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Class-Wide Positive Behavior Support in Preschool: Improving Teaching Implementation Through Consultation

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Concern exists over the number of young children who display challenging behavior, particularly in light of the long-term negative effects of that challenging behavior. An estimated 10 to 20% of preschool-age children exhibit significant challenging behavior (Campbell, 1995; Lavigne et al., 1996; Webster-Stratton & Hammond, 1998), and estimates are higher for children with risk factors, such as those living in low-income families or having developmental delays (Kaiser, Cai, Hancock, & Foster, 2002; Qi & Kaiser, 2003). The long-term negative effects of problem behavior displayed by young children are well documented (Dodge, 1993; Dunlap et al., 2006; Kazdin, 1985). Children ages three to six who display challenging behavior are more likely to experience persistent peer rejection and negative family interactions (Coie & Dodge, 1998; Patterson & Fleishman, 1979), be disciplined by school professionals (Strain, Lambert, Kerr, Stragg, & Lenker, 1983), experience school failure and drop out (Kazdin, 1993; Tremblay, 2000), and encounter the juvenile justice system (Dishion, French, & Patterson, 1995; Reid, 1993). Young children with challenging behavior are also at a higher risk for substance abuse, fatal accidents, divorce, unemployment, psychiatric illness, and early death (Coie & Dodge, 1998; Kazdin, 1985).

Preschool teachers report children's challenging behavior as their greatest concern (Alkon, Ramler, & MacLennan, 2003; Joseph & Strain, 2003), but estimates show that fewer than 10% of young children who show early signs of problem behavior receive services (Kazdin & Kendall, 1998). These data suggest that preschool teachers do not have the training or resources to implement research-based strategies. The need for effective and efficient behavior support in early childhood is apparent, particularly in light of the long-term negative effects of early problem behavior.

Positive Behavior Support

Positive behavior support (PBS) is a proactive prevention program that provides assessment driven, comprehensive support that focuses on redesigning environments to reduce problem behaviors and increase adaptive, pro-social behaviors (Horner, 2000; Powell & Dunlap, 2006). There is a strong research base to support the use of PBS in elementary, middle and high school educational environments and its adaptation to preschool settings shows promise (Conroy & Brown, 2004; Fox, Dunlap, & Powell, 2002; Stormont, Lewis & Beckner, 2005).

PBS focuses on creating consistent, predictable, positive and safe environments for all children. At the classroom level, key features of PBS include: (a) careful planning of the physical environment, schedule, and materials (b) teaching students about routines and expectations, and (c) acknowledging children for engaging in appropriate behavior (Fox, Dunlap, Hemmeter, Joseph, & Strain, 2003). The current study targets key classroom-level PBS skills and strategies within a preschool environment.

Classroom Consultation

There is growing evidence to support the use of consultation to strengthen teachers' management of young children with challenging behavior (Alkon et al., 2003; Duda, Dunlap, Fox, Lentini, & Clarke, 2004; Benedict, Horner, & Squires, 2007). When teacher's received support from a mental health consultant their self-efficacy and competence increased (Alkon et al., 2003) and children's expulsion rates decreased (Gilliam & Shabar, 2006). Teachers have also reported a high level of satisfaction with consultation procedures and outcomes (Duda et al., 2004; Benedict et al., 2007).

In an experimental analysis of PBS consultation, Benedict et al. (2007) evaluated the impact of consultation on teachers' implementation of key universal PBS practices and on student problem behavior in a preschool environment. A clear relationship between consultation and teachers' implementation of universal PBS practices was demonstrated across four classrooms but student rates of problem behavior were low prior to, and following, intervention.

The current study seeks to replicate and extend the research conducted by Benedict et al. (2007) and add to the literature base on consultation practices and on implementing PBS in early childhood settings. The following specific research questions were addressed:

(a) Is there a functional relationship between PBS consultation and (a) teachers' implementation of PBS practices and (b) students' academic engagement in a preschool environment?
(b) Do teachers' perceptions of student behavior change following PBS consultation

Method

Participants and Settings

Four preschool classrooms within one early childhood education center in southern Nevada participated in the study on the basis of administrator nomination, teacher interest and assessment of critical features of universal PBS being implemented. Early in the school year, an overview presentation on positive behavior support was provided to the teachers and administrators. Following the presentation, teachers were given an opportunity to commit to implementation in their classroom. All teachers elected to participate in the process.

