#### ABSTRACT

# A FIRST STEP TOWARDS UNDERSTANDING POSITIVE BEHAVIORAL INTERVENTIONS AND SUPPORTS IMPLEMENTATION IN OHIO

#### by Sarah Louise Bidwell

Positive Behavioral Interventions and Supports (PBIS) implementation has been associated with positive student outcomes, which have led to an increase in the number of schools adopting this framework, making it important to better understand the degree to which PBIS implementation is associated with positive student outcomes. Correct implementation of PBIS can be challenging, which is problematic as fidelity of the implementation is an important factor in outcomes related to PBIS. This also makes quantifying large scale PBIS implementation difficult. The current study utilized a brief screener, which assesses components of Tier I PBIS implementation, to explore the utilization of screening questions regarding PBIS Tier I implementation in the state of Ohio. Overall, 2,459 participants completed the PBIS screener; 82% of the participants reported that their school had a PBIS team in place, and 66% reported that their team met monthly and had an action plan. Percent agreement was calculated for schools which had both screener and Tiered Fidelity Inventory (TFI) data; there was a 76% agreement between participants' indication that their school was implementing PBIS, and their TFI score. Post hoc case studies are then presented, examining samples of individual school responses and TFI scores. Implications and future directions are discussed.

# A FIRST STEP TOWARDS UNDERSTANDING POSITIVE BEHAVIORAL INTERVENTIONS AND SUPPORTS IMPLEMENTATION IN OHIO

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#### Introduction

Positive Behavioral Interventions and Supports (PBIS) is becoming a widely used practice in schools across the United States (OSEP Technical Assistance Center, 2019). The increased use of this framework has resulted in research showing positive outcomes it may have on students, teachers, and schools as a whole (Bradshaw, Koth, Thornton & Leaf, 2009; Bradshaw, Mitchell & Leaf, 2010; Caldarella, Shatzer, Gray, Young & Young, 2011; Houchens et al., 2017). Specific to the current study, Ohio has developed policies regarding the implementation of PBIS in its districts and schools (Ohio Department of Education, 2013).

Recently, fidelity of the implementation of PBIS has become a focus of research, as it has also been found to relate to positive outcomes in schools (Childs, Kincaid, George & Gage, 2016; Flannery, Fenning, McGrath Kato & McIntosh, 2014; Freeman et al., 2016; Pas & Bradshaw, 2012). The fidelity with which PBIS is put into practice is important, as this indicates if the framework of PBIS is being implemented the way it was intended.

This paper aims to understand PBIS implementation in the state of Ohio. The purpose is to examine the utilization of screening questions in regards to PBIS implementation in participants who attended PBIS workshops in Ohio.

#### Literature Review

Positive Behavioral Interventions and Supports, or PBIS, is a preventative framework which guides school staff in implementing evidence-based interventions in a way that promotes academic, social, and behavioral results (OSEP Technical Assistance Center, 2017a). PBIS is characterized as a preventative approach, by placing value on positive behavior, as opposed to the traditional approach of reactionary discipline (OSEP Technical Assistance Center, 2017a). PBIS is not a manualized approach, it is rather a framework whereby schools can "(a) organize evidence-based practices, (b) improve their implementation of those practices, and (c) maximize academic and social behavior outcomes for students." (OSEP Technical Assistance Center, 2017a, p.1). Recent data has shown that PBIS is being implemented in over 25,000 schools in the United States (OSEP Technical Assistance Center, 2019).

PBIS is characterized as having three different tiers. Tier I supports are those that are at the universal or primary level, to all students, in every setting at school (OSEP Technical Assistance Center, 2017b). Tier II supports are those at the secondary level which are more

targeted in their efforts; at this tier, staff are focused on students who are not benefitting behaviorally from Tier I supports (OSEP Technical Assistance Center, 2017c). Finally, Tier III interventions are at the tertiary level and are the most intensive in nature. Tier III PBIS services are for students who have not responded to the services in Tier I or II, and individualized attention to problem behavior is needed (OSEP Technical Assistance Center, 2017c). This study will focus on Tier I, or the universal level of implementation, which affects all students within a school. The focus is on Tier I, because Tier I supports need to be developed and evaluated, before addressing Tier II or III supports (OSEP Technical Assistance Center, 2017b) which may mean that many more schools are likely to have Tier I supports in place, before they have Tier II or III.

As increasing numbers of schools begin to implement PBIS, it is continually being researched. Much of the research has been conducted in regards to the relationship of Tier I interventions and supports, with student outcomes (OSEP Technical Assistance Center, 2017b). Research has indicated many favorable outcomes associated with PBIS implementation. Encouraging results have emerged from research, which has shown that PBIS implementation is related to increased academic achievement (Horner et al., 2009), decreased office discipline referrals and unexcused absences (Caldarella et al., 2011), decreased suspensions (Bradshaw et al., 2010), increased school staff perception of school climate (Bradshaw et al., 2009) and increased teacher report of an environment of professional respect (Houchens et al., 2017).

