

# Effects of Coaching on Teachers' Implementation of Tier I School-Wide Positive Behavioral Interventions and Support Strategies

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Keri S. Bethune, PhD, BCBA-D<sup>1</sup>

## Abstract

Fidelity of implementation of School-Wide Positive Behavioral Interventions and Supports (SWPBIS) procedures within schools is critical to the success of the program. Coaching has been suggested as one approach to helping ensure accuracy of implementation of SWPBIS plans. This study used a multiple baseline across participants design to examine the effects of coaching on elementary schools teachers' implementation of Tier I SWPBIS with their general education students. After providing the coach with an initial training on the SWPBIS and coaching procedures, four elementary schoolteachers were provided with side-by-side coaching during whole-class group instruction. Results indicated that there was a functional relationship between coaching and improved SWPBIS fidelity scores. Implications for practice included the need to consider selecting an appropriate person to act as the coach, scheduling difficulties, and the inability to standardize the number of opportunities for teachers to demonstrate some of the skills based on variability in student performance. However, utilizing school personnel to act as SWPBIS coaches may be a viable option to build sustainability and integrity of SWPBIS procedures within schools.

## Keywords

coaching, school-wide positive behavior supports, Tier I

School-wide positive behavioral interventions and supports (SWPBIS) is a proactive system of behavior supports that is implemented using a tiered model in many elementary, middle, and high schools (Horner, Sugai, & Anderson, 2010). SWPBIS developed out of positive behavioral interventions and supports (PBIS) for individual students and is based upon the principles of applied behavior analysis (Sugai & Horner, 2006). SWPBIS is a team-based approach where school-based SWPBIS teams are trained in systems change, principles of management, and applications of research-validated instructional and management practices, including development of the SWPBIS plan (Horner et al., 2010). The SWPBIS plan is delivered across three tiers (school-wide, small group, and individual student; Horner et al., 2010), and is a proactive approach to directly teaching, practicing, and reinforcing prosocial behavior (Sugai & Horner, 2006). Benefits of SWPBIS include reduced office referrals, improved school attendance, improved academic achievement, reduced rates of dropouts, and reduced referrals for special education services (Cregor, 2008).

SWPBIS plans are being implemented by an increasing number of school districts, with the majority of states having adopted SWPBIS models as part of their systems-level

school improvement plans (George & Kincaid, 2008). SWPBIS plans have been shown to be more effective than punitive and reactionary approaches to student problem behavior (Lewis & Sugai, 1999). The SWPBIS team is comprised of the leaders and organizers of the SWPBIS system; however, all teachers are expected to implement the basic components of the SWPBIS plan, including (a) teaching students expected behavior, (b) appropriately reinforcing expected behavior, (c) discouraging problem behavior, and (d) accurately recording student data according to the SWPBIS system (Horner et al., 2010). In addition, many core components of SWPBIS have also been found to be evidence-based when applied to classroom settings specifically, including posting, teaching, reviewing, monitoring, and reinforcing behavioral expectations; high rates of opportunities to respond; specific and/or contingent praise;

<sup>1</sup>James Madison University, Harrisonburg, VA, USA

## Corresponding Author:

Keri S. Bethune, James Madison University, MSC 6908, 395 South High Street, Harrisonburg, VA 22807, USA.  
Email: bethunks@jmu.edu

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token economies; and error correction procedures (Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008).

A key component of a SWPBIS plan is the accuracy with which the plan is implemented. When examining training and implementation protocols for SWPBIS, the use of coaches is a core component used to promote the success of the SWPBIS plan (Dunlap, Iovannone, Wilson, Kincaid, & Strain, 2009; George & Kincaid, 2008; Horner et al., 2009; Iovannone et al., 2009; McIntosh, Filter, Bennett, Ryan, & Sugai, 2009; Stormont & Reinke, 2012; Office of Special Education Technical Assistance Center on Positive Behavioral Interventions & Supports, 2010). Sugai and Horner (2006) called for an intentional and sustained coach(es) to act as a link between the trained SWPBIS procedures and the actual implementation of those procedures.

Although instructional coaches have been used successfully to increase implementation rates of academic interventions (Knight, 2005), and SWPBIS coaches are recommended, less research has been completed on the effectiveness of SWPBIS coaches. Horner and Sugai stated that one approach toward building districts' capacity for coaching SWPBIS procedures is to incorporate the coaching duties into the role of existing school personnel (Sugai & Horner, 2006). They went on to recommend that coaches should have experience working with school teams and problem solving. Coaching may need to occur frequently initially, but can be faded as participants are more successful (Sugai & Horner, 2006). However, they also state that additional research is needed regarding the importance of building local coaching capacity (Sugai & Horner, 2006). Simonsen et al. (2010) recommended that special education teachers may be able to serve as models for service delivery within a SWPBIS system, specifically supporting all teachers in implementation of the Tier 1 by providing professional development, consultations, and collaboration.

Kretlow and Bartholomew (2010) found that coaching procedures had some research to support its use with evidence-based practices; however, less has been done examining coaching and SWPBIS implementation. In addition, some research has shown that strategies such as performance feedback can increase teachers' use of praise and opportunities to respond (Cavanaugh, 2013); however, although this research has suggested that some elements of coaching may be effective in increasing some strategies included in SWPBIS, it does not examine coaching and SWPBIS specifically.