Prior to intervention, researchers completed the *Preschool-wide Evaluation Tool* (Pre-SET; Horner, Benedict, & Todd, 2005) in each of six preschool-age classrooms, resulting in a score for the mean percentage of universal PBS practices implemented. The Pre-SET was modified from the *Schoolwide Evaluation Tool* (SET; Sugai, Lewis-Palmer, Todd, & Horner, 2001) to include recommendations for implementing PBS in preschools (Benedict et al., 2007). Specifically, the Pre-SET measures nine critical categories of universal PBS in preschool settings, including: (a) expectations defined, (b) behavioral expectations taught, (c) appropriate behavior acknowledged, (d) organized and predictable environment, (e) additional supports, (f) family involvement, (g) monitoring and decision-making, (h) management, and (i) program and district-wide support. Four classrooms were selected to participate in the study based on administrator nomination, teacher interest and Pre-SET results. The remaining two classrooms received information on positive behavior support implementation but did not receive classroom observations or consulting. Each of the four classrooms selected to participate implemented less than 25% of the critical features of universal PBS on the Pre-SET. The classrooms served children from 33 to 63 months of age. See Table 1 for demographic information by classroom.

All consultation and data collection were conducted in the classroom. Consultation sessions took place at a time when children were not present. Data collection occurred during circle time in each classroom.

Intervention Components

Consultation. PBS consultation included an initial meeting and subsequent consultation sessions between the PBS consultant and the classroom teacher. PBS consultants included the first author and graduate-level students in early childhood special education. The PBS consultation model employed in this study closely replicates the model used by Benedict et al. (2007) and is built upon previous published models of consultation (Crone & Horner, 2003; Duda et al., 2004; Fox & Little, 2001; Sugai et al., 2000).

Initial meeting. The initial meeting between the PBS consultant and the classroom teacher was one hour in length and focused on providing information and sharing observations. The PBS consultant's role was to share data from classroom observations (see the measurement section for a description of the data collected), provide information about PBS and assist the teacher in the development of an action plan. The teacher's role was to develop individual goals and action steps for implementing PBS in their classroom.

At the beginning of the initial meeting, the PBS consultant provided the teacher with a researcher-developed binder of training materials targeting three key areas of PBS in the classroom: (a) creating a consistent and predictable environment, (b) implementing effective and efficient transitions, and (c) acknowledging appropriate behavior. The consultant provided a brief overview of each of these areas and the consultation process before sharing classroom data.

Each area included three specific skills, for a total of nine target skills. Creating a consistent and predictable environment included (a) posting three to five positively stated classroom rules with a combination of words and pictures, (b) posting a classroom schedule that includes pictures at students' eye level, and (c) having a classroom matrix that defines behavioral expectations across classroom routines. Implementing effective and efficient transitions included (a) using a transition signal in addition to a verbal signal, providing a warning prior to transitions, and (c) practicing pre-correction (prompting for expected behaviors before challenging behavior occurs). Acknowledging appropriate behavior included (a) using system for acknowledging that is consistent across staff, (b) using a ratio of at least 4 positive statements to every negative statement, and (c) using specific verbal praise following demonstration of appropriate behavior.

The consultant then shared baseline observation data of the teacher's implementation of these nine PBS skills across the three areas. Data were presented in graphical form showing the average percent of skills implemented in each area and on each skill. The consultant emphasized that the data represented a starting point for comparison rather than an evaluative picture. Using the classroom data as a guide, the consultant supported the teacher in completing an action plan that included a priority ranking for target skills. Teachers were encouraged to identify high-priority skills based on what would be most relevant for their classroom and what they would most like to focus on initially.

