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Behavior-specific praise: Enhancing on-task behavior in a rural elementary school

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Behavior-specific praise (BSP) is a low-intensity strategy used to reinforce positive student behaviors in school settings. BSP is currently a *potentially evidence-based practice*, with more studies with three or more participants needed to contribute to the literature base. This study investigated the impact of teacher-delivered BSP on student on-task behavior in an inclusive second grade classroom taught by a general and special education coteacher dyad in a rural Southeast school. Using an A-B-A-B withdrawal design, we observed the on-task behavior of four students with emotional and/or behavioral disorders (EBD) when the coteaching pair increased their rates of BSP after a brief training. All four students increased on-task behavior during BSP intervention conditions. Social validity questionnaires identified a positive impression from three out of four students and both teachers about the implementation of BSP in the classroom. Limitations and future directions are discussed.

KEYWORDS

behavior-specific praise, general praise, on-task behavior, coteaching, withdrawal design

Introduction

Instruction in general education classrooms requires teachers to balance pedagogy and behavioral strategies, planning rigorous, differentiated lessons while managing behavior. Disruptive student behavior, such as persistent off-task behavior, physical aggression to others or property, calling out, cursing, presence and use of weapons, and verbal threats to staff and students, along with classroom management concerns are common causes of teacher attrition (Amitai and Van Houtte, 2022). The frequency of these disruptive behaviors, unfortunately, are perceived by the vast majority of educators to occur "more now" or "significantly more now," according to a survey of 41 school districts (EAB Global, Inc., 2019). In the same survey, most schools and districts lacked clear and consistent behavior management guidelines and teachers reported not being prepared to manage disruptive behavior in their classroom. This was consistent with an earlier review of course offerings in teacher preparation programs that showed preservice teachers are often not adequately trained to manage student behavior (Freeman et al., 2014).

It is not surprising then to learn challenging student behavior is the top reason for educator burnout, with upwards of 44–50% of teachers resigning in their first 5 years (Arnup and Bowles, 2016; Gerald, 2019). Similarly, the U.S. Bureau of Labor Statistics anticipated an average of 270,000 teachers will leave the field *per* year in the 2016–2026 decade (Torpey, 2018). Ingersoll and Tran (2023) identified rural teacher turnover at 15.4% and high-poverty rural schools at 28% each year,

while Billingsley and Bettini (2019) found across 30 studies over 15 years special education teacher attrition was even higher than general education teachers, such as 75% compared to 40% in one study, respectively, in their first 5 years. Ensuring teachers have the skills to prevent challenging or disruptive behaviors and respond respectfully when they occur is critical to retaining teachers and maintaining a positive, productive, safe learning environment.

Historically, teachers' classroom management plans consisted of reacting to challenging behavior with punishment rather than focusing on consistent implementation of positive, proactive strategies to prevent disruptions (Eaves et al., 2020; Sugai and Horner, 2008). Yet, the frequent use of reactive or punitive strategies is associated with higher levels of disruptive behaviors, lower student participation, poorer academic achievement, and increased risk of school dropout (O'Handley et al., 2020). Thus, many school districts now emphasize positive and proactive behavior support strategies designed to reinforce appropriate classroom behaviors [e.g., Positive Behavioral Interventions and Supports (PBIS); Sugai and Horner, 2006] rather than only relying on punishing inappropriate behaviors. Unfortunately, as mentioned earlier, many university programs provide preservice teachers with minimal, if any, universal behavior management strategies (e.g., rules, daily routines, parent communication), with only some programs training teachers with specific strategies for increasing appropriate and preventing or decreasing disruptive behaviors in schools (Flower et al., 2017; Freeman et al., 2014). This becomes especially disappointing given how important it is for general education teachers to have the knowledge and skills to support students with disabilities included alongside general education students (given the more positive outcomes for students with disabilities in inclusive settings; Cole et al., 2023) the increasing trend with greater numbers of students receiving special education services in inclusive general education settings (Institute of Education Sciences, 2023), equipping teachers with effective strategies to prevent challenging classroom behaviors has become increasingly important.

Behavior-specific praise: A low-intensity teacher-delivered strategy

Teachers need effective, efficient, easy-to-implement strategies ("low-intensity" strategies; Lane et al., 2015) to prevent challenging student behavior across all school settings, especially for all students in the classroom setting. Low-intensity teacher-delivered strategies include active supervision, high-probability request sequences, instructional choice, opportunities to respond, instructional feedback, precorrection, and behavior-specific praise (BSP), all of which teachers can use in instructional (e.g., the general education classroom) and non-instructional (e.g., hallway and cafeteria) settings for all students. BSP is more than feedback or acknowledgement in that it is a more intense response and includes a specific behavioral description component (Ennis et al., 2020a). Where general praise acknowledges or provides feedback, such as "good job," BSP adds specificity, such as, "good job talking quietly." Adding specificity informs students what they are doing well, making it more likely they will engage in the same behavior in the future if they find the attention reinforcing.

BSP has been researched extensively since the 1960s and shown strong results in supporting student academic engaged time while preventing challenging behavior (Ennis et al., 2020a; Royer et al., 2019). Ennis et al. (2020a) mapped the 50 years of literature examining BSP including delivery styles (e.g., praise notes, Nelson et al., 2008; peer-delivered BSP, Teerlink et al., 2017; majority were vocal-verbal), the training and coaching supports provided to teachers (e.g., single training only, daily or weekly coaching; bug-in-ear, graphed performance feedback, self-monitoring of BSP frequency), and the impact on student appropriate or inappropriate behaviors (31 studies with positive outcomes, five mixed results, zero negative). BSP was shown to be effective across early childhood, elementary, middle, and high school settings, in multiple contexts (e.g., general education, resource, self-contained) and content/subject areas, and delivery by a variety of adult (e.g., general education teachers, special education teachers, paraeducators) and student participants (Ennis et al., 2020a). Across a systematic review of 45 studies from 1973 to 2018 focused on coaching of preK-12 educators (primary independent variable) to increase their rate of BSP (primary dependent variable), Ennis et al. (2020b) found 16 studies that met all Council for Exceptional Children (2014) quality indicators. Of those 16 studies, six included graphed data for student behavior as a secondary dependent variable, all with overall improved outcomes. Hemmeter et al. (2011) and O'Handley et al. (2018) measured early childhood and elementary whole-class student behavior, while Duncan et al. (2013) and Rathel et al. (2014) measured behavior for one student per teacher classroom (three Head start, two elementary and one middle school self-contained, and one middle school resource), with all studies showing when educators were coached to increase BSP, student challenging/disruptive behavior reduced or task engagement/academic engaged behaviors increased. Similarly, Myers et al. (2011) demonstrated reduced off-task and disruptive middle school student behavior but in three out of four teachers' classrooms (three random students selected for each observation), and Thompson et al. (2012) showed increased elementary student time on task for two out of three students, each in a different teacher's classroom.

Although these examples included graphed student outcomes, within the 50 years of literature on BSP the vast majority of studies focused on increasing adult educator BSP rates with on-going coaching, and only a handful of studies had the primary dependent variable focused on student outcomes (Ennis et al., 2020a). From analysis of those studies, BSP is a *potentially evidenced-based practice* for increasing on-task behavior and reducing disruptive behavior, based on the Council for Exceptional Children (Council for Exceptional Children, 2014; Cook et al., 2014) standards for evidence-based practices (Royer et al., 2019). Royer et al. (2019) found only six studies met inclusion criteria for teacher-delivered BSP as the independent variable without on-going researcher coaching, and with student on task, off task, or disruptive/inappropriate behavior as the dependent variable. The six studies ranged from 1968 to 2016 and although methodological rigor was high for all and student outcomes improved for all, only two had three or more participants and established a functional relation between teacher-delivered BSP and student behavior (Royer et al., 2019). Authors thus called for more BSP studies focused on teacher-delivered BSP with three or more student participants to add to the evidence base that could help establish if the low-intensity strategy of BSP can be considered an evidence-based practice according to Council for Exceptional Children (2014) standards.