#### **PBIS Implementation in Ohio**

The aforementioned positive results have contributed to a growing number of states implementing PBIS programs in their schools. More specific to this study, the state of Ohio has created a policy, which specifies the usage of PBIS in all school districts (Ohio Department of Education, 2013). However, with no specific regulations on how school districts are to implement PBIS in Ohio school districts, it is important to investigate whether schools are implementing PBIS in the state of Ohio. In recognition of the importance of training and implementation, the Ohio Department of Education has utilized various State Support Teams (SSTs)<sup>1</sup> to help districts and schools to improve efforts and practices related to PBIS

<sup>&</sup>lt;sup>1</sup> State Support Teams are composed of educators in Ohio who can provide assistance to schools in regards to areas such as special education and research-based practices.

implementation (Ohio Department of Education, 2017a). Additionally, these SSTsprovide trainings to different school administrators, staff, and professionals, about the implementation and sustainability of PBIS in schools. When the trainings are finished, attendees are invited to complete post-training surveys which include questions regarding implementation of PBIS in their school system. The current study will utilize the information on training satisfaction and PBIS implementation to better understand implementation of PBIS broadly, in the state of Ohio. From past surveys (2015-2016), which included one item asking if the attendees' school was implementing PBIS, about 57% of those attending the trainings reported that their school was implementing PBIS, and approximately 14% indicated they had plans to implement during the current year (2015-2016) (Ohio Department of Education, 2017b). Furthermore, around 24% reported there were plans to implement next year (2016-2017) (Ohio Department of Education, 2017b). However, the item did not define implementation or PBIS, and therefore more information is needed about the degree to which these schools have put in place specific implementation components.

It has become clear that PBIS has been associated with positive outcomes for not only students, but also schools as a unit. It has become important to understand what elements of PBIS implementation may be important on behavioral and student outcomes as well. Because PBIS is not a manualized treatment, correct implementation may be challenging for schools at times. This can become problematic, as implementation is extremely important and differences in implementation can ultimately impact behavioral and social outcomes.

#### **Implementation Fidelity**

The importance of fidelity in implementation of PBIS cannot be understated. Fidelity is an essential part of PBIS implementation, because fidelity refers to "implementation of a practice or program as intended by the researchers or developers" (The IRIS Center, 2014, p.1: Fidelity of Implementation). In fact, researchers have begun to examine the role fidelity plays on PBIS outcomes in research. Fidelity of implementation, as it relates to PBIS is important because by implementing components of PBIS with fidelity, schools can ensure that they are using PBIS in a way that it was intended to be used, and may find positive outcomes related to this. In fact, previous research studies have found that high fidelity in PBIS implementation is associated with declines in office discipline referrals (Childs et al., 2016; Flannery et al., 2014), fewer in and out of school suspensions (Childs et al., 2016), reading and math achievement (Pas & Bradshaw,

2012), high school attendance (Freeman et al., 2016) and lower levels of teacher burnout and higher self-reported teacher efficacy (Ross, Romer & Horner, 2012). From this research it is clear that fidelity in implementation is extremely important, and has an important impact on the outcomes that PBIS can have.

Before assessing fidelity of PBIS implementation, a school may benefit in understanding what elements are important to Tier I PBIS implementation. Besides formal inventories, there are few informal measures schools can complete to do this. One tool that a school could use is the Positive Behavioral Interventions and Supports Implementation Blueprint: Part 2 - Self-Assessment & Action Planning (OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, 2017d). This assessment is meant for leadership teams at different levels to examine a school with, but it also provides a blueprint for schools to assess their PBIS efforts. It highlights important guidelines one needs for PBIS implementation such as: a team, action plans, frequent reviews of action plans, and review of progress at least monthly. Further, it provides templates for school teams to aid in working on these components, such as making an action plan. Although this tool seems to be meant for leadership positions, it highlights important elements within PBIS implementation, initially, and sustaining efforts. As there are not many options to informally assess PBIS implementation, this tool may be beneficial, although it is not geared towards school staff.

There are currently multiple options for formally assessing fidelity of PBIS implementation. In the past, districts and schools have used tools such as the Schoolwide Evaluation Tool (SET; Todd, et al., 2012), the Benchmarks of Quality (BoQ; Kincaid, Childs & George, 2010), Self-Assessment Survey (SAS; Sugai, Horner & Todd, 2000) or the Team Implementation Checklist (TIC; Sugai, Horner & Lewis-Palmer, 2001), all of which measure Tier I PBIS implementation. However, because districts and schools only have the ability to measure Tier I implementation with these evaluation assessments, these tools are not appropriate for Tier II and III, which has created problems for schools and districts, in terms of consistent evaluation across tiers (McIntosh et al., 2014).