Finally, given the teacher's priority rankings, the consultant provided targeted information on identified high-priority skills utilizing resources from the supplied binder. The consultant discussed the purpose and key features of target skills, showed participants examples of those skills as they have been implemented in preschool classrooms, and supported the teacher in developing a plan for their own classroom.

Follow-up consultation sessions. Teachers received at least one follow-up consultation session two weeks after their initial meeting. Follow-up consultation sessions began with sharing observation data of the teacher's implementation of the nine targeted key features of classroom implementation. Teachers were given a graph documenting the comparison between their baseline data and data from the past two weeks since their initial meeting or last consultation session.

Teachers were also given written feedback from the consultant on a standardized consultation notes sheet. The consultant filled in a column for each skill documenting 'what looked great'. In collaboration with the teacher, the consultant completed the remainder of the consultation notes sheet including (a) a column indicating whether they had done what they planned to do for each skill, (b) notes about what is working or suggestions for changes, and (c) an updated action plan. The updated action plan focused on no more than three target skills and specified what the teacher and consultant would do by when.

The consultation notes sheet and structured review of data and action planning included specific positive comments about the teacher's implementation of target skills as well as constructive recommendations for moving forward. Consultants, as needed, also reviewed material from the training binder or provided modeling of target skills to teachers.

Follow-up consultation sessions lasted approximately 30 minutes. Each teacher received at least one follow-up consultation session and then was provided with the choice of having additional sessions. Only one teacher elected to have an additional consultation session due to interest and the timing of the study, which ran to the end of the school year.

Measurement

Observers used paper and pencil to record children's academic engagement in a 10-minute observation and teachers' implementation of universal PBS practices in a 15-minute observation consecutively during the same activity. All observers were graduate students in early childhood special education who were trained using classroom-based examples, video, and on-site observations to a minimum level of 90% interobserver agreement prior to beginning formal data collection.

Teachers' fidelity of implementation of universal PBS practices. The dependent variable for teacher behavior focused on the percentage of universal PBS practices implemented across the previously mentioned three key areas and nine specific target skills. Data collectors recorded the presence or absence of target skills across three areas of universal PBS. Data were summarized by the average percent of skills implemented in each area and overall. Fidelity of implementation of target skills and features for universal PBS implementation were observed three times per week in a 15-minute observation directly following observation of child behavior during the same activity.

Children's academic engagement. The dependent variable for student behavior was the percentage of intervals academically engaged. Academic engagement was operationally defined as orienting toward the teacher or a peer; engaging physically or verbally with assigned materials, objects or tasks; contributing to the group; or following directions. Children's academic engagement was measured three times per week in a 10-minute observation directly prior to observation of teacher behavior during the same activity. Engagement was recorded using a momentary time sampling procedure with 10-second intervals. Six students from each classroom were observed for 10 intervals out of the 60-interval observation. Observers rotated through the six students in the class in order throughout the observation session (i.e., each student was observed once during the first six intervals and then the order repeated nine more times). The same six students in each classroom were observed during each session. If a student on the list was absent, data collectors skipped their corresponding intervals.

Teachers' perceptions of student behavior. Teachers' perceptions of student behavior prior to and following consultation were evaluated by asking them individually to circle a number on a 5-point Likert-type scale, where 1 indicated the respondent strongly disagreed with the statement, and 5 indicated that the respondent strongly agreed with the statement for each of the eight questions included in Table 3. The first author analyzed all teacher perception data by calculating the mean score per question across all four participating teachers.

Interobserver Agreement. Two independent observers recorded teacher and child behaviors on 34% of sessions using total percentage agreement. Occurrence-only agreement was also calculated for children's academic engagement.

Teachers' fidelity of implementation of universal PBS practices. For teacher's fidelity of implementation of PBS skills, total agreement was calculated by taking the number of items on which the two observers agreed and dividing by the total number of items. Average interobserver agreement across phases for teacher fidelity of implementation of PBS practices was 99%, with a range from 88.9% to 100%.