Specifically, Scott and Martinek (2006) examined the effects of coaching on data entry into an online tracking system used to analyze the effects of SWPBIS. This resulted in an increase in data entry, but did not directly assess implementation of the SWPBIS procedures. Bradshaw, Pas, Goldweber, Rosenberg, and Leaf (2012) used a 3-year

randomized control trial to demonstrate the effectiveness of coaching to increase teacher accuracy of implementation of Tier 2 supports within a SWPBIS model across 42 elementary schools. Coaches were on-site technical experts who were PBIS*Plus* liaisons, not school personnel, which present concerns for sustainability. Results showed that teachers reported an increased ability to implement procedures designed to handle student behavioral concerns (Bradshaw et al., 2012).

Bethune and Wood (2013) used side-by-side coaching to train teachers to implement function-based interventions based from PBIS plans for individual students. They found that an expert coach was able to improve the accuracy of implementation of a PBIS plan for three teacher participants; one teacher participant's performance was already highly accurate prior to the coaching (Bethune & Wood, 2013). However, the coach remained an outside expert and not a school employee, which continue to pose sustainability concerns. In addition, the PBIS plans were being implemented with individual students with severe disabilities, not school or classwide.

Filcheck, McNeil, Greco, and Bernard (2004) used coaching as a component of a treatment package, along with Parent-Child Interaction Training, introducing a classwide token economy, response cost, and a specific reinforcement plan. The results of the ABACC design suggested that the packaged intervention may have decreased disruptive behavior; however, study limitations prevented the establishment of functional control. The authors specifically recommend that coaching may be useful when children have high rates of problem behavior and the classroom teacher exhibits skill deficits (Filcheck et al., 2004).

At this time, little research has examined the training and effectiveness of the coaches, specifically when looking at selecting coaches from within the school setting rather than outside experts. Given the increase of SWPBIS implementation in schools, and the importance of coaching to the success of the SWPBIS plan, the effectiveness of coaching needs to be evaluated. Therefore, the purpose of this study was to determine the effects of coaching on teachers' accuracy of SWPBIS implementation. This study answered the following research questions:

**Research Question 1:** What are the effects of coaching on teachers' accuracy of implementation of a SWPBIS plan?

**Research Question 2:** Can a public school employee effectively be trained to serve as a SWPBIS coach, in place of a consultant/expert?

**Research Question 3:** Do teachers and coaches find the coaching process effective, socially acceptable, cost-effective, and manageable?

## Method

### *Participants and Setting*

The study was conducted at an elementary school located in a small city in the eastern United States. The initial meetings and trainings took place in the instructional specialist's office within the school. The pre- and post-coaching meetings and the actual coaching sessions occurred within the teachers' regularly assigned classrooms.

The school had recently undergone a change to a more comprehensive SWPBIS plan. A SWPBIS Leadership Team was previously established, met on a regularly scheduled basis to review the school-wide plan as it was currently being implemented, examined data, discussed future changes, and provided initial and ongoing training to the entire school. All teachers were implementing the SWPBIS plan when the study began. The researcher worked with the administration and Leadership Team to assess the quality of the SWPBIS plan prior to beginning the research. The SWPBIS plan included all needed components of a Tier 1 system, including school-wide expectations, procedures for teaching the expectations to students, a token system used to reinforce those behaviors, systematic decision-making rules and consequences for problem behavior, and a data collection system (Lewis & Sugai, 1999; Stormont, Lewis, Beckner, & Johnson, 2008). Tiers 2 and 3 were still being developed at the time of the study; however, the Leadership Team expressed concerns over the fidelity of the teachers' implementation of the Tier 1 protocols, which led to the development of this study.

Teacher participants were recruited by soliciting volunteers at a faculty meeting; all licensed teachers in the school were invited to participate. Inclusion criteria were that he or she was a licensed teacher who taught at least one group instructional lesson per day. They were assured that the coaching sessions were not linked to their supervision at the school. Four teachers volunteered to participate. Ms. Matthews (pseudonyms used throughout) was a specials teacher within the school and had 15 years of teaching experience. Ms. Nelson was a first-year teacher who taught in the third grade. Ms. Kutcher was a second-grade teacher with 15 years of teaching experience. Finally, Mrs. Nasto was in her second year of teaching and taught in the first grade.

The coach was selected from the school's SWPBIS Leadership Team by referral of the principal. The coach's position at the school was the Instructional Coach; as such, she completed classroom observations, provided feedback to teachers regarding their lessons, and worked with grade-level teams on instructional planning. She had 6 years of teaching experience; this was her first year as the Instructional Coach. She had not previously implemented side-by-side coaching, nor given teachers formal evaluations regarding implementation of the SWPBIS plan.

### *Data Collection*

*Dependent variables.* The primary dependent variable was teacher participants' percent accuracy implementing the SWPBIS plan during 10 min observation sessions (i.e., fidelity of implementation of the SWPBIS plan). Observation sessions were conducted at a consistent, self-selected time of day. Coaching sessions were conducted at a separate time and during a different group instructional activity than the observations; data were not collected on teacher fidelity during the coaching sessions. With the exception of Ms. Matthews, the specials teacher, observation data represent a generalized performance in regard to time and activity from the coaching sessions. Ms. Matthews's data represent generalization across students, activities, times, and setting. Event recording was used to reflect the accuracy of each occurrence of teacher behavior using the SWPBIS checklist (see Figure 1); this was then converted to percent accuracy for each observation session. Each opportunity for the teacher to perform the skill was scored as correct or incorrect (e.g., the teacher may have the opportunity to provide error correction three times during one observation, and each would be scored as either correct or incorrect). If no opportunity to score a skill presented itself, it was not scored rather than being marked as incorrect (e.g., if no students demonstrated problem behavior, there would be no need for the teacher to perform an error correction). The checklist targeted items such as appropriate environmental arrangement, presenting appropriate classwide instruction, appropriate methods for providing student(s) a token, and following the proper error correction procedure. Some checklist items, such as environmental arrangement, likely only had one opportunity per session (e.g., it was either appropriate or not and likely did not change throughout the observation), whereas other items were scored based on each occurrence of the teacher behavior (e.g., providing tokens were scored upon each occurrence).