Purpose

Given the small number of studies in the literature base on BSP with three or more student participants (Royer et al., 2019), we sought to fill that gap with an experimental study focused on the impact of teacher-delivered BSP (independent variable) on student on-task behavior (dependent variable) for students with disabilities. With

three or more student participants, results would contribute to the literature base that would help determine if BSP can be considered an evidence-based practice. Specifically, our research questions were:

1 To what extent will co-teachers implement BSP during second-grade literacy small group instruction following a brief training?
2 To what extent will on-task behavior for students with disabilities change due to teacher use of BSP, and is there a functional relation?
3 How do teacher and student ratings of the BSP intervention goals, procedures, and outcomes change when comparing pre- to post-implementation?

Method

Participants and setting

The study took place at Creek Vale Elementary School, a rural school in the southeast United States (all names and places are pseudonyms). The school had 441 students across preschool through fifth grade. Demographically, 386 students were White (87.5%), 29 students were Latinx (6.6%), four students were Black (0.9%), and 17 were identified as two or more races (3.9%). There were 224 (50.9%) students eligible for free- or reduced-price lunch, and 135 (30.6%) students received special education services. See Table 1 for additional school demographic information. All teachers in the school were trained in a schoolwide behavior plan the summer prior to the study: they used a virtual token economy system building-wide (Class Dojo; https://www.classdojo.com/v2/), where students received points for teacher-perceived positive behaviors and points could be deducted for teacher-perceived inappropriate behaviors. The teachers in this study utilized ClassDojo rarely, with a bell "ding" sounding when a student earned a point, but students were not aware of who received the point or why – we thus did not include these acknowledgements for positive behavior in our definition of BSP (see direct observation measure). Students redeemed points at a monthly school store.

Two second-grade coteachers and four students participated in this study. Ms. Duncan was a White female second-grade general education teacher with 4 years of experience, one at the current school. Ms. Winger was a White female special education teacher with 7 years of experience in her first year at the current school. Ms. Winger and Ms. Duncan cotaught small group math and literacy, the latter being observed in this study (see Table 2 for additional teacher demographics). The school principal nominated teachers for participation using our inclusion criteria: full state licensure, had over 90.0% attendance, and no previous school or district training in BSP (confirmed by first author, instructional coach for the building). We confirmed nominated teachers delivered less than five BSP statements in a 15-min screening observation (O'Handley et al., 2023). Specifically, we screened teachers over 2 days and Ms. Duncan used no BSP statements and Ms. Winger used five BSP on day one and one BSP on screening day two.

Student inclusion criteria were (a) an active IEP, (b) 80.0% or more attendance, (c) moderate or high risk in one or both domains of the Student Risk Screening Scale – Internalizing and Externalizing (SRSS-IE; Lane and Menzies, 2009), and (d) were off-task at least five times by frequency count during a 15-min screening observation (e.g.,

TABLE 1 School demographics.

	Creek Vale elementary (N = 441)	
Characteristic	*n*	%
Students[a]		
Male	242	54.9
Female	199	45.1
Ethnicity		
Asian/Pacific Islander	3	0.7
Black	4	0.9
Latinx	29	6.6
Two or more races	17	3.9
American Indian/Alaska Native	2	0.4
White	386	87.5
Native Hawaiian/Pacific Islander	0	0.0
Grade level		
PreK	68	15.4
Kindergarten	75	17.0
First	64	14.5
Second	57	12.9
Third	48	10.9
Fourth	78	17.7
Fifth	51	11.6
Free or reduced-price lunch eligible	224	50.8
Students with disabilities[b]	135	30.6
Locale[a]	Rural: Fringe	
Classroom teachers (FTE)[a]	29.4	
Student/teacher ratio[a]	15.0	

FTE, full-time equivalent. [a]National Center for Education Statistics, Common Core of Data 2022–2023. [b]State Department of Education, 2022–2023 report card.

TABLE 2 Teacher participant demographics.

	Ms. Duncan	Ms. Winger
Demographic	General education teacher	Special education teacher
Age	25.0	30.1
Sex	Female	Female
Ethnicity	White	White
Years teaching experience	4	7
Years teaching at current school	1	1
Certified in subject currently taught	Yes	Yes
Highest degree earned	Bachelor's	Master's
Completed course in classroom management	Yes	Yes

looking somewhere other than the instructional materials for 3 s or more, not using tools or manipulatives for the teacher's stated purpose, out of seat without permission, talking off topic).

Veronica was a 9-year-old White female with medical diagnoses of autism and attention deficit hyperactivity disorder (ADHD) receiving special education services under the eligibility category of Other Health Impairment. She received reading, math, and fine motor resource services and social skills coteaching services, and on the SRSS-IE she screened in at moderate risk for both externalizing and internalizing behavior patterns. Archie was a 7-year-old White male with a special education eligibility of Intellectual Disability (federal category; Mild Mental Disability state category). He received reading, math, fine motor, and social skills resource services, social skills and reading coteaching services, and on the SRSS-IE screened in at high risk for externalizing and internalizing behavior patterns. Additionally, Archie had an individual behavior chart token board that started halfway through baseline and was no longer used after the fourth intervention observation (indicated by asterisks on Archie's graph). Ms. Winger created the token board which consisted of three tokens, each given to Archie, based on Ms. Winger's perception of his on-task behavior at variable times, earning him a 2-min break to play with toys that suctioned together. Reggie was a 9-year-old White male with an eligibility of Intellectual Disability (federal category; Mild Mental Disability state category). He received reading, math, writing, and social skills resource services and additional social skills instruction in the cotaught classroom, and on the SRSS-IE he screened in at high risk for externalizing behavior patterns and moderate risk for internalizing behavior patterns. Kevin was an 8-year-old White male with an eligibility of Developmental Delay: Social–Emotional. He received resource and coteaching for social skills instruction, and on the SRSS-IE screened in at high risk for both externalizing and internalizing behavior patterns.

The cotaught classroom had 24 students enrolled (eight with IEPs), but based on district assessments, some students switched with students from another class for literacy small group instruction time where the study took place. Each student had their own desk and chair for independent work time while teachers worked with small groups of 4–6 students (with and without IEPs) on the sides of the room: the special education teacher's group had two rectangular tables and the general education teacher's group had one kidney-shaped table. Teachers utilized a smart panel TV to show literacy group rotation scheduling and the class was one-to-one with Chromebooks, working independently on i-Ready reading (see Baseline description) when not with either teacher's small group, with both teachers monitoring students in the middle of the room who worked independently.

Measures

Dependent variable

We measured student on-task behavior as our dependent variable, defined as the student-oriented toward the teacher or task and academically engaged with the teacher or stimuli presented, such as sitting quietly, following teacher directions, writing when appropriate, talking on topic, and raising their hand (Gill and Remedios, 2013). Non-examples of on-task behavior included students engaging with non-teacher materials, head down on the desk, looking away from instructional materials for more than 3 s (starting at time of momentary observation), talking off topic, or talking out.

We used 1-min momentary time sampling (MTS) to estimate duration of student on-task behavior as simultaneous duration recording of four students was not possible. Momentary time sampling with shorter intervals has been established across decades of research as a close match to duration recording (Meany-Daboul et al., 2007; Radley et al., 2015; Saudargas and Zanolli, 1990), while also being a flexible, practical way to measure multiple variables in authentic school-based settings (Umbreit et al., 2024).

We observed the four participating students at the beginning of each interval to determine if they were on-task or off-task, marking the respective column on the data collection sheet for the corresponding interval. Because of the consistently on-time schedule of student rotations, observers were able use the large classroom clock with sweeping second hand to track intervals as each interval was equated to a clock time (versus needing to use interval numbers for various clock times in other studies when teachers start teaching at slightly different times each day). For example, observations always started at 12:00 PM and observers watched the clock's second hand for the beginning of each new interval while they listened for and tallied teacher general and BSP statements. When the second hand swept :00 it took 1 s to glance at all four students and determine if each was on or off task, recorded as observers continued to listen to teachers for praise statements.