The Tiered Fidelity Inventory (TFI) is a relatively new approach to assessing fidelity. The TFI can be used to measure fidelity in Tier I, II and III of PBIS, examining the core features within each level (Algozzine et al., 2014). McIntosh et al. (2017) reports that the TFI has become the first instrument schools can utilize across the three different tiers, to assess multiple domains,

such as initial implementation, and progress monitoring. Additionally, McIntosh et al. (2017) states that the intended use of the TFI is: "(a) an initial assessment to determine whether a school is using (or needs) SWPBIS [Schoolwide Positive Behavioral Supports and Interventions], (b) a guide for implementation of Tier I, Tier II, and Tier III practices, or (c) an index of sustained SWPBIS implementation" (p. 4). Therefore, the TFI becomes useful not only for evaluation of PBIS implementation, but also for schools and districts who are in the beginning stages of planning and implementation, and for those who are concerned with the sustainability. Thus, because the TFI is a comprehensive assessment tool, which has the advantage of evaluation in all three tiers, it is increasingly becoming the preferred option in schools for PBIS evaluation.

The TFI assesses all tiers of PBIS; however, most relevant to this study is the assessment of Tier I. The TFI assesses Tier I in three different domains: teams, implementation and evaluation (Algozzine et al., 2014). The subscale regarding teams assesses schools on different aspects of the PBIS school team, such as the team composition and operating procedures (Algozzine et al., 2014). The implementation subscale assesses aspects such as behavioral and teaching expectations within the school, discipline policies, faculty involvement, and family/ community involvement (Algozzine et al., 2014). Finally, the last subscale assesses evaluation measured by different forms of data, such as fidelity and discipline data, and decision making based on this data (Algozzine et al., 2014).

Although the TFI has been shown to be a valid and reliable indicator of PBIS implementation, it can be time consuming to complete. Factors that affect how much time it takes to complete the TFI include familiarity with the process, preparation for it, and the number of tiers that are examined (Algozzine et al., 2014). Additionally, a walk-through (which focuses on surveying school staff and students) with an external coordinator should be completed before the actual TFI is administered (Algozzine et al., 2014). The process can be a challenge for schools, but also a challenge at a higher level, such as the state level. More specifically, it becomes problematic in understanding statewide implementation of PBIS, because not every school or system completes a TFI walkthrough and formal assessment that can provide data on school implementation at the state level. Different schools and districts will inevitably be at different points in the process of implementing PBIS, making it difficult to have an overall idea of implementation at a larger level. The state of Ohio can access aggregate TFI data, but only a few hundred schools enter it each year. Drawing conclusions about the implementation of PBIS

just from TFI data supplied to the state would inevitably provide skewed data about implementation in Ohio, as there are many more schools who do not provide TFI data because they may not have completed a TFI. It is possible that many more schools are implementing PBIS, that are not accounted for from the TFI data provided to the state. In order to better estimate implementation statewide, a screener, which would be shorter and easier to administer, on elements of Tier I implementation could be useful.

#### **Present Study and Hypotheses**

The current study's purpose is to explore the utilization of screening questions regarding PBIS Tier I implementation in participants who have attended a PBIS workshop in Ohio. More specifically, the information from this screener will provide information on implementation of three important Tier I PBIS elements, which have been identified as important by experts (Lewis, Personal Communication, May 2017) and other PBIS surveys (OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, 2017d). Additionally, participant agreement (between participants working in same school) will be examined in regards to this screener. Finally, screening results will be compared to an already established PBIS fidelity indicator (TFI).

The following are the research questions and hypotheses for the current study:

- We hope to better understand the implementation of important Tier I features of PBIS in Ohio. Although this is exploratory in nature, we hypothesize that the sample will be most likely to indicate that their PBIS team does not meet monthly, as past research has indicated that school teams often report this as a barrier to implementation and sustainability of PBIS (Coffey & Horner, 2012).
- We hope to examine the validity of the three-item screener used in the study. We hypothesize that the three-item PBIS screener will be a valid indicator of Tier I features of PBIS.

#### Methods

#### **Participants**

Participants were a sample of individuals who attended Ohio PBIS trainings from June 2017- May 2018. Trainings were conducted primarily by the State Support Team (SST) trainers in Ohio. Participants in the study attended different types of trainings all related to PBIS, which included "Introductory," "Tier II/III," "Coaching," "Classroom Management," "Data Related

Training," and "Train the Trainer." For hypothesis one, which assesses overall implementation, there were a total of 2,459 participants who completed the training and subsequently completed the study questionnaires. Participants were from school districts in Ohio, and were comprised of individuals who have different roles in school. Teachers represented a majority of the participants (n=1,507). Table 1 and 2 provide participant demographic by role and grade level served, respectively, for the first hypothesis.