Each skill was broken down into subskills and, when necessary, defined in more detail. For example, an appropriate environmental arrangement was defined as follows: Seating is appropriate and allows students to interact with the content, there is visual stimuli provided to correspond with instruction, all students have access to materials, no student is completely isolated, and school rules are posted. Verbally praising the class was defined as follows: specific praise is provided, if teacher asks a series of students a string of the same question, he or she may provide specific verbal praise at the end of the entire string (counts as one). Data were graphed as percentage of steps completed correctly. Data were collected by two graduate assistants who were trained on the SWPBIS plan checklist and were required to checkout by scoring above 90% interobserver agreement (IOA) during practice observation sessions.

IOA: Y / N (IOA Score = \_\_\_\_\_)  
 Teacher: \_\_\_\_\_ Session: \_\_\_\_\_  
 Date: \_\_\_\_\_ Recorder: \_\_\_\_\_

<b>Classroom Setup/Antecedent Variables</b>									
1. Appropriate Environmental Arrangement: seating is appropriate and allows students to interact with content, there is visual corresponding with instruction, all students have access to materials, no student completely isolated, school rules are posted									
2. Presents appropriate class-wide instruction: Whole group instruction occurring, age appropriate SOL based instruction									
<b>General Student Reinforcement</b>									
3. Verbally praises class (or individual) for demonstrating appropriate behavior: Specific praise is provided (not just "good job," but states specifically what the student(s) did correctly, offered minimally every time a student or group responds). If teacher asks a series of students a string of the same question, they may specifically verbally praise at the end of the entire string (counts as one).									
4. Provides student specific verbal praise minimally 4 times for everyone 1 correction. Score here once for every 4:1 ratio opportunity (not every time the teacher provides verbal praise).									
<b>Token Reinforcement: When providing a token... (Must do all three each time a Knight Buck is given)</b>									
5. Teacher states the specific skill the reward is for									
6. Teacher states larger school rule the student was following									
7. Teacher provides positive social acknowledgement									
<b>Providing Error Correction: When providing error correction in a neutral, "emotion-free" manner: It is the teacher's choice to provide an error correct (verses ignoring the behavior), this will be scored when a teacher initiates an error correction, UNLESS the student had a dangerous behavior, then the teacher is expected to provide an error correction</b>									
8. Teacher secures student's attention and signals an error has been made.									
9. Teacher re-teaches prerequisite skills or functional behavior alternatives: teacher can restate the rule, reteach the rule, or teach/reteach an alternative replacement behavior									
10. Teacher provides an opportunity for the student to practice the correct response.									
11. Teacher tests the student for the correct response.									
12. Teacher provides positive reinforcement when the student displays the appropriate behavior: Either specific verbal praise, a Knight Buck, or a classroom specific reinforcer									
<b>If student behavior continues after being provided the error correction in a neutral, "emotion-free" manner</b>									
13. If student behavior continues, teacher makes an environmental modification: (Ex: change in seat/materials)									
14. If student behavior continues, teacher presents the individual student with a loss of privileges: (e.g., recess without friends, loss of Knight Buck Store – Not Loss of Knight Bucks, Work Alone, Lunch without Friends, or Loss of a Classroom Specific Privilege).									
15. If student behavior continues, teacher makes a parent contact: Notification of a parent contact to be made later is acceptable (either a note or phone call home or an in-person contact)									
16. If the student behavior continues, teacher makes an office referral.									
Total Correct Steps:									
Percent Accurate:									

+ = Step performed correctly                      - = Step not performed or performed incorrectly

**Figure 1.** The teacher fidelity checklist for implementation of Tier I SWPBIS supports during classwide instruction.  
 Note. SWPBIS = School-Wide Positive Behavioral Interventions and Supports; IOA = interobserver agreement; SOL = Standards of Learning.

**IOA.** IOA was conducted by having two observers (i.e., the two graduate assistants) simultaneously take data while observing the same session. IOA was conducted on 39.8% of sessions distributed as evenly as possible across phases and averaged 91.7% (range = 80.0%–100%). IOA was point-by-point and calculated by dividing the total agreements by the total opportunities and multiplying by 100. More specifically, IOA was conducted on 22.2% of Ms. Matthews's baseline sessions averaging 90.7% (range = 81.5%–100%), 50% of coaching sessions averaging 91.8% (range = 80%–100%), and 60% of maintenance sessions averaging 91.7% (range = 85.7%–95%). IOA was conducted on 37.5% of Ms. Nelson's baseline sessions averaging 88.5% (range = 80%–100%), 41.7% of coaching sessions averaging 95% (range = 87.5%–100%), and 33.3% of maintenance sessions averaging 100%. IOA was conducted on 35.3% of Ms. Kutcher's baseline sessions averaging 88.4% (range = 80%–100%), 60% of coaching sessions averaging 96.9% (range = 94.7%–100%), and 33.3% of maintenance sessions averaging 91.2%. IOA was conducted on 42.3% of Mrs. Nasto's baseline sessions averaging 91.4% (range = 82.4%–96.4%), 20% of coaching sessions averaging 93.2%, and 50% of maintenance sessions averaging 100%.

