Behavior Support Strategies in Singapore Preschools: Practices and Outcomes

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Abstract

This study evaluated teachers' use of universal Program-Wide Positive Behavior Support (PW-PBS) practices at a class-wide level, the rate of disruptive behavior, and the level of academic engagement in Singapore preschool general education classrooms. Evaluation was carried out in 32 classrooms using mainly direct observational methods. Findings indicated that while the majority of the teachers taught rules and expectations to children several times throughout the year, used effective error corrections, and allocated more than 70% of class time to academic instructions, none of them had a system for documenting and for rewarding appropriate child behavior, or a documented system to address specific behavioral violations. Very few teachers used a continuum of consequences to manage rule violations, and the use of general and behavior specific praise was low. Further, rates of disruptive behavior were relatively high, which were associated with high rates of reprimands, and one third of the classrooms had low academic engagement levels. Methods of enhancing teacher training in universal practices are discussed.

Keywords: Program-Wide Positive Behavior Support, classroom management, rate of disruptive behavior, level of academic engagement, preschool

Behavior Support Strategies in Singapore Preschools: Practices and Outcomes

The Child Development Program in Singapore recorded a fivefold increase in the number of children below the age of 7 years with emotional and behavioral problems between the years 2007 and 2017 (Ho, 2018). This increase is a concern given that untreated early problem behavior may lead to academic failure and the development of a range of mental health problems in adolescence and adulthood (Campbell, 1995; Vitaro, Brendgen, Larose, & Trembaly, 2005). As 99% of young children in Singapore are enrolled in a preschool (Ng, 2013) where they spend between 2 and 10 hours daily, it is likely that there is an increase in the number of children with problem behaviors in preschools. Moreover, in a recent survey conducted with 242 preschool teachers in Singapore, about 67% reported spending more time than they ought on managing problem behaviors in the classrooms (Lau, 2017). Singapore preschools should therefore adopt an effective behavior support framework to reduce and prevent the occurrence of problem behaviors.

One efficacious framework that Singapore preschools can adopt is Program-Wide Positive Behavior Support (PW-PBS). PW-PBS is a tiered system of support based on a pyramid framework that aims to promote the social, emotional, and behavioral outcomes of preschool children (Fox, Dunlap, Hemmeter, Joseph, & Strain, 2003). The foundation of this pyramid is universal, or class-wide preventative practices that are implemented for all children in a classroom. A growing number of studies over the past decade has demonstrated that PW-PBS is effective in increasing engagement and appropriate behaviors, reducing difficult behaviors, and improving social skills (e.g., Blair, Fox, & Lentini, 2010; Fullerton, Conroy, & Correa, 2009; Hemmeter, Synder, Fox, & Algina, 2016; Jolstead et al., 2017; Smith, Lewis, & Stormont, 2011; Stormont, Smith, & Lewis, 2007). To date, none of the preschools in Singapore has systematically implemented PW-PBS. In addition, the majority of preschool teachers in Singapore have not been trained in PW-PBS other than reviewing its

universal practices during their pre-service (at local academic institutions) and in-service training.

In order for Singapore preschools to implement PW-PBS successfully, information about classroom behavior management is crucial. Specifically, information regarding teachers' use of universal PW-PBS practices at a classroom-wide level, the rate of disruptive behavior (i.e., the number of disruptive behaviors), and the level of academic engagement (i.e., percentage of time the children in a classroom are engaged or on-task) in the class as a whole is important to confirm the need for PW-PBS implementation as well as to inform the training requirements of PW-PBS. Given that PW-PBS class-wide practices were largely developed in the US, it is unclear if, due to cultural differences, Singaporean teachers would accept and adopt them in the classrooms despite receiving training. For example, part of the Asian culture is to not acknowledge children for their appropriate behaviors as children are reared to be compliant (Weisz, Chaiyasit, Weiss, Eastman, & Jackson, 1995) and appropriate behaviors are expected. Obtaining information about the extent to which specific strategies are being adopted helps to inform training programs. Information about the possible relationships between the rate of disruptive behavior and specific universal practices, particularly praise and reprimand, is also important given that praise and reprimands have been shown to impact disruptive behavior (e.g., Fullerton et al., 2009; Sutherland, Wehby, & Copeland, 2000; Van Acker, Grant, & Henry, 1996; Wehby, Symons, & Shores, 1995).