#### Table 1

School Role	<b>Frequency</b>	Percent	Cumulative Percent
Administrator	377	14.9	14.9
Teacher	1507	59.4	74.3
Related Services	178	7.0	81.3
Parent/ Community Member	6	.2	81.5
Paraprofessional	179	7.1	88.6
Other	245	9.7	98.3
Multiple Roles	43	1.7	100.0

#### Frequency of Roles in School Among Participants

#### Table 2

#### Frequency of Grade Levels Served Among Participants

Grade Level	<u>Frequency</u>	Percent	Cumulative Percent
District	97	3.8	3.8
Preschool	413	16.3	20.1
Elementary	1044	41.2	61.3
Middle	435	17.2	78.4
High School	272	10.7	89.2
Other	35	1.4	90.5
Multiple Grades	240	9.5	100.0

The second hypothesis addresses the percent agreement between the screener agreement data and the TFI data. Not all schools had both TFI data and screener data; thus to test this hypothesis, a smaller sample size of 88 schools, from 65 districts across Ohio was used. In this sample, 46.6% (n = 41) schools were elementary level, 19.3% (n = 17) were middle school level, 17.0% (n = 15) were high school level, 11.4% (n = 10) were pre-kindergarten/kindergarten schools, and 5.7 (n = 5) were characterized as an 'other' (e.g., multi-grade) kind of school. **Materials** 

## PBIS survey.

Each individual who completed an Ohio PBIS training was invited to answer a feedback survey regarding basic demographic information, their satisfaction of the training and trainer, and implementation of PBIS within their school system. The current study utilized data from the three PBIS implementation items (See Appendix A for items). These items inquire about PBIS in the participant's school, addressing topics such as the use of a PBIS team, how often the team met, and if there is an action plan guiding PBIS in the school. These items were developed based upon recommendation from a representative of the PBIS National Technical Assistance Center, as they represent important Tier I features of PBIS (Lewis, Personal Communication, May 2017). Finally, we used data from an item asking what school the participant works in to a) link their survey data to their school's TFI data, and b) examine inter-rater reliability between individuals representing the same school.

#### **Tiered Fidelity Inventory.**

TFI scores were available for schools that participated in TFI administration. TFI administration was typically facilitated by either an internal or external PBIS coach, trainer, or team member. Therefore, for individuals who identified with districts who have TFI scores, TFI scores were used as an indicator of that school district's PBIS implementation. The TFI has proven to have strong internal consistency (ranging from .87-.96), and correlates with other instruments that assess PBIS fidelity (i.e., BoQ, SAS, TIC) (McIntosh et al., 2017).

#### Procedure

This study used data which was previously collected by the Ohio Department of Education after PBIS training sessions which occurred between the time of June 2017 and May 2018. When each attendee completed a training, they were given the opportunity to complete a

survey by the trainer (most often an SST PBIS trainer). The surveys were then sent to Dr. Amity Noltemeyer at Miami University, who served as project evaluator for Ohio's School Climate Transformation Grant. The data was entered into a database in SPSS (IBM Corp, 2016) and spot-checked for accuracy by a second trained individual. TFI data were also existing data obtained through Ohio's PBIS Evaluation account called PBISApps (pbisapps.org).

#### **Data Analysis**

The first research question was in regards to understanding the implementation of the core elements of PBIS in Ohio. To examine this, we assessed each item of the screener and examined descriptive statistics (e.g., numbers and percentages of the responses to each item on the screener) to better understand the PBIS implementation in Ohio.

The second research question of this study was that the three-item PBIS screener would be a valid and reliable indicator of important Tier I features of PBIS implementation. This was examined in multiple ways. First, we examined school level data; that is, we examined the interrater agreement of responses to the three-item screener, from individuals within the same school system. Because of the nature of the data (i.e., multiple raters, and multiple schools), it was not feasible to conduct analysis to determine an actual agreement coefficient (for reliability, such as a kappa statistic) for all the schools, so we calculated the percent agreement between TFI scores and participant agreement scores (for validity). Exploratory analysis was conducted examining the agreement in randomly selected schools, as case studies, to begin to examine the reliability of the screener. Because not every school had TFI scores, participants for which both the screener data and TFI data were available, were used. TFI data was acquired from schools in the state of Ohio from the 2017-2018 school year (June 2017 through May 2018). With this data, percent agreement was calculated between whether schools had 70% or higher on their Tier I TFI scores and whether they were implementers based on the Tier I PBIS screener utilized in this study. Seventy percent on the TFI was chosen as the cutoff for implementation in this study, as this is the current threshold that the TFI manual reports as an implementation index (Algozzine et al., 2014). To determine if a school is an implementer, we examined responses to the screener for each school; if there was an 80% agreement to the screener that the school was implementing, then they were considered an implementing school. An 80% agreement rate was picked for the screener, as an 80% or greater agreement or consensus among participants, indicates an acceptable coefficient, most of the time (Neuendorf, 2002). Other research has also specified

80% agreement as a strong rate of agreement, and states that a lower percent agreement than 80% can be problematic because of the increased amount of subsequent disagreement (McHugh, 2012). If there was less than an 80% agreement, the school was considered non-implementing. Please see Figure 1 for an outline of the data analysis procedure for research question two.