Teacher praise statements

We measured frequency of general and BSP statements separately by direct observation during the same 46 min divided into 1-min intervals. These data allowed us to determine the degree to which the independent variable was put in place by each coteacher, frequency of BSP. General praise was operationally defined by Zoder-Martell et al. (2019) as a praise statement that does not specify the specific, observable effective behavior. Examples included, "Good job" and "Way to go!" Non-examples included praise with behavior specified, such as, "Good job sitting quietly, Ruthie," and, "I like how you have written your name neatly, Millie." BSP was operationally defined as positive statements with a specific behavioral description component (Ennis et al., 2020a). Examples included, "Class, good job entering the room quietly and beginning your work," and, "I love how you are sharing your markers with your table mates, Katie." Non-examples included general positive comments such as, "Good job, Barbara" and, "Nice work, Jeramiya." Additionally, non-examples of both general and BSP included reprimands such as, "Stop that," "Pick your head up," and "Get to work." Acknowledgements were also non-examples for both categories of praise such as, "That is correct," "Yes," and, "You did the task."

Design

We used an A-B-A-B withdrawal design to test the effects of increased rates of teacher-delivered BSP on student on-task behavior. The decision to begin teacher delivery of BSP was made based on the stability and trend (counter/therapeutic direction) of baseline data for the dependent variable (percentage of intervals of on-task behavior for

four students in the cotaught classroom during literacy small group centers) determined with visual analysis of the graphed data (Lane and Gast, 2014). Similarly, the decisions to change conditions for withdrawal and reintroduction of the BSP intervention were made based on on-task behavior data stability, counter/therapeutic trends, and level determined with visual analysis, weighed against probability of benefit to continuing the condition (e.g., what additional value to visual analysis would an additional data point add). We *a priori* set a minimum of three observations per condition with the expectation of five observations being likely given the potential for a student to be absent, with the possibility of extending conditions longer if data were highly variable.

Procedures

We first obtained university IRB and district approvals then approached the school principal for permission and teacher nominations, whom we then screened (see Participants) and obtained informed consent. Teachers were not aware of the exact intervention they would be trained to implement, only that it would be one of the seven low-intensity strategies described in the introduction. Participating teachers then completed the Intervention Rating Profile-15 (IRP-15; Witt and Elliott, 1985) and worked with us to review student data for possible participants. Five students met the inclusion criteria but one had anticipated absences for medical reasons and was not invited to the study. They still received the classwide BSP intervention along with all students. Next, we obtained informed parent consent (all seven low-intensity strategies were presented as options for the intervention their child might receive) and then approached students and obtained their assent (students were given examples of two possible low-intensity strategies their teacher might start using, increased praise for doing well or offering choices of what to work on) and completion of the Children's Intervention Rating Profile (CIRP; Witt and Elliott, 1985).

Data collection

Trained observers collected data using the same procedures across all conditions: the observer entered the room quietly, sat or stood in a discreet location, and did not interact with students during each 46-min observation. Teachers were directed in baseline to not change their current practices and engaged in their normal rates of praise during group instruction. The observer collected frequency of general and BSP statements for both teachers, and on-task behavior for the four students via 1-min momentary time sampling (see Measures). During baseline, teachers were not aware of what specific intervention they would be trained in, only that it was a "low-intensity behavior strategy." Teacher implementation of BSP was selected for this study as the intervention to impact student on-task behaviors.

Baseline

In addition to a whole-group general education teacher-led phonics lesson and comprehension instruction from the i-Ready learning curriculum earlier in the day, the class used a literacy block of 60 min later in the day, divided into four 15-min student stations (we observed the first three rotations): two teacher-led guided practice groups, independent reading practice with passages and worksheets, and independent practice with i-Ready Personalized Learning[1]. With Ms. Duncan, groups often worked on comprehension practice with teacher-supplied passages. With Ms. Winger, groups studied a novel (high-achieving students) or received decoding instruction (low-achieving students) based on the district-created phonics continuum of skills. Students who worked with teachers read either independently or aloud in a small group of 4–6 students then answered teacher questions. Teachers responded with an acknowledgment ("Yes, that is right" or "No") and behavioral reprimands (correction, redirection) with a low rate of praise (e.g., "Good"). A timer alerted students when to transition to the next station following the schedule displayed on the smart panel TV.

Intervention

During intervention conditions, students followed the same procedures as in baseline, going to their literacy group based on the visual menu displayed on the smart panel TV and transitioning to their next station when the timer buzzed. Teachers at or making their way to their small group tables at the beginning of the literacy block now delivered BSP statements as students arrived on time and throughout the period for exhibiting on-task behavior (dependent variable; e.g., "Good job staying focused on i-Ready reading," "I like how I saw everyone following along") and occasionally for meeting schoolwide expectations. They also continued to use general praise (e.g., "Good job"), though there was no instruction to do so, and we separately recorded both when delivered to individual students, a small group, or the whole class.

Withdrawal and reintroduction of BSP

After student intervention data were visually analyzed (see Experimental Design), the first author met face-to-face with each teacher and instructed them to withdraw the BSP intervention and return to pre-training rates of BSP. Direct observation continued until our visual analysis of student on-task behavior determined it was time for a condition change, after which teachers were asked to reintroduce BSP for the final intervention condition.

Post-intervention

After completion of direct observation data collection, graphs were printed, shown to teachers, and discussed. Teachers then filled out the post-intervention IRP-15. The four students were also shown their graphed data, engaged in a brief discussion, and then completed the post-intervention CIRP one-on-one with the lead author, who later shared aggregated teacher and student social validity data with teachers.

Interobserver agreement

The first author (doctoral student in special education and special education instructional coach within the school from the district level) trained the second author (university faculty) and the school assistant principal on direct observation procedures using recorded 10-min videos from the classroom made prior to baseline. Each

1 https://www.curriculumassociates.com/programs

secondary data collector watched a 10-min video, compared their data to the first author, calculated interobserver agreement (IOA) for dependent (student on-task behavior) and independent (frequency of teacher general and BSP) variables, and watched additional videos until three consecutive practice IOA scores were 90% or higher ($M = 97.8\%$, range = 91.0–100%) before observing in the classroom. IOA percentage was calculated comparing interval-by-interval: exact count for frequency of teacher general and BSP in each interval and student on- or off-task score per interval, dividing the number of agreements by the sum of the number of agreements and disagreements and multiplying by 100 (Cooper et al., 2020). A secondary data collector observed 20.0% of sessions across all baseline and intervention conditions for both teachers and all student participants. We planned to retrain when IOA was <80% for any one observation, but retraining was not required. Mean IOA for student on-task behavior was 93.0% (range = 86.6–97.8%); mean IOA for frequency counts of teacher praise was 97.6% (range = 94.0–100%).

Fidelity

Implementation fidelity

After a stable baseline and/or countertherapeutic trends were determined via visual analysis for student on-task behavior, the first author trained both teachers on BSP during their common planning period in the principal's office for 30 min with the principal present. We used a training fidelity checklist (available upon request) to ensure training was delivered as designed and consistent across studies taking place at additional school sites (see Hogg et al., 2024; Royer et al., 2024b), reviewed prior to and completed after training. Example items included "agenda presented," "trainer modeled BSP," and "trainer administered three checks for understanding," scored as a binary *yes* or *no*. Trainers counted the number of *yes* items, divided by the total number of items, and multiplied by 100 to get an implementation fidelity percentage. Implementation fidelity for this study was 100%.

The trainer greeted participants with a BSP upon entering to model the practice (i.e., "Thank you for being on time"), introduced the rationale of BSP with a PowerPoint, provided examples of BSP and general praise with time to practice differentiating, and had teachers generate their own BSP based on a picture prompt. Three comprehension/skill checks, multiple choice, and short answer questions were embedded throughout the training which teachers needed to score at least 90% to complete the training. The comprehension checks required teachers to identify examples of each type of praise, why they work (e.g., reinforcement), at what ratio praise should be provided compared to correction or reprimands (i.e., 4:1), and to generate BSP statements for multiple picture scenarios. Combined, teachers scored an average 95.5% (range = 90.9–100%). The only item missed in the training was a multiple answer question to identify why BSP is considered a low-intensity intervention; the general education teacher selected two of the three correct options. The trainer explained when to begin using BSP, that data collectors would continue to observe as in baseline, and how phase changes would occur based on stable teacher and student responses. We directed teachers to use at least three BSP statements per 15-min rotation (0.2/min), and that even more would have greater impact on student on-task behavior. We planned to retrain teachers if their aggregate classroom rate of BSP during either intervention condition was less than the predetermined criterion of 0.2 per min for two observations, but this was not needed.

