Self-monitoring	Paraprofessionals track aspects of their own performance or behavior.
Lecture	There is a didactic component in the training.
Follow-up	Paraprofessional practices are monitored after training.

**TABLE 3** Methodology characteristics (N = 16)

	Number of studies
Student information	
Student sample	14
Gender	8
Ethnicity	4
Inclusion/exclusion criteria	5
Special education classification	4
DSM diagnosis	3
Paraprofessional information	
Gender	11
Ethnicity	6
Education level	10
Years of experience	11
Disabilities experience	3
Research design	
Single-subject design	9
Narrative case study	5
Quasi-experimental design	2
Data collection	
Observational assessment	12
Questionnaire and/or rating scales	9
Inter-rater reliability	10
Data collection stages: baseline (pretest)	15
Intervention completion (i.e., posttest)	16

### 3.3 | Methodology used

#### 3.3.1 | Student characteristics

The majority of the studies reported some information on the student sample (852 students; see Table 3). Half of the studies included information on gender (209 male students). Ethnicity was only reported in four studies (Hispanic 19 students, African American 17 students, and Caucasian 5 students).

#### 3.3.2 | Paraprofessional characteristics

The 16 reviewed investigations included a total of 332 paraprofessionals (see Table 3). Eleven<sup>1</sup> of the 16 investigations (69%) reported information on gender with the majority of the participants identified as female (i.e., 91%). Ethnicity was reported in six studies with Caucasian participants representing 67% of the participants, Hispanic participants representing 13%, and African American participants representing 10%. Ten out of the 16 studies reported education level, with 40% of the paraprofessionals having an associate's degree or some college course work, 33% having a high school diploma, 25% having a bachelor's degree, and 2% having a Master's

<sup>1</sup>Helker and Ray (2009) reported paraprofessional and teacher demographics as one group. Since study authors did not report demographics for teachers and paraprofessional separately, the study was coded as not providing information on paraprofessional gender.

degree. Nine of the 16 investigations reported years of experience with 53% of the samples having 0–5 years and 47% having 5 or more years.

### 3.3.3 | Research design

As shown in Table 3, studies used single-subject, narrative case studies, and quasi-experimental research designs. Nine studies used single-subject research designs, where multiple baseline or alternating treatment designs were used. Five studies used a narrative case study design that included three studies with pre- and posttest measures and two studies with posttest measures only. Quasi-experimental group designs were used in two studies (i.e., Cowen et al., 1979; Helker & Ray, 2009). Helker and Ray (2009) used an active control group. In addition, studies neglected to report participant attrition (i.e., paraprofessional and/or student).

### 3.3.4 | Data collection

The data collection consisted of observational assessments, questionnaires, and rating scales (see Table 3). Almost all of the reviewed studies collected data at baseline and/or post-intervention. Only one study (i.e., Helker & Ray, 2009) collected follow-up data. Three studies reported psychometrics of the measures (internal consistency) that were used (i.e., Deardorff, Glasenapp, Schalock, & Udell, 2007; Helker & Ray, 2009; Krieger, 2013).

### 3.3.5 | Data analysis

The majority of the studies (14 of the 16 investigations) used descriptive statistics and only eight studies used statistical methods to analyze outcomes. Specifically, five studies used parametric tests (e.g., *t* tests, ANOVA, ANCOVA) and four studies used nonparametric tests (e.g.,  $\chi^2$  tests, PAND). Only 6 of the 16 studies examined the clinical significance of intervention changes (see Table 4). Three studies reported the PND effect size metric (i.e., 6–100%). One study (i.e., Deardorff et al., 2007) used Cohen's *d* (i.e., *ds* of 0.58–0.63). One study (Helker & Ray, 2009) reported partial  $\eta^2$  (i.e., 0.06–0.87), and one study (Krieger, 2013) reported Pearson  $\phi$  (i.e., 0.24–0.94).

## 3.4 | Outcomes reported

Across the 16 investigations, outcomes were reported for (a) paraprofessionals, (b) students, or (c) paraprofessionals and students. Specifically, eight studies reported outcomes for paraprofessionals, seven studies reported outcomes for both students and paraprofessionals, and one study reported outcomes for students only.