In the cases that schools did multiple TFI assessments in one year, and also did multiple PBIS training sessions, data from the two closest time points were used (i.e., the closest TFI administration date and the closest PBIS session set of surveys). Additionally, data from participants at the PBIS sessions were only used if there were more than two raters available at the school. The percent agreement between TFI scores and screening data was then calculated.

#### Figure 1. Data analysis process to calculate agreement



#### Results

The first hypothesis aimed to assess the current state of different Tier I elements of PBIS implementation in Ohio. To assess this, descriptive statistics were run for each PBIS survey implementation question, to better understand the PBIS elements being implemented. The first question asked "does your school or program have a team in place that guides PBIS efforts?" Overall, a majority participant indicated 'yes' to each of these questions. Approximately 82% (n= 1,966) of participants sampled indicated that 'yes,' they did have teams that guided their PBIS. Further, the second question asked "does your team meet at least monthly?" and around 66% (n = 1,499) of participants reported that their team met monthly. Please note that this

question was only applicable to participants who indicated 'yes' to the first question, about having a PBIS team. Finally, the last question asked "does your school or program have an action plan which guides PBIS efforts?" The descriptive statistics from this question revealed that 66% (n = 1,488) of the participants indicated 'yes' for this. Figures 2, 3, and 4 present all percentages of responses by the participants in regards to these questions.







Figure 3. Percentage of participants indicating their school PBIS team meets once a month

Figure 4. Percentage of participants indicating their school has an action plan



The second hypothesis addressed the question of validity in regards to this screener, which we compared to TFI scores, an established assessment of PBIS implementation. After cross examining the two databases, there were 88 schools in Ohio who had both participant agreement data and TFI data. As described above, school level data were data from schools who had percentage agreement data. That is, if there was a percent agreement of 80% or higher that all three items were endorsed 'yes', the school was considered 'implementing.' Further, for the TFI data, if the TFI score was 70% or greater, then they were also considered 'implementing.' In both cases of the TFI and school level data, data were coded as 'implementing' (0) or 'non-implementing' (1) in the database to compare for agreement. For example, in a case that school level agreement data on the screener were at 80% or more, that all items were answered 'yes' and the TFI data indicated less than 70%, then this would not indicate agreement between the school level data and the TFI score, as the TFI percentage would not meet the minimum threshold for fidelity (70% or higher) (Algozzine et al., 2014). This was calculated for each of the 88 schools, and then percentage of agreement were calculated. The overall agreement was 76% between the two, indicating a moderate level of agreement.

To further examine the reliability of these questions, exploratory analyses were conducted in regards to inter-rater reliability in responses from participants from a random selection of eight schools. This exploratory analysis was conducted to further investigate agreement between participants in the same school, as they relate to Tier I features of PBIS. These are presented as case studies, as they are not representative of all schools or responses; rather, they provide examples of how school participants rated their PBIS implementation, and how this compares to a standardized measure (TFI). Please note that demographic data from each school was determined by conducting searches on the school via National Center for Education Statistics (2018a). Additionally, to describe the school locale (e.g., suburban, town, rural, city), a classification system identified by the National Center for Education Statistics (2018b) was also used; please refer to the National Center for Education Statistics (2018b) for a list of the school locale definitions. To protect the anonymity of the schools, the actual number of students represented in the schools for the case studies is not reported.

Overall, in the case studies presented, the TFI score range among the schools was 13% to 90% (M = 44.5%, SD = 33.6). Further, the range for the inter-rater reliability scores was 43% to 100% (M = 83.9%, SD = 24.4). The following case studies explain the type of school, the inter-

rater reliability of the participants, and each school's TFI score. Further, please see Appendix B for all the individual schools' responses to the screener.

#### **Case Study: School 1**

School one is a middle school, and is considered a remote school. There were six participants who completed the screener from this school. The responses for school one was calculated, and it was found that the inter-rater reliability between all raters was 100%. All raters indicated that they were currently implementing the three components assessed on the PBIS screener administered. Further, school one's TFI score was a 90%, which represents good fidelity of implementation. In this case study, the school staff report implementing components of PBIS via a screener, and the school's official TFI score confirms that the school is implementing PBIS.

#### **Case Study: School 2**

School two is a large suburban preschool/ elementary school. There were seven participants who completed the screener from this school. Examining the responses to the PBIS screener revealed that the raters had a 43% agreement among their answers in regards to PBIS implementation. This is considered fair agreement. The school's TFI score was 17% indicating poor implementation of PBIS.

#### **Case Study: School 3**

School three is a middle school in a rural setting. There were four participants who completed the screener from this school. The responses from the school staff indicated that the raters had a 78% agreement among the participants. Interestingly, in this case, the participants' answers indicated that their agreement was in the fact that their school was not implementing the components assessed in the PBIS screener. That is, many participants marked that their school was not currently implementing or planning to implement components of PBIS (but was not currently). The school's official TFI score revealed that the school was not implementing PBIS with fidelity (13%).