PW-PBS Universal Practices

The universal tier of PW-PBS consists of two levels: building nurturing and responsive relationships with children and families, and creating high quality supportive environments (Fox et al., 2003). Class-wide positive behavior support practices that have been shown to help teachers build nurturing and responsive relationships with children and families include greeting every child at the door by name, responding to children's

conversations, offering praise and encouragement, conducting home visits, and routinely

sharing information about children with parents (Fox et al., 2003; Fox, Hemmeter, Synder,

Binder, & Clarke, 2011; Powell, Dunlap, & Fox, 2006; Steed & Pomerleau, 2008). Similarly,

practices that teachers can adopt to create high quality supportive classrooms include

organizing the materials in the classrooms to minimize clutter, defining expectations

(globally stated standards of conduct, such as "be safe", "be kind"), identifying behavioral

expectations that align with each classroom routine (e.g., "walk to our cubbies and sit on

mat" upon arrival), teaching behavioral expectations, gaining the attention of all students at

the beginning of a lesson or transition from one activity to the next, acknowledging children's

appropriate behaviors, and responding appropriately to inappropriate behaviors (Fox et al.,

2003; Fox, et al., 2011; Powell, et al., 2006; Steed & Pomerleau, 2008).

Researchers have provided guidelines for the use of some of the practices to achieve

optimal effects. Classroom rules should be clearly defined, stated in simple and positive

language with visual supports, publicly posted at children's eye level, and kept to a maximum

of five (Steed & Pomerleau, 2008). Behavioral expectations need to be actively taught to

children several times throughout the year by modeling, practicing, and acknowledging the

expected behaviors (Reinke, Herman, & Sprick 2011; Steed & Pomerleau, 2008). The

amount of acknowledgement given to children for displaying expected behaviors should be

more than the amount of corrections, reprimands, or disapprovals given for misbehaviors

(Steed, Pomerleau, & Horner, 2008). The recommended ratio of positive to negative

interactions is 4:1 (Reavis, Jenson, Kukic, & Morgan, 1993). In addition, specific praise

should be used more than general praise (Good & Brophy, 2003).

Research on teachers' use of universal PW-PBS practices at a classroom-wide level is

limited. Carter, Van Norman, and Tredwell (2011) investigated teachers' use of universal

practices in an early childhood program in the US before and after PW-PBS implementation

using the Preschool-wide Evaluation Tool (Pre-SET; Steed et al., 2008) and found that while approximately 70% of the teachers acknowledged children's appropriate behaviors at the pre-implementation phase, only 50% defined expectations for their classrooms. Further, only 25% created an organized and predictable classroom environment and taught behavioral expectations. At the post implementation phase, the percentage of teachers acknowledging children's appropriate behaviors dropped to 52. However, close to 90% of the teachers defined expectations for their classrooms, 30% of them taught behavioral expectations and about 60% were reported to have created an organized and predictable classroom environment.

Benedict, Horner, and Squires (2007) also used the Pre-SET to evaluate 15 preschool classrooms in the US where the lead teachers had attended a workshop in positive behavior support and received support from a behavior consultant and reported that about 67% of the classrooms had an organized and predictable environment. However, no more than 40% of the classrooms had publicly posted expectations and a matrix of classroom rules for classroom routines. In addition, children were taught behavioral expectations in only 22.67% of the classrooms and acknowledged for their appropriate behaviors in only 30%. These rates, however, contrast favorably with findings of Kim and Stormont (2012) who examined strategies that 34 South Korean teachers of children 3 to 5 years of age used to address problem behavior in natural settings. Specifically, precorrection and behavior specific praise were used at low rates, and redirection and reprimand/punishment were used at high rates. Additionally, the ratio of positive to negative interactions was non-optimal at 1:7.