Children's academic engagement. For children's academic engagement, percentage agreement was calculated by taking the number of intervals in which the two observers agreed and dividing by the total number of intervals. Occurrence-only agreement was calculated by taking the number of intervals in which the two observers agreed that students were not engaged and dividing by the number of intervals in which either observer recorded that students were not academically engaged. Average interobserver agreement across phases for academic engagement was 97% for total agreement and 86% for occurrence-only agreement.

Experimental Design

A single-subject multiple-baseline design across classrooms examined the effect of PBS consultation on teachers' implementation of universal PBS practices and children's academic engagement.

Baseline. During baseline, no instructions were provided to teachers or children and no training or consultation had taken place. Observations were 25 minutes in length.

Postconsultation. Postconsultation took place at least one day after the initial meeting between the classroom teacher and the PBS consultant. Teachers had received training on target skills, reviewed their baseline data and developed an action plan for their classroom. Follow-up consultation sessions also took place during this phase of the study beginning two weeks after the initial meeting. No instructions were provided to teachers or children during the observations. Observations were 25 minutes in length.

Results

Teachers' Fidelity of Implementation of Universal PBS Practices

Results for teachers' implementation of universal PBS practices are summarized in Figure 1. Asterisks indicate the point at which follow-up consultation sessions took place. Documentation of the percentage of universal PBS practices implemented across sessions shows an increase in implementation following consultation in each of the four preschool classrooms.

During baseline, the Red classroom's teacher implemented an average of 32.26% of universal PBS practices with a range from 12.5% to 50%. The teacher for the Green classroom implemented an average of 32.14% of universal practices with a range from 18.75% to 43.75%. In the Yellow classroom, implementation averaged 17.90% with a range from 0% to 44.44% during baseline. In the Blue classroom, average implementation in baseline was 33.81% with a range from 16.67% to 61.11%. Each classroom had a relatively stable trend of implementation during baseline.

There was a rapid change in the pattern of data (i.e., immediacy of effect) between phases and no overlapping data points (0%) in the Red classroom as well as a decrease in variability. Following consultation, implementation of universal PBS practices in the Red classroom increased to an average of 93.94% with a range from 68.75% to 100%. The last 13 data points in the postconsultation phase for the Red classroom were all at or above 87.5% implementation. Immediacy of effect with no overlapping data points (0%) was also seen in the Green classroom although there was an increase in variability. Postconsultation implementation in the Green classroom averaged 78.75% with a range from 56.25% to 100%.

There was a lower level of change between phases for the Yellow and Blue classrooms than was observed in the Red and Green classrooms. However, there was a clear change in the data pattern between the baseline and postconsultation phases. Changes in the level of implementation were apparent in both classrooms. In the Yellow classroom, implementation during postconsultation averaged 53.01% with a range from 33.33% to 66.67%. There were two overlapping data points for the baseline and postconsultation phases (8.33%). In the Blue classroom, there was an observable change in the level of implementation with the exception of one overlapping data point (3.57%). Implementation following consultation demonstrated an increasing trend and averaged 69.44% with a range from 50 to 77.78%. Between-classroom analyses showed a marked increase in the level of implementation across classrooms following PBS consultation.

Table 2 documents the average change in implementation across teachers for each specific skill measured. Increases were observed within each area of observation and across each subskill. During baseline, teachers implemented the following subskills with the highest levels of fidelity: (a) providing a warning prior to transitions (83.69%) and (b) using a ratio of four positive statements to each negative statement (56.20%). Following consultation, teachers implemented the following subskills with the highest levels of fidelity: (a) having a classroom matrix that includes behavioral expectations for each classroom routine (100%), (b) posting 3-5 positively stated rules with a combination of words and pictures (96.25%), and (c) providing a warning prior to transitions (93.33%). The greatest changes were observed in: (a) having a classroom matrix that includes behavioral expectations for each classroom routine (0% to 100%), (b) using a system to signal transitions (3.41% to 66.55%), and (c) posting 3-5 positively stated classroom rules with a combination of words and pictures (43.94% to 96.25%).