Procedural fidelity

We utilized a procedural fidelity checklist across 100% of sessions, with a secondary observer completing the same checklist for 20% of sessions (once per condition). The checklist included five items, three for the observer to self-report (e.g., "Observer did not interact with students") and two for the observer to score teachers, with one item reverse scored during baseline conditions (i.e., "Teacher utilized BSP at least 3× per rotation"). Items were scored as 0 = *not implemented*, 1 = *partially implemented*, and 2 = *fully implemented*. Fidelity scores were summed daily, divided by the total points possible (10), and multiplied by 100 to obtain a percentage. Across all conditions, procedural fidelity averaged 95.0% (range = 90.0–100.0%; see Table 3). During the baseline and withdrawal conditions, procedural fidelity averaged 97.5% (range = 90.0–100.0%). During both intervention phases, procedural fidelity averaged 96.7% (range = 90.0–100.0%). The only item scored *partially* instead of *fully implemented* in any condition was when a teacher used an occasional BSP statement (more than zero but less than three per 15-min rotation). IOA was assessed for 20.0% of sessions (once per phase) and averaged 99.6% (range = 96.7–100.0%).

Social validity

The Children's Intervention Rating Profile (CIRP; Witt and Elliott, 1985) included seven items rated by the student, asking if the

TABLE 3 Procedural fidelity and IOA results by condition.

Condition	Sessions *n*	Procedural fidelity *M*% (*SD*)	IOA			
			PF[a]	BSP[b]	General praise[b]	On-task[c]
			M% (*n*)	*M*% (*n*)	*M*% (*n*)	*M*% (*n*)
A_1-Baseline	5	90.0 (0)	100 (1)	97.3 (1)	95.7 (1)	86.6 (1)
B_1-BSP	5	100 (0)	100 (1)	94.0 (1)	95.7 (1)	92.6 (1)
A_2-Withdrawal	5	88.0 (4)	90.0 (1)	100 (1)	100 (1)	94.4 (1)
B_2-BSP	5	100 (0)	100 (1)	98.9 (1)	97.8 (1)	97.8 (1)

BSP, behavior-specific praise; IOA, interobserver agreement; PF, procedural fidelity. [a]IOA percentage for procedural fidelity was calculated via item-by-item analysis, and the *n* reported represents the number of sessions within the condition observed by a secondary data collector. [b]IOA percentage for BSP and general praise were calculated via interval-by-interval analysis for 46 1-min intervals to allow for robust IOA calculation, and the *n* reported represents the number of sessions within the condition observed by a secondary data collector. [c]IOA percentage for on-task behavior was calculated via interval-by-interval analysis for 46 1-min intervals per observation and the *n* reported represents the number of sessions within the condition observed by a secondary data collector.

intervention was fair, helpful, acceptable, appropriate, or likely to cause problems with friends. Items were rated on a 6-point Likert-type scale (some were reverse scored) where 1 = *strongly disagree* and 6 = *strongly agree*. Example items included, "I think I will like being in this program," and "I think being in this program will help me do better in school." Total scores (sum) ranged from 7 to 42, with higher scores indicating higher social validity. Internal consistency of the CIRP in previous studies ranged from 0.75 to 0.89 (Carter, 2007).

The Intervention Rating Profile (IRP-15; Witt and Elliott, 1985) contained 15 questions asking adults whether the intervention was acceptable, fair, appropriate, compatible, and effective. Items were rated on a 6-point Likert-type scale ranging from 1 = *strongly disagree* to 6 = *strongly agree*. Example items included, "This intervention would not result in negative side effects for the child," and "This intervention would be appropriate for a variety of children." Total scores (sum) ranged from 15 to 90, with higher scores indicating higher social validity. Internal consistency was reported in previous studies to be 0.98 (Common and Lane, 2017).

Analysis

We analyzed data collected from this study through descriptive statistics (e.g., mean, range, percentage) for social validity (pre- to post-implementation comparison) and procedural fidelity, plus through visual analysis of level, trend, and stability for graphed data within condition as well as between condition (Lane and Gast, 2014). Additionally, we calculated the effect size for student on-task behavior using between-case standardized mean difference (BC-SMD; Valentine et al., 2016), comparable with Cohen's *d* effect sizes in group comparison research designs. BC-SMD effect sizes can be interpreted as small (0.20–0.50), medium (0.50–0.80), and large (≥0.80; Fritz et al., 2012).

Results

In this study we used an A-B-A-B withdrawal design over 10 weeks to evaluate the effects of teacher-delivered BSP on four students' on-task behavior. As seen in the graphs, two weeks did not include data collection, one for a week off for inclement weather and 1 week for medical leave for the lead author. Veronica was absent 3 days due to illness and typically left the classroom for a resource reading group with a different special education teacher for three of the 1-min intervals observed by data collectors (i.e., left early). Reggie missed 186 intervals across six observation days (3 baseline, 3 intervention) due to in-school mental health therapy and was absent from school for one full intervention day. Kevin was absent for 4 days of observation. All students were present for at least three sessions of each condition.

Teacher praise statements

Ms. Duncan displayed zero BSP and a low rate of general praise ($M = 0.03$ per min, range = 0.00–0.09/min) with a downward trend in baseline (see Figure 1). Her rate of BSP increased in the initial BSP intervention phase ($M = 0.19$/min, range = 0.09–0.35) with a positive trend and her general praise also increased in level with stability ($M = 0.06$/min, range = 0.02–0.09). After a decline of BSP on her fourth intervention day (BSP $k = 4$), her special education coteacher reminded her to increase her rate, which might partially account for her highest rate of BSP ($k = 16$) occurring in the next observation. Ms. Duncan's rate of BSP returned to near-baseline levels ($M = 0.004$/min, range = 0.00–0.02) when teachers withdrew the BSP intervention, and her general praise decreased to levels lower than baseline ($M = 0.008$/min, range = 0.00–0.04). In B_2, when reintroducing the

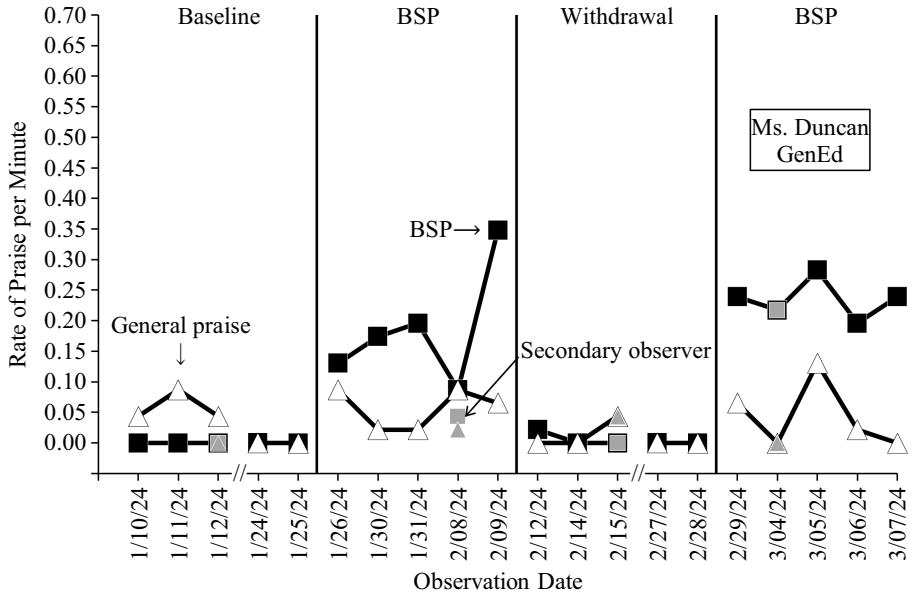

FIGURE 1
Ms. Duncan's (general education teacher) rates of general and behavior-specific praise (BSP) during 46-min literacy observations.

teacher-delivered BSP intervention, her use of BSP increased immediately and dramatically ($M = 0.23$/min, range = 0.20–0.28) with greater stability compared to B_1. Her rate of BSP during each observation in the second intervention phase met our criterion rate of 0.20 per minute (at least one BSP every 5 min). Her general praise rate also rose in the second intervention phase compared to baseline and withdrawal phases ($M = 0.04$, range = 0.00–0.13).