#### **Case Study: School 4**

School four is a large, suburban middle school. There were three participants who completed the screener from this school. Examining the data collected in the screener found that the inter-rater reliability of the questions was 100%; all the participants indicated 'yes' to each

question of implementation. Further, the school's TFI score was an 83%, indicating that this particular school implements with fidelity, as assessed by the TFI.

#### **Case Study: School 5**

School five is considered a rural, fringe elementary school. There were four participants who completed the screener from this school. This school had perfect inter-rater reliability between participants (100%), with all participants indicating 'yes' to the three screening questions. Additionally, the school's TFI score was an 80%, which also indicates that the school is implementing PBIS with fidelity.

#### **Case Study: School 6**

School six is a large, suburban elementary school. There were five participants who completed the screener from this school. The inter-rater reliability for the responses among participants was perfect, at 100%; all participants marked 'yes' to the three questions presented. However, the school's TFI score was a 33%, which means they were not implementing PBIS at the Tier I level with fidelity.

#### **Case Study: School 7**

School seven is large, rural, fringe middle school. There were four participants who completed the screener from this school. The raters rated 'threes and fours' to a majority of the questions, meaning that they did not currently have many components of PBIS; their inter-rater reliability was low, at 50%. Further, the schools TFI score was also low (23%), indicating poor PBIS fidelity.

#### **Case Study: School 8**

School eight is a small suburban elementary school. There were four participants who completed the screener from this school. The raters had perfect agreement (100%), each marking 'yes' to each question. However, the school's TFI score was below the fidelity threshold (23%).

#### Discussion

The purpose of the present study was to examine the current implementation of PBIS in the state of Ohio, as well as to examine the utility of a screener which assessed components of PBIS in schools. The first research question was exploratory in nature, assessing implementation of PBIS in the state of Ohio. It was hypothesized that the question asking "does your (PBIS) team meet monthly" would be the item most likely to be indicated "no". This hypothesis was

supported by the results; however, it was found that another screener question was also equally as likely to be endorsed by participants. About 66% of the participants indicated that their PBIS team meets monthly. Further, about 66% of participants also stated that their PBIS team has an action plan (and an additional 24% of the participants also reported that although their team did not currently have an action plan, that they would within the next year). Eighty-two percent of the participants surveyed indicated "yes" to a question regarding their school having a team which guides their PBIS efforts. This question was the most indicated by participants out of the three questions presented, which may reveal that in Ohio, a majority of schools whose staff attended a PBIS training report that they currently have PBIS team in their school. Overall, results from the survey indicate that the vast majority of schools' report that their school has a team that guides their PBIS efforts; however, fewer (although still more than half) indicate having a monthly meeting and having an action plan in place. These results seem to align with literature suggesting barriers to implementing PBIS, such as time, for monthly meetings (Coffey & Horner, 2012).

The second hypothesis addressed the utilization of the screening tool which assessed Tier I components of PBIS. It was hypothesized that the three-item screener would be a valid indicator of Tier I components of PBIS. This hypothesis was supported by the results of the analysis, which examined the relationship between a well-established fidelity measure of PBIS (the TFI) and the three-item screener, and revealed a moderate agreement between the two measures (76%). As it was not possible to analyze the data through a formal reliability statistic, post hoc exploratory case studies were performed on eight randomly selected schools which had both TFI data, as well as data from the PBIS screener. These case studies examined inter-rater reliability between the participants in the study in how they answered the three screening questions regarding PBIS implementation. Inter-rater reliability ranged from 43% to 100%, however there was large dispersion in scores.

Trends between the inter-rater reliability and TFI scores were also examined, although any conclusions from this should be interpreted cautiously, as these are case studies and may not be representative of the population. Six out of the eight (75%) of the schools' responses trended in a way that was consistent with their TFI scores. Case studies of schools one, four, and five all had complete inter-rater reliability between their participants, and their TFI scores were also at or above 80% which is the score that corresponds with a school implementing PBIS with fidelity.

This trend could suggest that perhaps schools who agree more that they have core components of PBIS, are more likely to in fact be implementing PBIS. Further, two schools had inter-rater reliabilities that were poor (school two and seven), and also had TFI scores which were also below the 80% agreement threshold (school two: 17%; school seven: 50%). This may suggest a similar trend to the idea stated above, just the opposite: schools who have less agreement of what components of PBIS that their school may have, may suggest that this confusion may be related to their school not implementing PBIS, clearly, or with fidelity (i.e., having a low TFI score). There were two schools (school six and eight), which indicated that they were implementing PBIS, and had strong inter-rater reliability (all participants indicated 'yes' to all screener questions); however, TFI data revealed a score much lower than an acceptable TFI score indicating implementation fidelity (school six: 33%; school eight: 23%).