Children's Academic Engagement

Results for children's academic engagement are provided in Figure 2. Asterisks indicate the point at which follow-up consultation sessions took place. Due to the high level of student engagement across classrooms during baseline, results do not document an observable difference from baseline to postconsultation. The percentage of intervals students were engaged increased from baseline to postconsultation in three of the four classrooms but not to a marked degree.

During baseline, students in the Red classroom were academically engaged during 75.40% of intervals with a range from 50.91% to 100%. Following consultation, engagement in the Red classroom averaged 80.92% of intervals with a range from 56.67% to 96.08%. In the Green classroom, baseline engagement averaged 90.15% of intervals with a range from 81.67% to 96.00%. Following consultation, engagement in the Green classroom averaged 87.00% with a range from 63.27% to 94.92%. Engagement in the Yellow classroom averaged 85.04% of intervals with a range from 66.00% to 100%. Postconsultation engagement in the Yellow classroom averaged 90.67% with a range from 88.00% to 96.00%. In the Blue classroom, children were academically engaged an average of 96.55% of intervals during baseline with a range from 90.70% to 100%. Following consultation, students in the Blue classroom were engaged an average of 99.17% of intervals with a range from 96.67% to 100%.

Teachers' Perceptions of Student Behavior

Table 3 shows the results of the questionnaire that was given to all four teacher participants before and then after consultation. Across the first four questions respondents rated the students' desired behavior (i.e., desired outcome increase) similar (M = 4.94) *following* consultation as *before* consultation (M = 4.98). Across the last four questions respondents rated the participants' engagement in problem behavior (i.e., desired outcome decrease) lower (M= 2.25) following consultation than *before* consultation (M = 3.13).

Discussion

This study assessed the impact of PBS consultation on teachers' implementation of universal PBS practices and students' academic engagement in four preschool classrooms. Results extend findings from an earlier study examining the impact of consultation on teachers' implementation and children's problem behavior (Benedict et al., 2007). This study documents a clear and immediate increase in teachers' implementation of universal PBS practices following consultation. High rates of children's academic engagement were maintained and increased slightly in three of the four classrooms following intervention.

There are several limitations of this study that should be noted. First, implementation of a comprehensive model of PBS includes a continuum of supports from primary, universal practices for all children to intensive, individualized interventions for a few students who do not respond to universal or targeted interventions. This research focused solely on universal practices at the classroom-level and did not account for targeted or individualized interventions that may have been in place. Additional research examining the effects of consultation on practices across the continuum would add to the research base.

Second, data were collected at the end of the school year, which prevented additional follow-up consultation sessions as well as the collection of additional data points in the intervention phase. With additional data for the Yellow and Blue classrooms, we could document stronger control of the independent variable. Future investigations may benefit from beginning earlier in the school year when more time will be available to implement practices.

Third, high rates of academic engagement across all four classrooms during baseline may have limited our ability to interpret results and assess the effects of the consultation on student behavior. While academic engagement increased in three of the four classrooms following consultation, the change was not significant enough to demonstrate a functional relationship. Since engagement averaged between 75% and 90% during baseline it is reasonable to expect that there would not be much room for improvement, particularly during a short timeframe. However, teachers' ratings of student behavior did indicate decreases in questions related to challenging behavior

following consultation. Future research should document problem behavior rates as well as academic engagement and target classrooms where students' academic engagement is lower prior to intervention in order to better assess the effects of consultation on student behavior.

Finally, the classrooms sampled may not be representative of classrooms around the country. This study included four preschool classrooms serving children from 33 to 63 months of age within one early childhood education center. Across these four classrooms, 15% of children had individualized education plans.