**Coach's procedural fidelity.** To measure the coach's ability to implement the coaching procedures as designed, the researcher collected data on the coach's implementation of the coaching session with the teacher using a coaching fidelity checklist. The coach's fidelity checklist included the following items: (a) models appropriate reinforcement of student behavior; (b) models the consequences for rule-violating behavior, including error correction; (c) immediately after modeling each skill, prompts the teacher to demonstrate the same skill if student behavior provides an opportunity; (d) models ways to engage students in active student responding; (e) gives specific praise to the teacher at least once per skill; (f) provides non-evaluative corrective feedback when needed (e.g., "Let's try that skill again"); and (g) provides another opportunity for the teacher to implement the skill after error correction. Fidelity data were collected across 37.5% of coaching sessions and averaged 100% accuracy.

**Social validity.** Social validity questionnaires were provided to the four teacher participants. These questionnaires focused on the following areas: (a) whether or not coaching improved academic engagement and on-task behavior of students, (b) the difficulty of implementing each of the aspects of the SWPBIS Tier 1 plan, (c) the helpfulness of each of the components of the coaching procedure, and (d) any general feedback including plans to use (or not use) any of the strategies in the future.

A questionnaire was also provided to the coach. This questionnaire asked about (a) the coach's impression of changes in teacher behavior, (b) the difficulty of modeling

the various SWPBIS components, (c) the effectiveness of each of the coaching components, and (d) the general feedback including willingness to coach in the future.

## Procedures

**Coach's training.** Prior to starting baseline data collection with the teacher participants, the coach was provided with training on the coaching procedures. First, the coach was provided with the school's SWPBIS manual, a written description of the side-by-side coaching process, and the teacher fidelity data sheet. After the coach reviewed the provided materials, the researcher and the coach met to verbally review the information. Next, the researcher and the coach watched three different videos of teachers providing elementary classrooms with a group instructional lesson. Both scored the teachers using the teacher fidelity data sheet, and then compared data using the IOA process (the minimum of 80% was achieved for all three videos). Finally, the coach modeled the coaching procedures as she would implement them for teachers on the video, while the researcher completed the coach's fidelity checklist (a minimum of 90% accuracy was achieved).

**Baseline.** During baseline, no training was provided to teachers. Teachers were observed during a scheduled 10-min observation daily (observation times were held constant from day to day). These observations occurred during teacher-planned whole-group instructional time that had been identified by the teacher. Baseline included a minimum of five data points or until a stable trend was established. Once a trend was established, the teacher with the lowest level data, without an increasing trend, was introduced to coaching. The same procedure was used to introduce coaching to the third and fourth teachers.

**Coaching.** The coaching intervention consisted of three components: (a) one pre-coaching meeting, (b) one side-by-side coaching session, and (c) one feedback meeting. First, the coach conducted a pre-coaching meeting with the teacher. During the pre-coaching meeting, the coach provided the teacher with specific feedback regarding strengths and opportunities for improvement using strategies derived from the previous day's observation (for the first coaching session, the pre-conference meeting focused on planning instruction and teacher participant's concerns). In addition, the coach and the teacher planned the lesson for side-by-side coaching. The coach modeled how to select strategies for targeted skills (such as the steps for providing reinforcement and error correction), then supported the teacher in selecting strategies by asking guiding questions and providing feedback.

Second, the coach conducted a classroom visit to provide side-by-side coaching to demonstrate and coach the

targeted skills (coaching sessions were not held during daily observations). During the side-by-side coaching session, the coach did the following: (a) modeled reinforcement of student behavior; (b) modeled the consequences for rule-violating behavior; (c) immediately after modeling, prompted the teacher to demonstrate the same skill (if student behavior provides an opportunity); (d) modeled methods for active student responding; (e) gave specific praise to the teacher at least once per skill; (f) provided non-evaluative corrective feedback when needed (e.g., "Let's try that skill again"); and (g) provided another opportunity for the teacher to implement the skill after error correction. All feedback was provided to the teacher in a non-evaluative manner. Side-by-side coaching sessions typically lasted approximately half an hour, depending on the length of the lesson.

After the coaching session, the coach instructed the teacher to implement the strategies throughout the school day. The teacher continued to be observed during the daily scheduled observations, and data continued to be collected on the accuracy of the teacher's implementation of SWPBIS. Then, the coach conducted a feedback meeting with the teacher to follow up on the skills targeted during that session. At the feedback meeting, the coach provided verbal feedback from the observation, answered questions, and provided corrections.

Each teacher received two coaching sessions. Each coaching session occurred before the first and second data points in the coaching phase. Throughout the remainder of the coaching phase, the coach remained available for consultation regarding implementation of the SWPBIS procedures. Teachers were able to request additional coaching sessions during the coaching phase if they felt they needed additional support, however, none did so. Coaching sessions occurred concurrently with daily observations for data collection, meaning that the first coaching session occurred after the final baseline data point, but before the first observation during the coaching phase. The second coaching session was conducted between the first and second observation data points in the coaching phase.

*Generalization and maintenance.* Teacher fidelity data were not collected during the actual coaching sessions; instead all graphed data were collected during regularly scheduled observations. Therefore, for all teacher participants except Ms. Matthews, the graphed data represent generalized performance with regard to time and activity, while setting and students remained the same. The data from Ms. Matthews, the specials teacher, represent generalization across time, activity, students, and setting. Maintenance data were collected on each teacher once they completed the coaching phase. The teacher was observed during the daily scheduled observation time; however, observations occurred once per week, instead of daily. In addition, during the maintenance

phase, teachers no longer had access to the coach to ask questions related to SWPBIS.