Ms. Winger (see Figure 2) displayed stability in baseline with a low rate of BSP ($M = 0.06$/min, range = 0.02–0.11) and general praise ($M = 0.07$/min, range = 0.04–0.11). Ms. Winger had an immediate large magnitude increase in her use of BSP with an accelerating trend ($M = 0.44$/min, range = 0.30–0.67) and her rate of general praise also increased ($M = 0.23$/min, range = 0.07–0.39). When withdrawing the use of BSP, Ms. Winger's rate of BSP ($M = 0.03$/min, range = 0.00–0.07) and general praise ($M = 0.08$/min, range = 0.04–0.11) returned to near-baseline levels with a decreasing trend. With the reintroduction of teacher-delivered BSP, Ms. Winger's rate of BSP again increased immediately and dramatically to an average of 0.36/min (range = 0.26–0.50) with stability and higher than our criterion of 0.20, though not as high as the average in B_1. Her rate of general praise also increased to an average 0.17/min (range = 0.11–0.24), less than B_1 but greater than baseline and withdrawal. There was no criterion set for general praise.

Student on-task behavior

For Veronica's baseline data (Figure 3), she had an overall negative trendline with 56.0–87.0% of intervals on-task ($M = 70.5\%$ of intervals on-task). After BSP was introduced in the first condition change, she had an immediate level increase of 31.5% of intervals on-task. Her on-task behavior during the first intervention condition was much higher compared to baseline and had an accelerating trend ($M = 94.4\%$, range 87.5–100.0% of intervals). When the teachers withdrew their use of BSP, on-task behavior returned to baseline levels with a decelerating trend ($M = 54.5\%$ of intervals, range 51.2–60.5%). The final intervention condition yielded an immediate dramatic level increase again, with a slightly accelerating trend ($M = 97.0\%$, range 93.3–100.0%). One data point in each intervention condition had on-task behavior at 100.0% of intervals.

Archie's baseline (Figure 4) had a slight negative trend in on-task behavior ranging from 65.0 to 86.4% of intervals ($M = 73.1\%$). When BSP was implemented, he had a positive level change with an accelerating trend. Though four of his data points overlapped with data from A_1, the trend was accelerating and the mean was 6.5% higher ($M = 79.6\%$ of intervals on-task, range = 0.50–95.7%). When the BSP intervention was withdrawn, Archie's on-task behavior immediately and dramatically dropped far below baseline levels. While there was a positive trend, his on-task behavior was significantly lower than both intervention conditions ($M = 32.4\%$, range = 8.7–58.7%). When reintroducing BSP, Archie's on-task behavior rose dramatically from 23.9% (final withdrawal date) to 78.0% and continued three more days with a strong positive trend ($M = 81.8\%$, range = 59.0–100.0%).

Reggie's baseline (Figure 5) had higher variability with a slight decelerating trend ($M = 58.8\%$ of intervals, range = 35.0–76.9%). When BSP was introduced in the classroom, his on-task behavior jumped higher than baseline but continued a negative trend for the first 3 days before leaping to 97.8 and 95.7% for the last 2 days of intervention ($M = 80.0\%$, range = 54.5–97.8%). Reggie's lowest on-task behavior on the third day of teacher-delivered BSP intervention was impacted by fewer intervals available for observation due to his attending mental health counseling. Without this outlier, his mean changed to 86.4% of intervals. In the withdrawal condition, Reggie's on-task behavior returned to baseline levels with a decelerating trend ($M = 57.5\%$, range = 48.5–67.4%). When the intervention was reintroduced, Reggie had a large level change and averaged higher than the first intervention condition

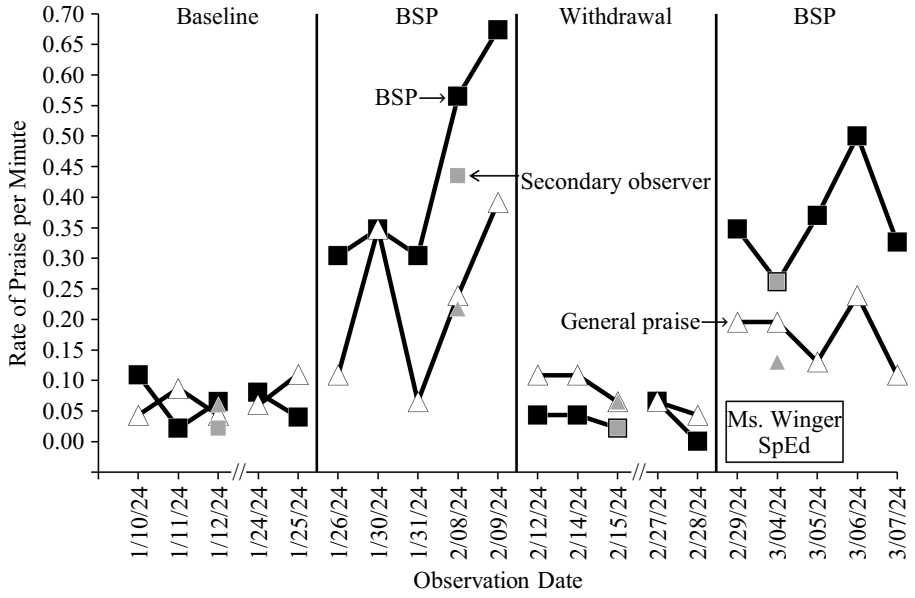

FIGURE 2
Ms. Winger's (special education teacher) rates of general and behavior-specific praise (BSP) during 46-min literacy observations.

($M = 84.5\%$ of intervals, range = 66.7–97.6%). Again, his lowest on-task behavior day was also a mental health counseling day with reduced exposure to the intervention; without this outlier his average percentage of intervals on on-task behavior would have been 90.4%.

Baseline on-task behavior for Kevin (Figure 6) was mostly stable around the average 77.5% of intervals (range = 70.0–92.3%). He had a positive level change when BSP was introduced and on-task behavior stayed high with a slight decreasing trend ($M = 95.2\%$, range = 91.3–100.0%). In withdrawal, Kevin's on-task behavior dropped to below baseline with a decreasing trend ($M = 56.5\%$, range = 45.7–65.2%). When the BSP intervention was reintroduced, there was an immediate and significant level increase with stable responding at a much higher percentage of intervals of on-task behavior ($M = 95.2\%$, range = 93.5–97.8%).

All four students demonstrated a functional relation between the introduction of BSP and changes in their on-task behavior percentage of intervals. The BC-SMD estimate for student on-task

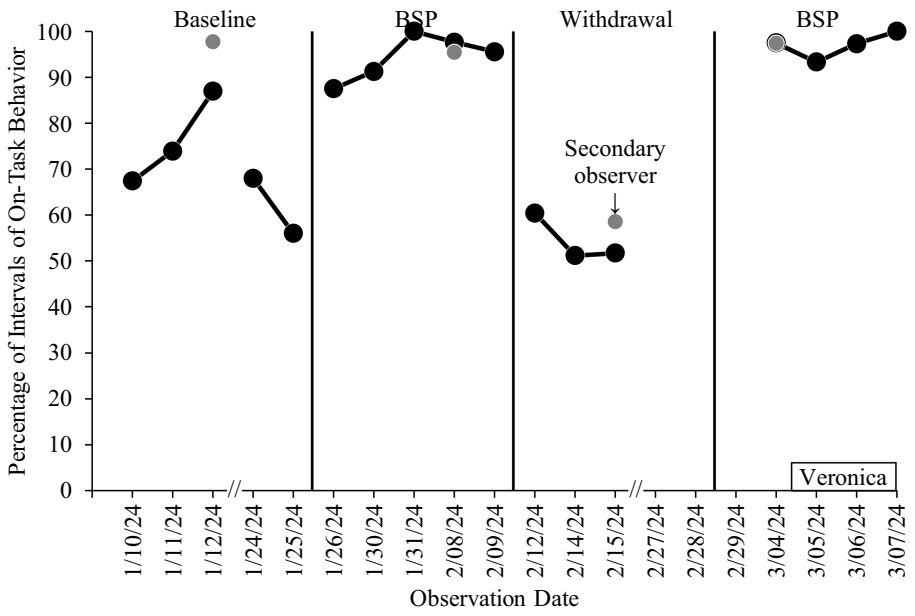

FIGURE 3
Veronica's on-task behavior percentage of 1-min momentary time sampling intervals across 46-min literacy observations.