Positive findings were described in all studies using at least one or more outcome measure. Nine out of the 16 studies indicated improvements in paraprofessional knowledge and/or skills such as instructional support skills, behavior management techniques, intervention fidelity, use of praise, and paraprofessional academic exam scores following PD training. One study (i.e., Cowen et al., 1979) reported improved student behavior and reductions in externalizing behaviors and overall maladjustment (e.g., externalizing behaviors, anxiety, and academic problems) through the ratings of teachers (e.g., Classroom Adjustment Rating Scale), paraprofessionals (i.e., Aide Status Evaluation Form), and mental health professionals (i.e., Professional Termination Report). Four studies (25% of the sample) indicated positive outcomes for both paraprofessionals and students (e.g., student peer interactions, student on-task behavior, paraprofessional intervention fidelity; i.e., Bessette & Wills, 2007; Gonzalez-Lopez, 2007; Krieger, 2013; Malmgren et al., 2005). Two studies reported positive outcomes in each of the following areas:

**TABLE 4** Investigations reported effect sizes

Article	ES description
Da Fonte and Capizzi (2015)	For post-intervention, one paraprofessional had a 72.22% PND <sup>a</sup> for use of praise and 76.92% PND for use of accurate pause. Another paraprofessional had 56.25% PND for increase in praise and 69.23% increase in pause post-training. Post-intervention, the third paraprofessional had 18.75% PND for praise, 9.09% PND for pause, and 16.67% PND for accurate use of prompts.
Deardorff et al. (2007)	For the Team Approach to Paraeducator/Supervisor Professional Development (TAPS) module of Behavior Support, Cohen's <i>d</i> was 0.63 for differences in degree outcomes (e.g., end of unit exams; high school vs. college). Cohen's <i>d</i> was 0.58 for the differences in social validity of the TAPS module of Behavior Support depending on whether the paraprofessionals initially identified as higher or lower levels of need for training in managing challenging student behaviors.
Helker and Ray (2009)	Partial $\eta^2$ effect size of 0.44 for differences between experimental versus control group use of relationship-building skills were found. Partial $\eta^2$ effect size of 0.87 for significant effect of time was found that signified greater maintenance of relationship-building skills among experimentals versus controls.
Krieger (2013)	For teachers and paraprofessionals baseline to post-training, large effects (PAND <sup>b</sup> = 97% and $\phi$ = 0.94) were found for reduced use of reactive strategies; moderate effect (PAND = 84% and $\phi$ = 0.69) for increased use of proactive strategies; strong effect (PAND = 94% and $\phi$ = 0.86) for reduced classroom management stress; and moderate effect (PAND = 79% and $\phi$ = 0.57) for reduced student problem behavior. Also, negligible effect (PAND = 63% and $\phi$ = 0.24) were found for student prosocial behaviors; small effects (PAND = 66% and $\phi$ = 0.32 and PAND = 70% and $\phi$ = 0.40) for student compliance and student acquiescence and moderate effects (PAND = 84% and $\phi$ = 0.68) for student on-task behavior.
Maggin et al. (2012)	Following implementation, classroom #1 had paraprofessional intervention fidelity of 100% PND, paraprofessional verbal interactions with students as 100% PND, and student #1 and student #2 aggression decreased 80% and 100% PND, respectively. For classroom #2, paraprofessional intervention fidelity had 100% PND, paraprofessional verbal interactions with students was 100% PND, and student #3 and student #4 aggression decreased 80% and 96.67% PND, respectively. For classroom #3, paraprofessional intervention fidelity was 100% PND and paraprofessional verbal interactions with students was 100% PND.
Malmgren et al. (2005)	For student #1, PND was 6% for peer interactions increase baseline to post-intervention. For student #2, PND was 57% for peer interaction increase baseline to post-intervention. For student #3, PND was 33% for peer interaction increase baseline to post-intervention.

<sup>a</sup>PND indicates the percentage of nonoverlapping data (PND) and its calculation depends on determining the extent of data overlap from baseline to treatment by dividing the total number of treatment phase data points that are more extreme in the therapeutic direction than the most extreme baseline data point (Maggin et al., 2012).

<sup>b</sup>PAND indicates the percentage of all nonoverlapping data to determine the nonoverlap between baseline and post-training/treatment. It corrects for limitations of PND (Parker, Hagan-Burke, & Vannest, 2007). Its calculation involves determining the smallest number of data points that would need to be transferred across phases to ensure no overlap, dividing the remaining nonoverlapping data points by the total number of data points, and multiplying by 100 (Parker, Vannest, & Davis, 2011).

student behavior (i.e., externalizing behavior), paraprofessional knowledge/skills, and paraprofessional–student relationship (positive interactions, increase in interactions; i.e., Helker & Ray, 2009; Maggin, Fallon, Sanetti, & Ruberto, 2012). There were no differences in outcomes reported for dissertations compared to published journal articles.