Universal PW-PBS practices for early childhood settings do not include practices related to academic instruction. However, they are important to include in Singapore and some Asian countries, where the preschool curriculum is academically demanding. Key universal academic instruction practices for elementary school students that can be included

in PW-PBS at the preschool level are providing students with numerous opportunities to respond (OTR) to academic content, and using effective error correction (i.e., telling, showing, or demonstrating the correct answer rather than saying "no" or "wrong") (MO SW-PBS, 2016; Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008).

Rate of Disruptive Behavior and Level of Academic Engagement

To date, researchers have not established the rates of disruptive behavior that are acceptable, or the optimal levels of academic engagement, in a preschool classroom. Although researchers have examined disruptive behaviors of preschoolers with high rates of externalizing behaviors, no study has systematically and comprehensively examined the rates of disruptive behavior or the levels of academic engagement of *all* children in a preschool general education classroom (e.g., Feil et al., 2015; Walker et al., 1998).

Purpose of Study

The purposes of this study were to find out more about Singaporean teachers' use of universal PW-PBS practices at the classroom-wide level, and the rate of disruptive behavior and level of academic engagement in Singapore preschool general education classrooms for children 3 to 6 years of age. Direct observational methods were mainly employed, as previous research has demonstrated that teacher self-reports often do not reflect actual practices (Noell et al., 2005). The research questions were:

(1) What universal PW-PBS practices are teachers using at a class-wide level?

(2) What is the rate of disruptive behavior and level of academic engagement in classrooms?

(3) Is there a relationship between the rate of disruptive behavior and teachers' use of praise and reprimands?

Method

Participants

Participants were 32 teachers and 428 children from four kindergartens and five childcare centers located in different parts of Singapore. The student-teacher ratio in classrooms ranged from 13:1 to 20:1, depending on the age of children. The kindergartens and childcare centers were run by the two largest preschool operators in Singapore which serve the majority of preschoolers. All teachers except one were females, with 19 from kindergartens and 13 from childcare centers. The 32 teachers were ethnically diverse: 37.5% were Chinese, 37.5% were Malay, 12.5% were Indian, and 12.5% were other. Most of the teachers (62.5%) had less than 5 years of teaching experience, 18.8% had between 5 and 10 years, and 18.8% had more than 10 years. The teachers taught Nursery 2 (3 to 4-year-olds; 31.3% of teachers), Kindergarten 1 (4 to 5-year-olds; 37.5%), and Kindergarten 2 (5 to 6-year-olds; 31.3%) classes.

Measures

Classroom Ecology Checklist (Consultation Version). The Classroom Ecology Checklist (Consultation Version) (Reinke et al., 2011) consists of 25 items reflecting elementary school teachers' use of universal classroom management practices and student behaviors in the classrooms. As many universal PW-PBS practices are similar to elementary school universal classroom management practices, this measure is appropriate for use in preschool setting with the exclusion one item, the system for turning in completed work and retrieving graded materials. In addition, only items relating to teachers' use of universal classroom management practices (19 items) were used. The practices are categorized into six domains: classroom structure, behavioral expectations, instructional management, interacting positively, and responding to appropriate and inappropriate behaviors. With two exceptions, data on all domains were obtained through direct observation. The item on teacher actively teaching classroom rules and expectations several times throughout the year was assessed via teacher self-report if it was not directly observed, and the amount of class time allocated to

academic instruction was assessed based on review of the classroom schedule. Activities that were considered academic instruction in this study consisted of large group academic instruction, arts and crafts, music and movement, second language instruction, and current affairs discussion. All items are categorical, with most requiring either a *yes*, *no*, or *sometimes/somewhat* response.