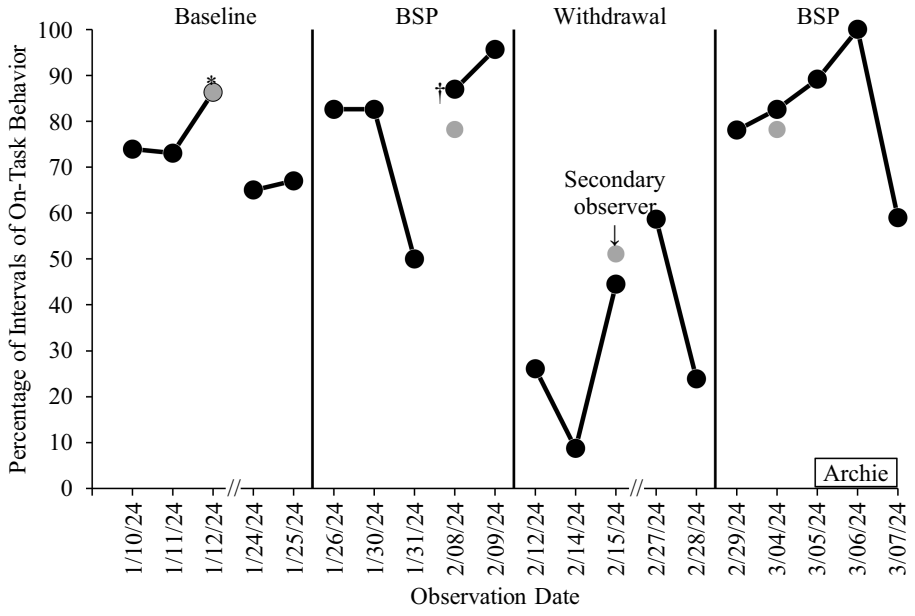

FIGURE 4
Archie's on-task behavior percentage of 1-min momentary time sampling intervals across 46-min literacy observations (* = start of token board; † = end of token board).

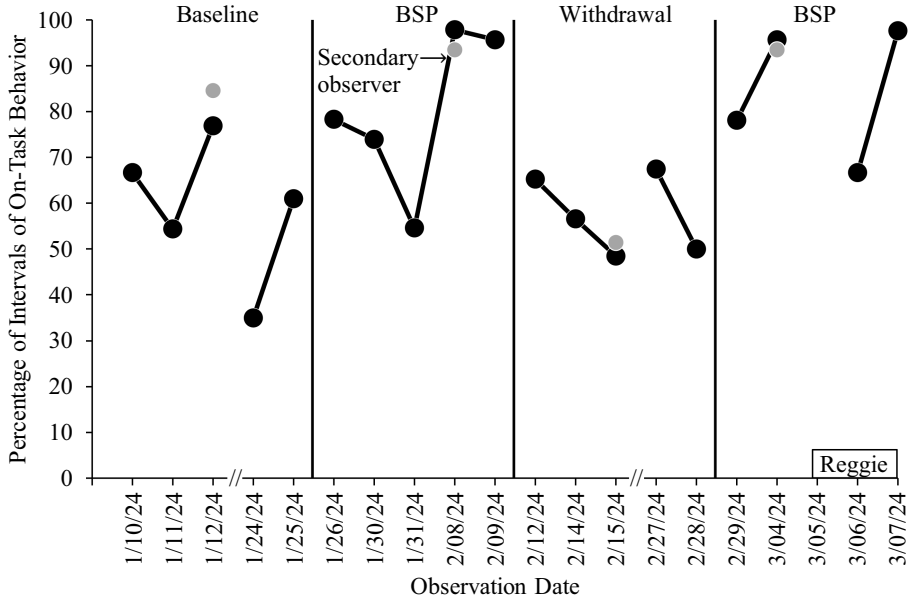

FIGURE 5
Reggie's on-task behavior percentage of 1-min momentary time sampling intervals across 46-min literacy observations.

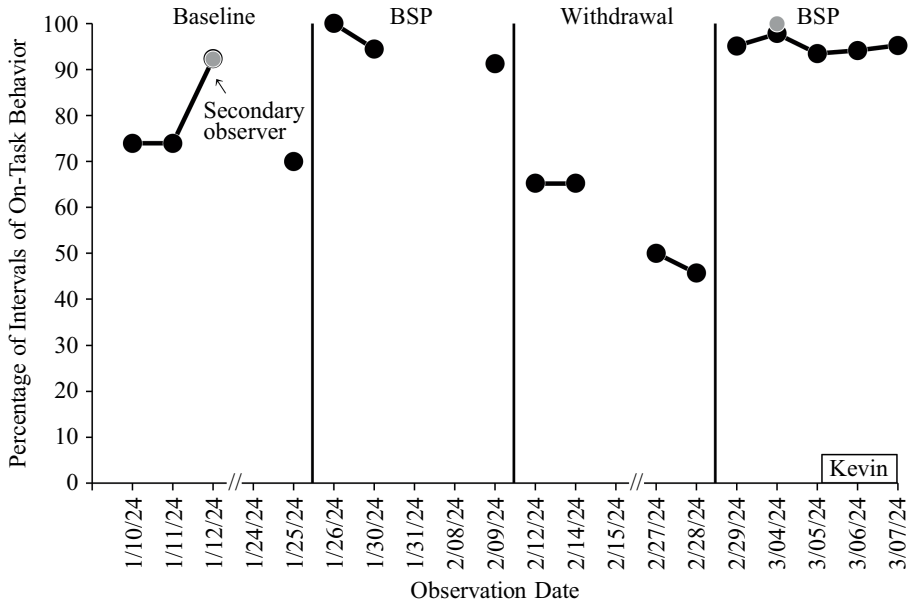

FIGURE 6
Kevin's on-task behavior percentage of 1-min momentary time sampling intervals across 46-min literacy observations.

behavior was 1.8989 with a standard error 0.3598 and 95.0% CI of [1.1642, 2.6336]. This represents a large effect size for BSP on student on-task behavior.

Social validity

Pre-intervention results of the IRP-15 for teachers averaged 75.5 (75 and 76 for the special and general education teachers, respectively) out of 90. Post-intervention scores increased to an average of 88.0 (86 and 90, general and special education teachers), an average increase of 12.5, indicating intervention expectations were exceeded. A similar trend was seen in student social validity ratings on the CIRP. Pre-intervention scores ranged from 17 to 40 out of 42 ($M = 29.5$) and at post-intervention, ranged from 34 to 42 ($M = 40.0$) with three maximum scores, an average increase of 10.5, which indicated expectations were exceeded. See Table 4 for individual adult and student social validity results.

TABLE 4 Social validity results by participant and condition.

	CIRP[a]			IRP-15[b]		
Participant	Pre	Post	Δ	Pre	Post	Δ
Veronica	34	42	8			
Archie	27	42	15			
Reggie	11	42	25			
Kevin	40	34	−6			
Ms. Duncan (general education teacher)				75	86	11
Ms. Winger (special education teacher)				76	90	14

IRP-15, intervention rating profile (Witt and Elliott, 1985); CIRP, children's intervention rating profile (Witt and Elliott, 1985). [a]CIRP scores (student) can range from 7 to 42, with higher scores indicating higher social validity. [b]IRP-15 scores (adult) can range from 15 to 90, with higher scores indicating higher social validity.

Discussion

In this study we measured the impact of a BSP intervention on student on-task behavior in response to the call for more BSP studies with at least three student participants, contributing to the BSP literature base of studies to determine if BSP can be considered an EBP (Royer et al., 2019). Teacher-delivered BSP was delivered to all students classwide, in small groups, and individually (the latter two audible to all students), though we did not count the praise statements given specifically to target students in the study. Caldarella et al. (2023) found BSP statements increased on-task behaviors for target students and the whole class. Target students' on-task behavior was markedly higher when BSP was intentionally in place compared to baseline and when BSP was withdrawn, suggesting a functional relation for the four students between the dependent variable and introduction of BSP. With higher rates of BSP present in the classroom and the focus on positive, expected behaviors, the overall focus in the classroom thus shifted to noticing positive and on-task behaviors, encouraging all students to self-reflect on their behavior choices when hearing other students praised for meeting classroom expectations. By increasing on-task behavior, students engaged more with the general education curriculum and, in theory, would perform better on assessments.