#### Limitations

Limitations of the study should be recognized. First, the data presented in this study are limited to one state. Ohio has multiple initiatives promoting PBIS, such as State Support Teams, and targeted trainings, which perhaps could make the data look different compared to states which do not have such initiatives, or put as much of an emphasis on PBIS and implementation. In fact, research has shown that state-led initiatives on PBIS practice and implementation does have an effect on implementation efforts (Horner et al., 2014), so it is possible that the current study's data may look different than other states, or the United States, as a whole. Thus, this study should be replicated in different states across the United States, to understand the ultimate generalizability of the results. Another limitation of the current study is the small sample size of schools available which had both TFI data as well as screener results. Again, replication of this with a larger sample size would be beneficial in understanding if the inter-rater reliability of participants, and corresponding TFI scores still is as strong as what was found in the current study.

The inter-rater reliability of the responses of the survey were conducted using percent agreement for a sample of eight randomly selected schools. This method could be considered a limitation of the study. However, because of the nature of the data (i.e., there were thousands of different schools, and multiple raters at each school), inter-rater agreement for the whole sample was not able to be determined. Thus, for the current study, only the validity of the screener was assessed, by comparing agreement on the PBIS screener, to the results of the formal TFI

measure. Additionally, schools were randomly selected from the sample, and then percent agreement was calculated; this did not lead to representative schools within the sample when examining percent agreement (that is, the schools in the sample may not have represented the entire school population in terms of their locales, grades served, and size). Future studies may aim to further examine the inter-rater reliability of the screener, as well as use a stratified random sample of schools to examine the percent agreement, to account for the differences in many schools, such as locale, grades and size.

Finally, to examine the present screener stringently, it was decided that there needed to be 80% agreement between members in the school for them to be considered a school implementing PBIS. These schools were then used to compare TFI scores to, for percent agreement. Although 80% agreement is stringent and considered "strong" (McHugh, 2012), there is no information in the PBIS literature, or education related inter-rater reliability literature to state that this is the 'optimal' agreement, or 'gold standard.' Future studies may want to examine different cut-off scores for agreement data, to investigate their effect on the agreement of participants using the screener, as well as how this relates to the validity of the measure, in comparison to the TFI.

#### Conclusion

The current study investigated PBIS implementation in one state's schools. A majority of the participants indicated that their school had a team that guided their PBIS efforts; their team was less likely to meet monthly, and also less likely to have an action plan in place, although a majority of participants still endorsed both of these PBIS components. These are critical elements of Tier I PBIS that need to be addressed for schools to be successful in their implementation and sustainability. It is important to know that although many schools are implementing these elements of PBIS, some schools may find implementation challenging; previous literature has also found that these elements are difficult for schools. Time is often cited as a barrier to PBIS implementation, for schools, whether they are beginning to implement, or sustaining implementation (Kincaid, Childs, Blase & Wallace, 2007). Knowing that meeting monthly and developing actions plans may be more difficult for schools is important to note, as training and coaching may be able to help school's problem solve around these issues.

The study also examined the validity of a screener, and examined percent agreement with participant data and a reliable PBIS fidelity measure (TFI). A moderate percent agreement was found between the two (76%), indicating that the screener may be measuring important aspects

of PBIS which are essential for further fidelity of implementation. This is beneficial as the screener in the current study is much shorter than current measures of PBIS, and could not only examine if participants believe their school is implementing different components, but based on the exploratory case studies presented, participant agreement between items could also provide information about the school's implementation. If there is high inter-rater reliability between participants, this provides a clue into whether the school is implementing PBIS or not, and if a school is implementing PBIS, it is thought that participants would have knowledge about this and be more confident in their answers. Using this data at the state level could also be beneficial, as it could provide more information to trainers or external coaches on the staff's perception of their current PBIS program, and could guide coaches and trainers on problem-solving with teams.

The brief three-item screener used in this study is the first of its kind, to the authors knowledge, to be systematically evaluated for PBIS implementation. The screener is not meant to replace formal inventories, but rather, it may be considered as a starting point by schools who are not yet able to do the TFI or other more comprehensive measures, as an initial screen prior to a more complete measure. If there is agreement between participants that the elements assessed are being implemented, it is then that the school team may consider a formal assessment such as the TFI. Additionally, this screener could be an important, informal way for schools to continue to assess critical components of a school's PBIS, that could be used multiple times over a school year, to continue to check-in and assess foundational Tier I components. This simple, and easy method could lend information for schools on what components of PBIS may need addressed, or worked on, until a more detailed fidelity assessment can be completed. Although the current screener still needs further examination, especially in regards to reliability, it is easy to see how this could be an important tool for schools to utilize, as it would be brief, easy to complete, and could provide the school with different types of information, such as rater agreement, and overall implementation, which then could guide the school's overall PBIS initiative towards success.