## 4 | DISCUSSION

This review offers the first comprehensive appraisal of the PD literature for paraprofessionals who serve students with or at risk for externalizing behavior disorders. Given the important role of paraprofessionals as interventionists in addressing behavior concerns that lead to deleterious outcomes for students, there is a strong need to take stock of the current state of PD research and practice. This review offers school psychologists, researchers, educators, and other support personnel a glimpse of the range of PD findings for paraprofessionals working with students who exhibit disruptive behaviors in schools. Findings from this review highlight important strengths and limitations of the current PD literature, serving as a first step to bridging the research–practice gap for these critical instructional support staff. Furthermore, it is our goal that this synthesis offers a foundation for future development and validation of PD resources that enhance the effectiveness and interactions of paraprofessionals in meeting students' behavior needs. A summary of strengths, weaknesses, and future directions for research are discussed next.

### 4.1 | Strengths of the literature

A key finding in this review was that the majority of the studies utilized a multicomponent PD approach (four or more) to prepare and support paraprofessionals (see Table 2). Utilizing a comprehensive PD framework may enhance paraprofessional learning, support, and skill transfer to the classroom. This approach may be particularly beneficial for paraprofessionals supporting students with externalizing behavior disorders who often have complex and changing learning and social needs. However, the efficacy of multicomponent versus single component PD approaches on paraprofessional intervention fidelity and interactions with classroom teachers and/or students with challenging behaviors remains unknown and warrants investigation.

The most commonly used PD component in this literature was instructive feedback. Instructive feedback involves observing the paraprofessional implement a strategy or intervention and then sharing data with the paraprofessional on their implementation process to improve future implementation (Brock & Carter, 2017). This training component is shown to be promising in improving educator intervention fidelity (Brock & Carter, 2017; Fallon, Collier-Meek, Maggin, Sanetti, & Johnson, 2015; Solomon, Klein, & Politylo, 2012; Stormont & Reinke, 2014). Although instructional feedback was a frequently used PD component in this literature, additional research is warranted to examine aspects of feedback needed to meaningfully enhance paraprofessional learning and skills development for this population.

Trainers modeling the delivery of classroom strategies and interventions to paraprofessionals was reported in the majority of the studies in this review. Casey (2011) recommends modeling as best practice in teacher PD and it has been a key training component in experimental studies in special education (Brock & Carter, 2013). In this review, the combination of modeling and feedback was reported in 10 of the 16 studies. In Brock and Carter's (2017) meta-analysis of educator training to improve implementation of interventions for students with intellectual and developmental disabilities, modeling in conjunction with performance or instructive feedback was most strongly associated with larger effects. In sum, modeling and performance feedback are promising PD components for enhancing paraprofessional skills in serving the needs of students with challenging classroom behaviors. Investigations that examine the type, intensity, and temporal sequence of these PD components are needed.

Another key finding in this review was that 75% of the studies trained paraprofessionals on a range of evidence-based intervention strategies (e.g., specific praise, proactive methods, good behavior game) with an emphasis on intervention implementation. This is encouraging as focusing on implementation may better equip paraprofessionals to practice skills until proficiency is achieved, in contrast to the provision of a traditional workshop approach that leaves them feeling ill prepared and overwhelmed (Sobeck, 2016).

Noteworthy methodological strengths in this review included descriptions of the characteristics of paraprofessionals and their trainers, as well as inter-rater reliability estimates reported in the studies. These relative strengths assist researchers and school practitioners in generalizing findings to other populations and settings, and assist scholars with replication efforts.

## 4.2 | Weaknesses of the literature

This review highlights several limitations that offer opportunities for future research.

Although multicomponent PD approaches were utilized in many studies in this review, the use of experiential learning such as role playing was seldom reported. As Walker and Smith (2015) found in their review, experiential learning experiences such as role playing are important for training on intervention implementation and effective communication skills that may lead to positive student outcomes (Chen, Muthitacharoen, & Frolick, 2003). Research that examines the influence of PD components (e.g., teaching, modeling, role playing, and feedback) on educator behaviors and student outcomes would be beneficial (Glover, Reddy, Kurz, & Elliott, 2019). Such work would highlight possible key PD ingredients that lead to improved paraprofessionals skills for this student population.