Teacher results

During each intervention phase the rates of BSP for Ms. Winger, the special education teacher (B_1 $M = 0.42$/min, B_2 $M = 0.36$/min), outpaced Ms. Duncan, the general education teacher, (B_1 $M = 0.18$/min, B_2 $M = 0.24$/min). This could be partly due to Ms. Winger's experience, specialty in special education, or her focus was behavior goals within the IEP to provide students access to the general curriculum. Thus, it is also possible Ms. Winger was more enthusiastic about trying a new intervention to support students who needed more than Tier 1 was providing.

Additionally, this study empowered the two coteachers with a skill that will help them prevent challenging and disruptive behavior (Ennis et al., 2018). Increasing their use of BSP should help them both continue to shift from a traditional reactive approach to classroom management (that typically does not teach students how to meet teacher expectations and instead leads to resentment, more disruption, and higher rates of school dropout; O'Handley et al., 2020) to a proactive prevention model, where BSP has a central role in reinforcing classroom behavior expectations (Pérez et al., 2023). BSP, along with use of additional low-intensity strategies such as precorrection, instructional choice, and high rates of opportunities to respond, can help teachers build their classroom self-efficacy and prevent challenging student behavior, creating a positive, productive, safe learning environment less likely to lead to teacher burnout (Lane et al., 2018; Lanza, 2020; Oakes et al., 2021).

Even though the general education teacher's rate of BSP in B_1 only met the 0.2/min criterion during the final session, there was still an increase in student on-task behavior. This further demonstrated the power of even a small amount of BSP. For example, it is possible Ms. Winger's BSP from across the room, which averaged 0.302/min, was overheard by Ms. Duncan's groups as they rotated, and thus, in combination with Ms. Duncan's lower rate of BSP was sufficient to remind students of expectations and reinforce those behaviors meeting expectations.

During baseline phases, Ms. Duncan was more likely to engage in general praise rather than BSP, but rates were low. Scott et al. (2017) found across 6,752 observations over 7 years that teachers rarely engaged in positive feedback, let alone general or behavior specific praise, about once every 7.5 min in elementary, once every 16.4 min in middle school, and only once every 30.3 min in high school. It is imperative to increase the rate of praise in classrooms given how powerful (immediate, large magnitude changes in student on-task behavior) a low-intensity strategy such as BSP can be toward developing a positive, productive, safe learning environment. Additionally, when classrooms are full of positivity, encouragement, and praise, teachers may be more likely to stay in their current positions and less likely to consider leaving (Brunsting et al., 2023), helping to reduce teacher attrition.

As a low-intensity strategy to support classroom behavior, the value of using BSP cannot be understated and is worth repeating. Using BSP is free, with no additional cost or preplanning (once BSP becomes a habit) for teachers to implement. Teachers can easily verbally recognize expected behaviors when observed, increasing the likelihood those behaviors will occur more often when students find the attention reinforcing. Teachers must know their students well and customize BSP delivery, such as delivering praise privately (verbally or by written praise notes) to students who would find the public attention aversive. By shifting from reactive classroom management plans to recognizing behavioral expectations met and ignoring minor misbehavior, teachers are empowered to prevent challenging behavior and no longer need to focus on using ineffective punishment strategies.

Student results

Overall, teacher-delivered BSP positively influenced on-task behavior across students, with variations of effect possibly due to individual circumstances (e.g., disability, perceived value of BSP) and intervention dosage (e.g., student absences, classwide BSP statements heard). Although there was some overlap in student on-task behavior between baseline and the introduction of BSP, there was no overlap between withdrawal and reintroduction conditions, and only Reggie had overlap between B_1 and A_2 – there are clear level and trend changes between when BSP was present versus not. Veronica had the clearest functional relation of the four students, as her on-task behavior in both intervention conditions increased significantly and fell below mean baseline level when BSP was withdrawn.

Archie's baseline to first intervention condition data overlapped but only due to one extreme value in each condition. That difference in level, with the significant drop in on-task behavior when BSP was withdrawn and the significant increase when BSP was reintroduced established a functional relation between teacher-delivered BSP and his on-task behaviors. When the token board was introduced during baseline (the one extreme value mentioned), he did have an increase in on-task behavior. However, because the token board was only implemented for half a month, three observations in A1 and three in B_1, it is unclear to what degree the token board contributed to his improved on-task behavior for the first two intervention sessions, especially given the last two sessions in baseline had the token board in place but had the lowest percentages of on-task behavior. The change from low on-task behavior (with token board in place) to increased on-task behavior when BSP was first introduced, along with the level change between A_2 and B_2 without the presence of the token board and the demonstration of effect when BSP was withdrawn, contributes to the determination of a functional relation for Archie.

Reggie's data had greater variability while still having clear highs in on-task behavior during BSP intervention conditions compared to clear lows in baseline and withdrawal conditions. This variability could be due to reduced dosage of BSP based on his reduced class time due to mental health counseling. Additionally, outside mental health needs could have tempered his response to the BSP low-intensity intervention. However, when comparing his mean level of on-task behavior across all four conditions, a functional relation becomes clearer with a pattern of alternating significant differences (A-B-A-B means = 58.8, 80.0, 57.5, 84.5%).

Kevin had a much higher baseline percentage of intervals of on-task behavior compared to the three other students, despite having the highest externalizing score on the SRSS-IE. Kevin also was absent the most, impacting his received dosage of BSP in the classroom which we expected to influence his on-task behavior, yet he had the most consistently high on-task behavior percentages of intervals of all four students. Like the other three students, when BSP was withdrawn, Kevin's on-task behavior fell and then rose again when the intervention was reintroduced and stayed high, suggesting a functional relation between teacher-delivered BSP and his on-task behavior.

The student results are similar to Madsen et al. (1968) where the introduction of teacher-delivered BSP was also responsible for improved student behavior (reduced inappropriate behavior) after a brief BSP training and minimal coaching (suggestions for specific situations observed). Houghton et al. (1990) also found increased on-task student behavior when BSP was in use, establishing a functional relation across a multiple baseline design with four secondary school students. Improved student on-task behavior was also present in van der Mars (1989). Haydon and Musti-Rao (2011) found decreased rates of disruptive behavior per min when BSP was used after a 40-min teacher training similar to our study's 30-min training, but only across two eighth grade math classrooms in a multiple baseline design, precluding determination of a functional relation. Authors also found a significant decrease of teacher reprimands when the BSP intervention was in place, a variable not measured for this study, but a teacher behavior noted anecdotally to occur frequently in baseline and less so throughout the study. Future researchers might consider measuring the use of teacher reprimands, often relied on by teachers for managing their class, to investigate if BSP reduces the need for such reactive procedures. Hollingshead et al. (2016) found similar results to our study in improved on-task behavior when teachers implemented BSP after a brief 30-min teacher training as in our study, and similar to Hayden and Musti-Rao saw a reduction in teacher reprimands as well. Notably, Hollingshead et al. (2016) mean baseline on-task behavior was lower (52.6% of intervals) compared to our baseline on-task behavior averaging closer to 70.0% across students, which might have more easily allowed for an effect to be demonstrated, though no functional relation was establish because the withdrawal condition only had two observations.

It was interesting to note how our four student participants' percentage of on-task behavior fell below baseline average levels when the BSP intervention was withdrawn. We suspect the withdrawal of BSP had a temporary effect of lowering on-task behavior as the students anticipated the schedule of BSP reinforcement that was no longer there, similar to how intermittent schedules of reinforcement for problem behaviors are the strongest and hardest to disrupt (Cooper et al., 2020). It could also simply be on-task behavior, as a reversible behavior, responds to whatever students find reinforcing and when removed students experienced disappointment. Since most young students find teacher attention reinforcing, when BSP was withdrawn after students became accustomed to the positive environment it established, perhaps the motivation to continue working in the lesser-positive environment was reduced. If true, behavior-specific praise could be a powerful strategy to use at Tier 1 for all students to establish and maintain a positive, productive, safe learning environment.