This study documents the effectiveness of consultation on teachers' implementation of universal PBS practices. As more early childhood programs move toward adoption of tiered interventions for supporting children's appropriate behaviors, effective models for training and supporting staff will become essential. Workshop trainings represent a common format for training staff but offer little in the way of ongoing support and often have mixed results in terms of actual application in the classroom. Given the limited amount of teacher time required and the positive results demonstrated, consultation may provide a viable alternative to workshop trainings.
Consultation models provide hands-on support for teachers, including individualized feedback in their actual classroom. Consultation allows for positive and constructive feedback and provides time for teachers to reflect on classroom practices that may not otherwise be possible. Consultation also allows teachers to ask questions of the consultant or director on how to individualize universal PBS practices within their classroom while maintaining developmentally appropriate practice guidelines and meeting the goals of their program philosophy. Finally, consultation models where teachers receive individualized feedback including data on student outcomes will support teachers in data-driven decision-making and allow them to connect their practices directly with desired outcomes.

Overall participants' agreed that the consultation had a positive social impact on the desired classroom outcomes. Anecdotally, teachers who participated in the consultation model presented here reported appreciation for the individualized feedback and opportunity to ask specific questions. In particular, teachers enjoyed seeing visual graphs of their implementation of target skills over time. The teacher in the Red classroom found the data feedback to be highly reinforcing of her time and efforts.

Consultation represents a viable alternative to workshop trainings to support teachers' implementation of universal PBS practices. Future research examining various models of consultation, including peer consultation and different amounts of support could provide valuable information for building professional development programs.

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Table 1. Demographic Information by Classroom

Classroom	*Teacher-to-child ratio*	*Age range (months)*	*IEP*	*Pre-SET score*
Red	2:18	33-39	2	24%
Green	2:12	33-63	2	24%
Yellow	2:33	52-57	8	15%
Blue	2:29	58-63	2	18%

Table 2. Teachers' Fidelity of Implementation of Universal PBS Practices by Specific Skill

	Baseline	*Intervention*	*% Increase*
Classroom Rules			
3-5 positively stated rules are posted in the classroom at eye level for children with a combination of words and pictures	43.94%	96.25%	52.31%
Classroom schedule includes sequenced pictures of classroom routines, posted at eye level for children	41.67%	71.25%	29.58%
Classroom matrix includes behavioral expectations for each classroom routine	0.00%	100.00%	100.00%
Transitions			
Teachers use a system other than or in addition to a verbal direction to signal transitions (e.g., ring bell)	3.41%	66.55%	63.14%
Teachers provide a warning before the transition for at least one transition (e.g., circle to centers)	83.69%	93.33%	9.64%
Teachers use pre-correction at least once during a transition	24.36%	58.21%	33.85%
Acknowledging Appropriate Behavior			
Teacher uses a classroom acknowledgement system that is consistent across teachers at least once	2.27%	25.00%	22.73%
Teacher uses a ratio of 4 positive statements to each negative statement	56.20%	80.42%	24.22%
Teacher uses specific verbal praise after a child or children demonstrate(s) a posted classroom rule at least once	29.24%	77.50%	48.26%
Overall Total	31.64%	74.28%	42.64%

Table 3. Teachers' Perceptions of Student Behavior

	Pre	*Post*
Desired Outcome: Increase		
The majority of my students are engaged in academic or social play tasks, sitting appropriately (bottom in seat or on floor), and attending to the teacher or materials	5.50	5.50
The majority of my students appear to have a positive affect (e.g., smiling, laughing)	5.75	6.00
For the majority of the day (80% or greater) students are engaged in instruction or appropriate activity (e.g., circle time, snack time, centers)	5.00	5.75
In general, the frequency and severity of the challenging behavior in my classroom is low (i.e., one or less instances of challenging behavior in a day)	3.5	2.67
Desired Outcome: Decrease		
The majority of my students are engaged in challenging behavior and are not attending to the teacher or materials	3.00	1.25
For the majority of the day (80% or greater) I respond to discipline issues (e.g., providing corrective statements) and challenging behaviors	4.00	3.75
In general, the frequency and severity of challenging behavior in my classroom is high (i.e., greater than 5 instances of challenging behavior in a day	3.00	2.25
I am concerned about the frequency and severity of the challenging behavior in my classroom	2.50	1.75