Classroom Check-Up 10-Minute Classroom Observation Form. The Classroom Check-Up 10-Minute Classroom Observation Form (CCU 10-Minute Observation Form) (Reinke et al., 2011) records the number of OTRs provided by the teacher to a student or group of students, correct academic responses from students, teacher use of general praise, behavior specific praise, explicit reprimands, harsh reprimands, and student disruptive behaviors, during a 10-min academic instruction period. Operational definitions of these variables are provided in Table 1. The form also enables the computation of the percentage of correct academic responses and a ratio of positive to negative interactions, and has been found to be sensitive to change over time. The overall reliability of this instrument was found to be 88% before intervention (Time 1) and 90% after initial intervention (Time 2). All variables on this instrument were also related to one another in the expected direction with correlation ranging from $r = -.29$, $p < .01$ to $r = .99$, $p < .01$ at Time 1 and from $r = -.52$, $p < .01$ to $r = .98$, $p < .01$ at Time 2 (Reinke, Stormont, Herman, Wachsmuth, & Newcomer, 2015).

< **Insert Table 1 about here** >

Classroom Check-Up 5-Minute Academic Engagement Observation Form. The Classroom Check-Up 5-Minute Academic Engagement Observation Form (CCU 5-Minute Academic Engagement Observation Form) (Reinke et al., 2011) measures the amount of time the students in the classrooms are engaged over a 5-min period during an academic instruction period. It uses a momentary time sampling procedure. One student is observed

every 5 secs and all students in the classroom are observed sequentially to determine if they

are on- or off-task at that moment. This continues, repeating students as necessary for 5 mins.

In this study, every observation started with the child on the left and ended on the right for

children seated in U shape or circle. For children seated in rows, observation started with

children in the first row going from left to right and ended with the last row.

Procedures

After gaining approval from the University Human Ethics Committee and permission

from the head offices of the two preschool operators, an email invitation was sent to the

principals of the 48 schools that participated in an earlier study conducted by the first author.

The first author then visited the nine consenting schools to recruit teachers and children

(through teachers). After receiving all teacher and parent consent forms, the first author

scheduled observation dates and times with the teachers. Children whose parents did not

consent to participate (26.08%) in the study were not observed.

Observations for each classroom were carried out on four separate days over 2 weeks

during large group academic instruction time. During such instruction, the students typically

learned literacy or numeracy, listened to story reading, and completed literacy or numeracy

worksheets. Each observation lasted between 30 and 40 mins. During each observation, a

CCU 10-Minute Observation Form was completed first followed by a CCU 5-Minute

Academic Engagement Observation Form. After the final observation, the Classroom

Ecology Checklist (Consultation Version) was completed based on information gathered

during the four observations. The first author and a trained research assistant completed all

observations. Observation training consisted of the observers familiarizing themselves with

the administration, definition, and criteria of the checklist and observation forms before

practicing in eight live classrooms. Inter-observer agreement of at least 80% was obtained on

the observation forms and checklist on two consecutive occasions prior to conducting

observations in the study classrooms.

Inter-observer agreement. Inter-observer agreement checks were also carried out on

30% of the observations in the study classrooms. During these observations, the two

observers made simultaneous but independent observations of the same class. They were

seated apart from each other and a hand signal was used to signal the start of observations.

For the CCU 10-Minute Observation Form, a total count inter-observer agreement was

obtained for every item, and for the CCU 5-Minute Academic Engagement Observation

Form, an interval by interval inter-observer agreement was obtained.

Mean inter-observer agreement on the CCU 10-Minute Observation Form was

91.74% (range = 74.40-100%) for OTR, 90.26% (range = 50-100%) for CAR, 89.12% (range

= 67.57-100%) for disruptive behavior, 99.12% (range = 66.67-100%) for behavior specific

praise, 88.18% (range = 0-100%) for general praise, 95.27% (range = 66.67-100%) for

explicit reprimand, and 100% for harsh reprimand. For all variables, agreement for at least

80% of the observations was 80% or above. In general, low levels of agreement coincided

with low rates of behavior. The observers re-familiarized themselves with the definition when

agreement approached or was lower than 80%. For the CCU 5-Minute Academic

Engagement Observation Form, the mean agreement was 94.69% (range = 80-100%). As the

minimum acceptable values of inter-observer agreement range from 80% to 90% (Hartmann,

Barrios, & Wood, 2004), there was acceptable agreement between the two observers for all

measures.