Limitations

Results should be interpreted with the following limitations in mind. First, we did not collect maintenance or follow-up data. Without maintenance probes, we cannot determine if the impact of BSP on student on-task behavior was maintained long-term. Future researchers should see if teachers maintain their positive trends in using BSP over extended time and if student on-task behavior maintains at higher levels. Additionally, replication studies are needed to determine how this study would generalize more broadly, given it was limited to a specific set of second grade coteachers at a rural school during literacy instruction. Future research should replicate this design in other settings (e.g., upper elementary, middle school, high school), and across different content areas to determine how well BSP works for whom under what conditions.

A second limitation of this study was student absences, potentially masking even greater impacts of BSP. Kevin missed several days throughout phases due to non-academic barriers such as lice and

eviction. Veronica had a slightly smaller dosage due to leaving a few minutes before the last interval for her resource literacy instruction. Reggie missed upwards of 40 min of instruction for mental health counseling through an in-school provider. He missed 90 intervals out of 138 intervention intervals across 3 days. Although teachers anecdotally reported using the intervention throughout the day, the transition back from counseling and the limited dosage could have reduced the impact BSP could have had on these students' on-task behavior.

Both teachers taught second grade reading and were coteaching partners. One threat to internal validity was the Hawthorne Effect, wherein participants could be influenced to change behavior simply by the presence of the observers (Ledford and Gast, 2024). That is, teachers may have waited until days of direct observation data collection to implement BSP, versus using BSP every day, or if they were implementing BSP every day they might have made extra effort on days observers were present. To reduce this possibility, observers frequently visited the classroom after consent was obtained and before baseline was collected to help teachers feel more at ease with the additional adult's presence. The training also naturally embedded opportunities for rapport building.

We tested the effects of BSP in the literacy block of one cotaught classroom where each teacher worked with a small group of students while the rest of the class worked independently, and so we encourage future researchers to examine the use of BSP as a strategy in various settings, such as other literacy contexts (e.g., whole group cotaught instruction, one general education teacher, one special education resource or special day class), as well as across other academic subject areas and in middle and high school settings. Such studies would help determine the extent to which BSP results in this study generalize to what conditions for which students.

Future directions

While data appear to indicate a functional relation between the introduction of BSP and increased student on-task behavior, and we attempted to control for history and maturation threats, we cannot say with absolute certainty BSP caused students to be more on task. Student social validity data showed dramatic increases to maximum scores from pre- to post-intervention for three out of four students but decreased for the fourth student despite improved on-task behavior. Future researchers should consider interviewing students to determine the desirable features of praise, delivery modality, and to what students attribute their improvement in on-task behavior. Floress et al. (2024) reviewed literature about praise in middle and high schools and identified three studies that included assessment of student praise preferences, coming to the same conclusion as Schneider et al. (2020; published after Floress et al., 2024 concluded their literature search) who used a survey of 511 middle school students and found most preferred to receive quiet praise. Deeper qualitative interviews across grade levels may further illuminate patterns that could help teachers decide when and how best to deliver praise to students of different ages. Additionally, we did not collect data on the rate of teacher corrections or reprimands, so we cannot say if they stayed consistent or decreased, changes of which could be partially responsible for observed changes in on-task behavior when negatively correlated to increased BSP. Caldarella et al. (2020) and Floress et al. (2022) investigated praise to reprimand ratios across elementary, middle, and high schools in rural, suburban, and/or urban settings. Author teams found praise led to more on-task behavior than reprimands did, and that teachers more frequently use general praise than BSP. Although Floress et al. (2022) included rural schools in their sample, results were not disaggregated by geographic area. Therefore further research on praise vs. reprimands would be beneficial when focused specifically on rural schools, the setting where this current study took place. Such data, features of praise, student perception, praise to reprimand ratios, and settings in rural schools, may help the field determine which student attributes predict for whom BSP will be a preferred strategy (e.g., students who find teacher attention reinforcing, so teachers can be careful to give attention to desired behaviors [BSP] and not accidentally reinforce inappropriate behaviors with reprimand attention) to assist teachers determining the best-aligned strategy when a student needs support beyond Tier 1.

Replication of this study with more generalization observations across the school day would help determine if teachers were using BSP outside of the literacy time block observed by data collectors. Relatedly, observation probes after future studies conclude B_2 would help researchers understand the degree to which teachers maintain BSP over time. In this study, we showed teachers can increase praise after a short training without follow up coaching, though we were prepared to do so as previous studies have shown it was necessary, and so future trainers should consider a tiered training model (Gage et al., 2018).

Additional replication could target more significant behaviors as well, given student behaviors were relatively mild in this study, per their baseline percentage of intervals on task. Future studies should continue to look at the potential for BSP to shape adequate levels of on-task behavior toward high levels (replications), and how effectively BSP, in combination with other strategies (e.g., as a component of a Tier 3 intervention), can shape more extreme behaviors for students who are more significantly off-task. Another avenue for replication studies would be to extend BSP investigations with more diverse cultural and ethnic groups, both teachers and students. This study was conducted in a rural school with only White teacher and student participants, and replication studies should consider similarly rural settings while including greater diversity (e.g., race, ethnicity, teacher gender) in student and teacher participants for broader perspectives on BSP interventions.

Implications for practice

This study showed BSP has potential benefits when used in elementary coteaching classrooms, with replication studies needed to establish its generalizability to additional contexts. As a "low-intensity" strategy, BSP appeared well-suited for addressing low-intensity behaviors and more research would be needed to determine its effects on more severe behaviors of concern. As always, practitioners should match behavioral interventions to the intensity and function of student behaviors. BSP seemed to contribute to an overall classroom structure focused on positive behaviors from students with more positive teacher-student interactions. When BSP was withdrawn, student on-task behavior decreased, lending evidence to BSP as a Tier 1 low-intensity strategy for consistent use throughout each school day to maintain a positive, productive, safe learning environment (Lane et al., 2015). Practitioners should therefore focus on implementing BSP consistently and at high rates to effectively reinforce the prosocial behaviors they want to see occur more often in their classrooms.

There is great opportunity within coteaching settings for teachers to coach and model skills such as low-intensity strategies like BSP for each other. Without direction from the research team, the special education teacher coached the general education teacher after intervention session 4 on February 8 to use BSP more frequently. This was a natural opportunity for coteachers to align practices and enhance their coteaching relationship through communication, showing how coteachers can encourage best practices in the classroom, such as the delivery of low-intensity strategies like BSP as part of regular instruction for all students (Friend and Cook, 2017; Samuel, 2020). Teachers assigned to coteach must build a relationship and develop an openness to share feedback and discussion on student performance and teacher behaviors.

Lastly, for teacher educators it is critical to equip preservice and alternatively certified teachers with effective strategies and to model those strategies across settings. Many teachers in Christofferson and Sullivan's (2015) study of preservice teacher classroom management training reported their experiences as "inadequate" or "ineffective." They also reported frequently having isolated courses in behavior management (Christofferson and Sullivan, 2015). However, by giving preservice or alternatively certified teachers multiple examples and opportunities to see and practice low-intensity strategies that increase academic engagement and prevent challenging behavior, they develop a more fluent use of effective practices. For example, Chen (2021) conducted a pilot study using virtual reality simulations with frequent, real-time audio feedback for the teachers to practice classroom management, reinforcing that frequent real-time feedback positively shapes teacher behaviors (O'Handley et al., 2022). Teacher educators should then intentionally embed classroom management training across courses to better prepare teachers to address challenging behaviors and therefore support retention of teachers in the field.

This study adds to the literature about the potential of BSP as a low-intensity strategy to support classroom management (Lane et al., 2015). By having teachers explicitly focus on and reinforce positive behaviors with BSP, they can shape student behavior toward what is socially acceptable (determined by schoolwide expectations created ideally by all adults within the building along with input from families and students; Lane et al., 2019; Royer et al., 2024a) while also developing a positive classroom environment. The practice of using BSP costs teachers nothing and can be used in conjunction with several other low-intensity behavior strategies such as precorrection, opportunities to respond, active supervision, and others. BSP, in conjunction with other strategies, can reduce and prevent disruptive behaviors that distract from the learning process and increase academic engaged time.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by University of Louisville Institutional Review Board. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

Author contributions

NN: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. DR: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – review & editing. JH: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. AP: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/feduc.2024.1445523/full#supplementary-material

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