### *Experimental Design and Analysis*

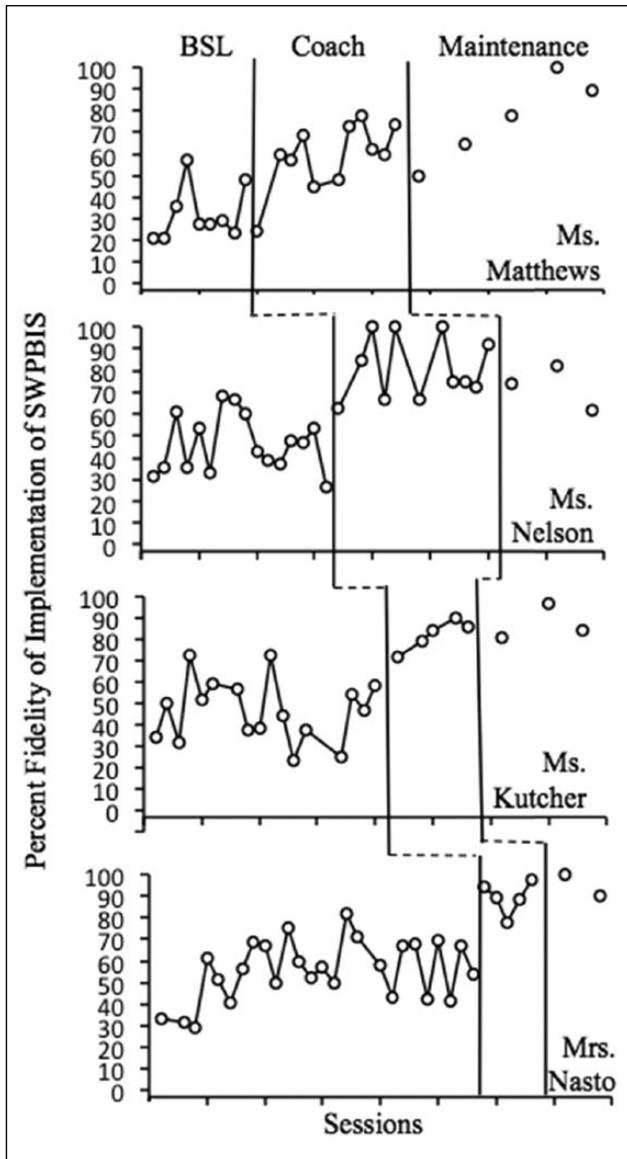
This study used a single-subject, multiple baseline across participants design to assess the effects of the coaching on teachers' accuracy of implementation of the SWPBIS plan (Cooper, Heron, & Heward, 2007). Baseline phase included a minimum of five data points or until a stable trend was established. Once a trend was established, the teacher with the lowest level data, without an increasing trend, was introduced to the coaching phase. The coach and the teacher would schedule the coaching session to occur as soon as possible (within the next few days). In the coaching phase, the coach provided side-by-side coaching to the first teacher participant (i.e., a pre-coaching meeting, an individual coaching session, and a feedback meeting). While the first teacher received coaching, data continued to be collected on all remaining teachers in the baseline phase. When the first teacher's data indicated a clear change in level, trend, or variability of at least three data points, the second teacher having the next lowest or stable data received coaching. The same procedure was used to introduce the intervention to the third and fourth teachers.

The question of whether or not a school employee could serve as the coach was addressed through collection of fidelity data on her coaching sessions. This demonstrates the ability of the coach to implement the designed coaching procedures; however, the assessment of the coach's fidelity does not utilize a methodology allowing for experimental control, and results must be interpreted with caution. Finally, social validity data were collected in the form of two questionnaires (one for the coach and another for the teachers) to address whether participants found the coaching process effective, socially acceptable, cost-effective, and manageable.

## **Results**

### *Results of Coaching on Teacher Behavior*

Results of the coaching on the participants' fidelity of implementation of Tier 1 of the SWPBIS plan are shown in Figure 2. Each teacher had mid to low performance and considerable variability during baseline. Once each teacher entered the coaching phase, they demonstrated either an immediate change in level or an increasing trend, followed by higher performance. Variability remained present for two of the teachers. During maintenance, teachers' performance remained consistent with their performance during the coaching phase. Results indicated a functional relationship between the coaching and an increase in the teachers' accuracy of implementation of the SWPBIS procedures.



**Figure 2.** Teachers' percent accuracy implementing Tier I of the SWPBIS plan.

Note. SWPBIS = School-Wide Positive Behavioral Interventions and Supports; BSL = baseline; Coach = coaching phase.

Ms. Matthews had a low baseline, with no trend, and some variability (i.e., two outliers that were higher than the rest of her baseline data). Scores ranged from 20.7% accuracy to 57.1% accuracy ( $M = 32.2\%$ ). During coaching, her data demonstrated an increasing trend and remained somewhat variable; her scores ranged from a low outlier of 24.2% (the first data point after her first coaching session) to 77.8% accuracy ( $M = 59.0\%$  accuracy). The coach reported that during her first pre-coaching session, they covered only half of the training, focusing on the positive, proactive, and teaching components of the SWPBIS plan, and during the second session, they focused on following

through when the students demonstrated problem behavior. This was supported by the data from the first coaching session, where Ms. Matthews scored low on the steps related to consequences for problem behavior. During maintenance, her accuracy remained higher than baseline and stable, ranging from 50.0% accuracy to 100% accuracy ( $M = 76.28\%$ ).