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Figure 1. Teachers' Fidelity of Implementation of Universal PBS Practices

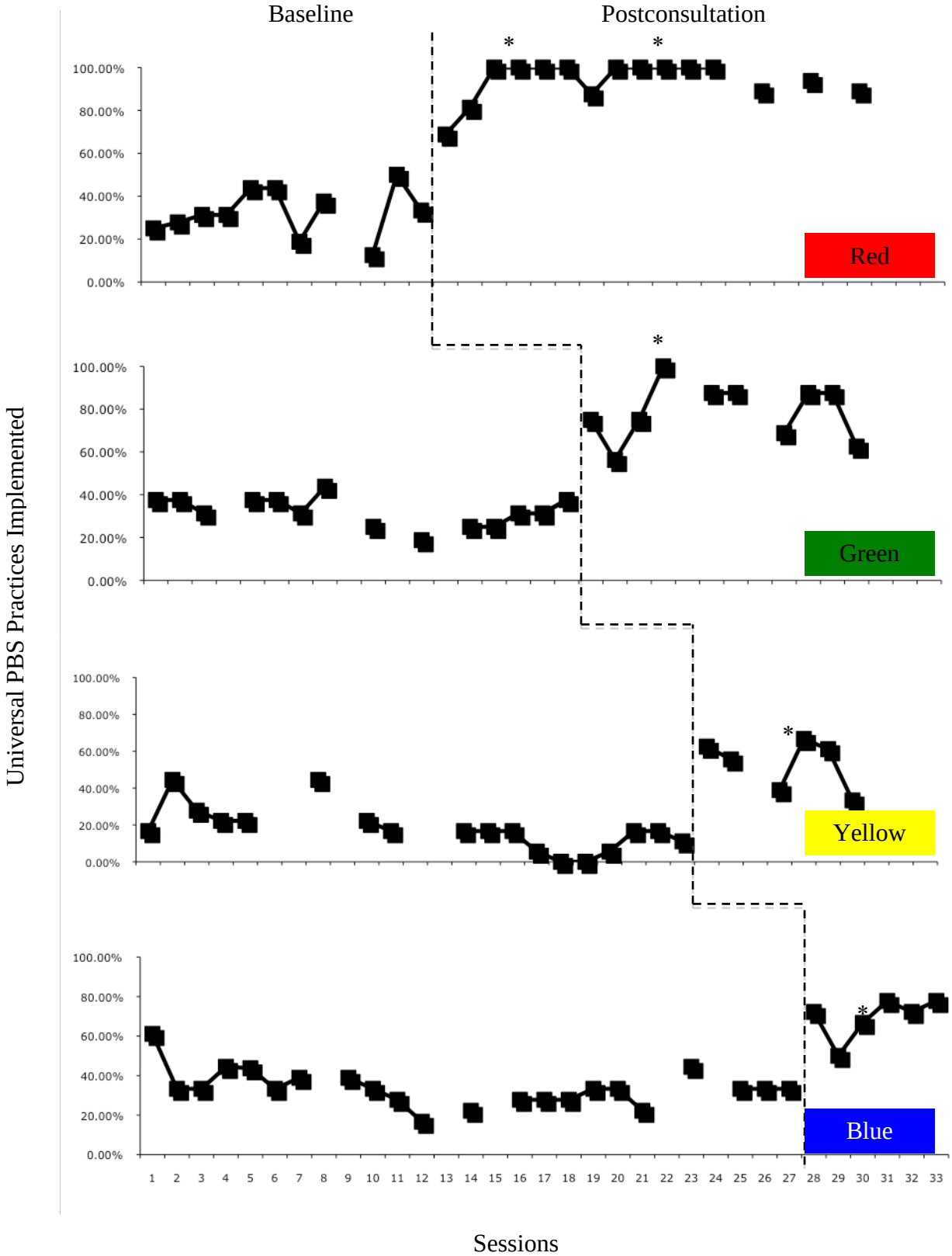

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Figure 2. Children's Academic Engagement