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## Appendix A

- 1. Does your school or program have a team in place that guides PBIS efforts?
  - a. Yes
  - b. No, and no plans to
  - c. No, but will within the next year
  - d. Don't know
- 2. If "Yes" to item 8, does this team meet at least monthly?
  - a. Yes
  - b. No
  - c. Don't know
  - d. N/A
- 3. Does your school or program have an action plan that guides PBIS efforts?
  - a. Yes
  - b. No, and no plans to
  - c. No, but will within the next year
  - d. Don't know

## Appendix B

		Team	Monthly Meeting	Action Plan
Rater 1	Rater 2	1	1	1
Rater 1	Rater 3	1	1	1
Rater 1	Rater 4	1	1	1
Rater 1	Rater 5	1	1	1
Rater 1	Rater 6	1	1	1
Rater 2	Rater 3	1	1	1
Rater 2	Rater 4	1	1	1
Rater 2	Rater 5	1	1	1
Rater 2	Rater 6	1	1	1
Rater 3	Rater 4	1	1	1
Rater 3	Rater 5	1	1	1
Rater 3	Rater 6	1	1	1
Rater 4	Rater 5	1	1	1
Rater 4	Rater 6	1	1	1
Rater 5	Rater 6	1	1	1

## School 1: Inter-rater reliability

*Note*. Inter-rater reliability = 100%

## School 2: Inter-rater reliability

		Team	Monthly Meeting	Action Plan
Rater 1	Rater 2	1	1	1
Rater 1	Rater 3	1	1	1
Rater 1	Rater 4	1	1	1
Rater 1	Rater 5	1	0	0
Rater 1	Rater 6	0	0	0
Rater 1	Rater 7	0	0	0
Rater 2	Rater 3	1	1	1
Rater 2	Rater 4	1	1	1
Rater 2	Rater 5	1	0	0
Rater 2	Rater 6	0	0	0
Rater 2	Rater 7	0	0	0
Rater 3	Rater 4	1	1	1

Rater 3	Rater 5	1	0	0
Rater 3	Rater 6	0	0	0
Rater 3	Rater 7	0	0	0
Rater 4	Rater 5	1	0	0
Rater 4	Rater 6	0	0	0
Rater 4	Rater 7	0	0	0
Rater 5	Rater 6	0	0	1
Rater 5	Rater 7	0	0	1
Rater 6	Rater 7	1	1	1

*Note*. Inter-rater reliability = 43%

#### **School 3: Inter-rater reliability**

		Team	Monthly Meeting	Action Plan
Rater 1	Rater 2	1	1	1
Rater 1	Rater 3	1	1	0
Rater 1	Rater 4	1	1	0
Rater 2	Rater 3	1	1	0
Rater 2	Rater 4	1	1	0
Rater 3	Rater 4	1	1	1

*Note*. Inter-rater reliability = 77.8%

## School 4: Inter-rater reliability

		Team	Monthly Meeting	Action Plan
Rater 1	Rater 2	1	1	1
Rater 1	Rater 3	1	1	1
Rater 2	Rater 3	1	1	1

*Note*. Inter-rater reliability = 100%

#### **School 5: Inter-rater reliability**

		Team	Monthly Meeting	Action Plan
Rater 1	Rater 2	1	1	1
Rater 1	Rater 3	1	1	1

Rater 1	Rater 4	1	1	1
Rater 2	Rater 3	1	1	1
Rater 2	Rater 4	1	1	1
Rater 3	Rater 4	1	1	1

*Note*. Inter-rater reliability = 100%

## School 6: Inter-rater reliability

		Team	Monthly Meeting	Action Plan
Rater 1	Rater 2	1	1	1
Rater 1	Rater 3	1	1	1
Rater 1	Rater 4	1	1	1
Rater 1	Rater 5	1	1	1
Rater 2	Rater 3	1	1	1
Rater 2	Rater 4	1	1	1
Rater 2	Rater 5	1	1	1
Rater 3	Rater 4	1	1	1
Rater 3	Rater 5	1	1	1
Rater 4	Rater 5	1	1	1

*Note*. Inter-rater reliability = 100%

## School 7: Inter-rater reliability

		Team	Monthly Meeting	Action Plan
Rater 1	Rater 2	1	1	1
Rater 1	Rater 3	1	1	1
Rater 1	Rater 4	1	1	1
Rater 2	Rater 3	1	1	1
Rater 2	Rater 4	1	1	1
Rater 3	Rater 4	1	1	1

*Note*. Inter-rater reliability = 100%

## School 8: Inter-rater reliability

		Team	Monthly Meeting	Action Plan
Rater 1	Rater 2	1	1	1
Rater 1	Rater 3	0	0	1
Rater 1	Rater 4	1	1	0
Rater 2	Rater 3	0	0	1
Rater 2	Rater 4	1	1	0
Rater 3	Rater 4	0	0	0

*Note*. Inter-rater reliability = 50%