Ms. Nelson's baseline was low and variable with no trend. Scores ranged from 26.7% accuracy to 66.7% accuracy ( $M = 46.1\%$  accuracy). Once coaching began, she demonstrated an immediate change to a higher level, with no trend, and continued variability. During coaching, scores ranged from 62.5% to 100% accuracy. Ms. Nelson's variability in the coaching phase was related to the variable behavior of her students. Data were not directly taken on student behavior throughout this study; however, based on student behavior, teachers would have more opportunity to display certain skills on certain days versus other days. Ms. Nelson consistently struggled to complete Steps 11 and 12 on the fidelity checklist; as part of the error correction procedure, Step 11 focuses on retesting the student for a correct response, whereas Step 12 requires that teachers reinforce the student for displaying the correct response after teacher prompting. On days when students displayed less need for error correction, Ms. Nelson's scores were higher; however, on days when students required more error corrections, scores were lower. During maintenance, Ms. Nelson continued to demonstrate performances consistent with those during coaching, with scores ranging from 62.1% accuracy to 82.1% accuracy ( $M = 72.6\%$  accuracy).

During baseline, Ms. Kutcher demonstrated highly variable data that had no clear trend and were mid level. Scores ranged from 25.0% accuracy to 72.7% accuracy ( $M = 46.7\%$  accuracy). Once Ms. Kutcher began coaching, data immediately became stable with an increasing trend and demonstrated a higher level. Her scores during coaching ranged from 72.0% accuracy to 89.7% accuracy ( $M = 82.1\%$  accuracy). During maintenance, Ms. Kutcher continued her increased performance; her data ranged from 81.0% accuracy to 96.3% accuracy ( $M = 87.0\%$  accuracy).

Ms. Nasto's baseline data were also mid level, variable, and showed no clear trend. Her baseline scores ranged from 29.4% accuracy to 81.5% accuracy ( $M = 55.6\%$ ). Once Ms. Nasto received coaching, scores showed an immediate change to a high level of accuracy, with some remaining variability, and no trend. Scores during coaching ranged from 77.8% accuracy to 97.9% accuracy ( $M = 89.6\%$  accuracy). Maintenance data continued to demonstrate the higher level of accuracy with a low of 90.2% accuracy and a high of 100% accuracy ( $M = 95.1\%$  accuracy).

**Follow-up data on office referrals.** After completion of the study, secondary data analysis was performed to examine if there was a change in the teacher participants' office

**Table 1.** Results of Office Referral Data Comparing Each Teacher's Total Office Referrals Examining 2 Months Prior to Receiving Coaching and 2 Months After Receiving Coaching.

Teacher	Pre-coaching office referrals	Post-coaching office referrals
Ms. Matthews	1	0
Ms. Nelson	2	0
Ms. Kutcher	1	0
Mrs. Nasto	3	1

referrals as an indirect measure of student behavior. Office referral procedures were standardized within the school prior to implementation of the study. Students were referred to the office for the following behaviors: physical aggression; profanity directed at another person; verbal threats; major property destruction; elopement from the building or property; major, unredirectable class disruptions; and/or illegal behavior. Office referral data were collected by the administrative assistants through typical school processes. Data were compared for the 2 months prior to implementation of coaching to the 2 months following implementation of coaching. Although office referral procedures were standardized, it is important to note that these data should be viewed with caution; they may reflect either a change in student behavior (i.e., student behavior improved) or a change in teacher behavior (i.e., teachers were more accurately implementing the office referral procedures). Due to the data being collected as secondary data analysis, fidelity of implementation of office referrals was not collected. Results of office referral data are shown in Table 1. Results indicate that all participant teachers had lower numbers of office referrals in the 2 months after receiving coaching as compared with the 2 months preceding coaching.

### Coaching Effectiveness

The school's Instructional Coach was provided with training in the form of written materials (the school's SWPBIS Manual, a description of the side-by-side coaching procedure, and the teacher fidelity sheet), verbal review of the information, practice scoring teachers using the fidelity sheet (achieving minimally 80% IOA with the researcher), and having the coach model the coaching process while being scored using the coach's fidelity checklist (to a minimum of 90% accuracy). After successfully completing this process, the Instructional Coach became the interventionist for the study, completing all coaching sessions. Fidelity data were collected on the coach across 37.5% of coaching sessions and averaged 100% accuracy. This, combined with the improvement in teacher performance, demonstrates that this public school employee could be trained to serve as SWPBIS coaches.

### Social Validity

Teachers responded to a social validity questionnaire that focused on their experiences with both the implementation of the steps of the SWPBIS plan and the coaching process. They were asked open-ended questions regarding strategies, asked to rank the ease/difficulty of implementation of the various aspect of the SWPBIS plan (very easy, somewhat easy, medium, difficult, or very difficult), asked about the helpfulness of the coaching session (not helpful, somewhat helpful, or very helpful), and asked a final set of open-ended questions regarding broader impacts of the coaching, if they would continue using the strategies in the future, challenges they faced/changes they would make, and an open section for any other comments.

All teachers responded positively regarding improvement in student performance, making statements such as "Students' attention and behavior improved thanks to these strategies and through positive reinforcement," "Using these steps with much praise really helps my students stay engaged," and "Because students knew the expectations and were looking for positive recognition, they worked much harder to show me on-task behavior."