Although reviewed studies focused on supporting paraprofessionals' implementation practices, additional research is needed in this area. Extant research on teacher PD suggests that job-embedded coaching sustained over time can improve implementation of interventions that meet student needs (Denton & Hasbrouck, 2009; Reddy, Dudek, & Lekwa, 2017; Rush & Young, 2011). Given the lack of clear operationalization of coaching components in the reviewed studies, future research on components required to effectively implement job-embedded support for paraprofessionals is needed (Reddy 2019).

While 75% of the studies trained paraprofessionals on intervention implementation, surprisingly only four studies reported using methods to monitor implementation fidelity. The lack of assessment of intervention implementation in this review highlights an important gap in the training and support of paraprofessionals and subsequently student learning and social behavior (Pereplechikova & Kazdin, 2005). When implementation fidelity is not consistently monitored after training, paraprofessional delivery of interventions may result in unintended consequences such as inadvertently reinforcing problematic student behavior and missed teaching opportunities and so forth. Future research is needed that examines effective methods to monitor paraprofessional intervention fidelity over time.

Information on the demographics of the students served by paraprofessionals was lacking, precluding the generalizability of findings to the larger externalizing behavior disorders literature. Furthermore, only five studies reported inclusion and exclusion criteria for the students supported by the paraprofessionals. Future studies should include gender, ethnicity, special education classification, diagnosis according to the Diagnostic and Statistical Manual (DSM-5: American Psychiatric Association, 2013), and metrics of academic and social behavior functioning for students. In addition, as most of the studies reported participation of Caucasian female paraprofessionals and trainers, findings highlight the need for more diverse samples (gender, ethnicity, experience, school type) in future research.

The research designs employed by studies in this review examined outcomes primarily through single-subject designs or narrative case studies. A substantial number of these studies included narrative case descriptions and/or insufficient observation data points, many studies did not adhere to the What Works Clearinghouse single-subject design standards (Kratochwill et al., 2010). In this review, only two studies used a quasi-experimental design and a control group (i.e., Cowen et al., 1979; Helker & Ray, 2009). Our results underscore a need for more rigorous experimental design research to evaluate paraprofessional PD on adult skills and student outcomes. Specifically, randomized control trials are essential for affording greater internal validity and generalizability which, in turn, will likely led to enhanced paraprofessional skills and a positive learning environment for all students with challenging behaviors.

In further examining the methodological quality of this literature, we found limited use of statistical significance and clinical significance tests (i.e., effect sizes) to investigate intended outcomes. There was also very little use of measures used with documented psychometric evidence. Measurement development and validation of paraprofessional knowledge and practices are needed for identifying practice strengths and area in need of improvement (Lekwa & Reddy, in press). Assessment-driven feedback offers a structure for the supervision and development of paraprofessional skills. This review also highlighted only seven out of the 16 studies reported outcomes for both students and paraprofessionals. While improved paraprofessional knowledge, skills, and/or behavior are the primary aims of PD, it is critical that such changes in professional practices ultimately lead to improved student outcomes. Future research should ensure that both student and paraprofessional outcomes are reported to appropriately evaluate the efficacy of PD supports. As noted, most studies used a pre- and posttest design without control participants to evaluate the effectiveness of the training. This approach fails to account for potential threats to internal validity such as history, maturation, or testing effects. Taken together, positive findings reported by all of the 16 studies should be interpreted with caution due to these aforementioned methodological issues.

## 5 | CONCLUSION

This review offers a synthesis of the PD research and methodology used to train and support paraprofessionals working with students with or at risk for externalizing behavior disorders. Outcome findings were generally positive and indicated that student behaviors and paraprofessional knowledge, skill, and/or behavior improved as a result of PD provided in the reviewed studies. However, readers should not draw firm conclusions given the limited research, small samples, and methodological rigor in the current literature. A primary take away from this systematic review is identification of the need for additional more rigorous research on paraprofessional PD. As noted, methodology varied with most studies using a pre- and posttest design without control participants to evaluate the impact of paraprofessional trainings. It is our hope this review provides scholars and school practitioners a springboard to forge new PD trainings and supports and further research to enhance paraprofessional effectiveness. We have offered suggestions for additional research that is needed to better determine how to effectively meet the needs of paraprofessionals in supporting students with or at risk for externalizing behavior disorders.

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## CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

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{Asterisks refer to articles in the review}

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