Teachers ranked implementation of the SWPBIS plan as generally positive, with teachers indicating more difficulty implementing consequences for problem behavior. Two teachers responded that implementing active student responding was "very easy," and two teachers responded that it was "medium" level of difficulty. Three teachers rated implementing classwide reinforcement as "somewhat easy," whereas the remaining teacher rated it as "easy." One teacher rated implementing individual reinforcement as "very easy," one teacher rated it as "somewhat easy," and the two remaining teachers rated it as "medium" level of difficulty. One teacher rated performing reteaching after student errors as "very easy," one rated it as "somewhat easy," and one rated it as "medium."

Teachers rated the helpfulness of coaching very positively. Each teacher rated the pre-conference, coach's modeling, and coach's feedback during the lesson as "very helpful." Three of the teachers rated practicing while the coach was present and the post-conference as "very helpful," while one teacher did not respond to these two questions. All statements regarding coaching were positive and included some of the following: "I like positive reinforcement for me as well as my children" and "It was great to be reminded of what I needed to do."

When asked open-ended questions about the effect of the strategies and whether or not teachers would continue to use the strategies in the future, all statements were positive and indicated they would use them again in the future. Some included, "I would ask for support for my coach again as needed," and "I feel more comfortable now with the program and I see that students are doing better in my class after I implemented it."

Finally, when asked about difficulties faced and changes they would make in the future, participants generally responded about difficulty remembering all of the steps in the procedures, including phrasing for specific reinforcement and error correction. Statements about difficulties included, “Remembering the correct sequence of steps, remembering how many times I had spoken to a child, providing an immediate, appropriate consequence, giving so much praise,” and “I often forgot the proper words to use when implementing.”

In addition, the coach completed a similar questionnaire that also included questions about the process of coaching. The coach responded that students are demonstrating more on-task behavior after teachers were coached. When asked to rank implementation of each of the components of the SWPBIS plan, she ranked active student responding as “somewhat easy,” classwide reinforcement as “medium” difficulty, individual reinforcement as “very easy,” environmental modification as “very easy,” and loss of privilege as “somewhat easy.” Regarding the helpfulness of each of the coaching components, she selected “very helpful” for the pre-conference, the modeling, practicing with the teachers, and the post-conference. She selected “somewhat helpful” for providing coaching feedback during the session. When asked about the effectiveness of the coach’s training, she stated, “It was very effective.” She also stated that she would be willing to act as a coach again in the future. Difficulties she listed focused primarily on coaching scheduling sessions and starting earlier in the school year.

## Discussion

The primary purpose of this study was to examine the effects of coaching on general education teachers’ implementation of Tier 1 SWPBIS strategies through the use of a multiple baseline across participants design. In addition, this study looked at whether or not a public school employee could effectively serve as the coach. Finally, the study asked if teachers and coaches found the coaching process to be effective, socially acceptable, cost-effective, and manageable.

The school’s instructional coach provided four teacher participants with side-by-side coaching on the school’s existing Tier 1 SWPBIS procedures. Results indicated a functional relationship between implementation of the coaching procedure and an increase in teacher fidelity scores. Each of the teachers had mid to low levels of accuracy during baseline, variability, and no clear trend. The first teacher, Ms. Matthews, demonstrated an immediate change to an increasing trend, with a higher level, but continued to have some variability. The second teacher, Ms. Nelson, demonstrated an immediate change to a higher level, with no trend, and also continued to have variability. The third teacher, Ms. Kutcher, also demonstrated an

immediate change to a higher level, with an increasing trend, but had much more stable data, whereas the fourth teacher, Mrs. Nasto, demonstrated an immediate change to a higher level, showed no trend, and had slightly variable data. All of the teachers maintained their performances at the higher level during the maintenance phase, with one teacher, Ms. Matthews, continuing to demonstrate an increasing trend. All data represent generalized performance of the skills, as coaching sessions were held during different days/classes than the ones during which observations were completed.

The results of the study indicate a number of conclusions. First, this study demonstrates that it is possible to successfully incorporate the responsibilities of the SWPBIS coach into the role of existing school personnel (e.g., the instructional coach), as suggested by Horner and Sugai (2006). It also addresses a gap in previous research by Bethune and Wood (2013) by having school personnel, rather than an outside expert, conduct the intervention (i.e., coaching).

Second, the data show that some teachers were able to immediately demonstrate a change to a higher level of accuracy, whereas other teachers needed time to practice the skills and improve more slowly. For example, Ms. Matthews’s data did not initially show a change in level; however, it did show a steadily increasing trend and, in the maintenance phase, did achieve a level of accuracy on par with the other three teachers. The most likely reason being that Ms. Matthews was a “specials teacher” within the school; because she saw a different class of students for every period throughout the day, ranging from K-fourth grade, during coaching session and observation, she expressed more difficulty generalizing the procedures to each class as she was learning the procedures. This may indicate that a tiered approach to teacher training would be useful, with some teachers needing more coaching and training than others.

Third, all but one teacher (Ms. Kutcher) continued to demonstrate some level of variability throughout the study. This appears to be associated with student behavior; however, student behavior was not directly measured. Nevertheless, some conclusions can be indirectly drawn about student behavior by examining the teacher data on the SWPBIS checklist. For example, some days contained more opportunities for teachers to display appropriate reinforcement procedures (which implies that students were making more correct responses) while during other days, the teachers had more opportunities to demonstrate error correction procedures (implying that students were making more errors). When examining the data, teachers consistently performed more accurately on days when there were less error correction opportunities (i.e., days when students were demonstrating more appropriate behavior vs.

inappropriate behavior). This translated into variable data because on days when the teacher had more opportunities to provide error corrections, their data were less accurate.

In addition, each teacher's office referral data suggest that improving the fidelity of SWPBIS may have a positive impact on office referral data, which might be interpreted as an indirect measure of student behavior (the implication being improving fidelity of implementation may improve student behavior). This result supports previous research on the effectiveness of SWPBIS on student behavior (Cregor, 2008; Lewis & Sugai, 1999). However, due to the indirect nature of the data collection, implications should be limited, as it is unclear whether the student behavior changed or teacher's accuracy implementing the office referral procedures changed.

### *Limitations and Implications for Future Research*

There are several limitations of this study. First, the coach for the study was also the school's instructional coach. The instructional coach already had experience going into the classrooms within the school and providing support to teachers, and although her job role did not include coaching teachers in regard to the SWPBIS plan, she did possess a good rapport with most of the teachers in the school and was able to bring her pre-existing coaching skills into the study. Although this may have acted as a strength and added to the effectiveness of this particular coach, and supports Sugai and Horner's (2006) suggestion that coaches be identified who have experience working with teams and problem solving, this may be a limitation for school districts that may not have such personnel available to step into a SWPBIS coach's role. This study does not examine whether or not using peers as coaches (fellow teachers) would be as effective, nor does it examine what qualities lend an employee to be an effective coach.

A second limitation was one of practicality within the school. There were limitations regarding scheduling and availability of the instructional coach. Regarding scheduling, there were a number of times the coach had difficulty scheduling coaching sessions, or they had to be rescheduled due to unforeseen cancellations (e.g., snow days). Decisions regarding when to introduce teachers to coaching were made based on the performance data; however, at times, coaching could not be scheduled until a few sessions later. In addition, the coach was not able to provide an unlimited number of coaching sessions; teachers' needs were balanced with the practicality of using a full-time school employee as the coach. Regarding the practicality of schools having access to a qualified person to act as coach, the issue is complex. Having an in-house coach is certainly more cost-efficient and accessible than having an expert contracted from outside the district; however, the school must be able to make such a person available. In schools where

there is no instructional coach, or a SWPBIS leader is not available for such sessions, this can pose a limitation to the practicality of implementation. One possibility would be to utilize the special education team within the school as suggested by Simonsen et al. (2010). Another possibility is to implement coaching as part of a tiered support model for teachers where coaching would be available to teachers who score lower on the SWPBIS fidelity checklist only.

A third limitation was the inability to standardize the number of opportunities for teachers to perform each skill within the observation sessions. This issue is twofold. First, because the SWPBIS checklist was scored based upon the number of opportunities for each skill, and because student behavior was variable, this led to variability in the data. It was not possible to ensure that students presented the same number of opportunities for reinforcement procedures and error correction procedures across sessions. Overall, teachers tended to struggle with accurate implementation of error correction procedures, which lead to lower fidelity scores on days when students performed higher rates of behavioral errors. This pattern of error was especially true of Ms. Nelson's data. In addition, not all items on the fidelity checklist were parallel. For example, having an appropriate environmental arrangement would be scored at the beginning of each session (or possibly an additional time if the activity changed in such as way as to present a new environmental arrangement). However, providing token reinforcement could be demonstrated multiple times within a session, resulting in that measure having more weight on the implementation checklist.

A fourth limitation of the study is in regard to teacher recruitment and overall fidelity of implementation of SWPBIS within the school. Although the researcher, SWPBIS Leadership Team, and administration evaluated the SWPBIS plan prior to implementation of the study, there was no formal measure of accuracy across the entire school taken prior to implementation of the study. In addition, teacher participants volunteered to be part of the study. Although each of the teacher participants demonstrated low fidelity scores in baseline, there is no comparison regarding overall SWPBIS implementation within the school. Moreover, the self-referral process may have yielded teachers who were more receptive to the coaching procedures, which may have had a positive influence on the change in their fidelity.

A final limitation to the study was the use of 10-min observations for data collection. Ten-minute observations were selected to for practical reasons, because the study included teachers of students in kindergarten (i.e., Ms. Matthews) and first grade (Ms. Nasto), and observation times needed to be held constant across all teachers, 10-min observations were set to best reflect the amount of time these teachers engaged in group instruction. However, from a research and data collection perspective, these observations

were brief and provided a limited window to observe teachers' interactions with students.

### Implications for Practice

The results of the study indicate a number of implications for practice. First, teachers continue to need a method of additional support after large group trainings/workshops on implementation of behavior protocols. Simply hearing about the SWPBIS procedures is insufficient to ensure accuracy of implementation. Coaching was effective in improving teacher performance. Considering the cost and practical limitations of implementing coaching procedures, school districts may consider incorporating fidelity checklists and side-by-side coaching as part of a tiered model of support for teachers. In this model, coaching may be provided to teachers who are struggling and have low fidelity of implementation scores, but other teachers who are implementing SWPBIS accurately do not receive coaching.

Second, schools may be able to use experts within their schools as coaches. Many school districts have positions such as an instructional specialist, a leadership team, and/or special educators from which schools may be able to select personnel to act as coaches. This would be more cost-effective and sustainable than contracting with outside experts. This school was able to institutionalize this coaching process during the following school year by having the instructional coach visit each teacher and complete the SWPBIS checklist. She then provided the completed checklist to the teacher, who could then review his or her performance at a later time, and request an optional follow-up coaching session if desired. The fact that the social validity questionnaires were so positive suggests that this could be a sustainable model for schools to increase their accuracy of SWPBIS procedures.

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