Data Analysis

Data were first checked for missing data and accuracy. Next, percentages of the

different types of responses given for the items on the Classroom Ecology Checklist

(Consultant Version) were calculated to determine the extent to which teachers were using

PW-PBS class-wide practices. This was followed by computing the mean rates of teacher and

student behaviors on the CCU 10-Minute Observation Form and the mean level of academic

engagement. Finally, the data were checked for normality, outliers, and homoscedasticity

before computing correlations to determine if there was a relationship between the rate of

disruptive behavior, and teachers' use of praise and reprimands using the Statistical Package

for Social Sciences (SPSS) version 21.

Results

Research Question 1: What Universal PW-PBS Practices are Teachers Using at a

Classroom-wide Level?

Classroom structure. Figure 1 displays the percentage of classrooms in which the

teachers adopted practices related to classroom structure. More than half of the classrooms

(65.6%) had traffic patterns that were clearly defined and allowed movement without

disrupting others. About half of the classrooms (53%) had furniture arrangements that

allowed students to be seen at all times and teachers to have easy access to all areas of the

classroom. However, less than a third of the classrooms (28.1%) had materials that were

clearly labelled, easily accessible, and organized to minimize clutter.

< **Insert Figure 1 about here** >

Classroom expectations. Almost all (90.6%) of the classrooms had simple

expectations, but none had the routines and expectations displayed. Nevertheless, 84.4% of

the teachers were reported to teach rules and expectations several times throughout the year.

These teachers were also observed to teach such expectations either three or four out of four

times that they were observed.

Instructional management. Figure 2 shows the percentage of teachers that used

specific practices of instructional management. Only one teacher (3.1%) provided an optimal

number of OTRs (i.e., four to six opportunities per min for new materials and nine to 12 per

min for drill and practice) to children (both individual and group combined). The mean rate of OTR provided per min to students (both individual and group combined) across 32 teachers was 3.64 ($SD = 0.99$), ranging from 1.88 to 5.15 per min. About 66% of the teachers provided more than three OTRs per min. In providing OTRs, less than half of the teachers (37.5%) elicited individual responses from the majority of children when asking for both group and individual responses.

Most of the teachers (81.30%) used effective error corrections although less than half (46.90%) consistently gained the attention of all students at the beginning of a lesson or transition from one activity to the next. Finally, with regards to the classroom schedule, a high percentage of the teachers (93.80%) had 70% or more of their class time allocated to academic instruction.

<p align="center">< Insert Figure 2 about here ></p>

Interacting positively. A large proportion of the teachers (68.80%) did not provide non-contingent attention to every student in the classrooms during the observation period. In addition, the majority of the teachers (96.90%) provided a positive to negative interactions ratio (ratio of overall praise to reprimands) of less than 4:1. The mean ratio across 32 classrooms was at 1:3.03. Only one teacher provided the optimal ratio of 4:1.

Responding to appropriate behavior. None of the teachers had systems for documenting and rewarding appropriate child behavior. The mean rate of behavior specific praise given per min across 32 teachers was very low, at 0.06 ($SD = 0.09$) with a range of 0 to 0.45. Reviewing the data across the whole sample revealed that more than half of the teachers were delivering behavior specific praise at the rate of 0 to 0.05 per min, and none of the teachers were using behavior specific praise more than general praise. In addition, even the use of general praise was low, at 0.32 per min ($SD = 0.23$) with a range of 0.03 to 0.90. About 66% of the teachers gave general praise at a rate of less than 0.32 per min.

Responding to inappropriate behavior. None of the teachers had a documented system to address specific behavioral violations, and only one teacher used a continuum of consequences to discourage rule violations including praising others, planned ignoring, explicit reprimand, proximity, non-verbal cue, re-teach, providing choice, and logical consequences. The majority of the teachers (96.9%) were not consistent in delivering reprimands to children who display inappropriate behaviors.

The mean rate of explicit reprimands used by the teachers was higher than either behavior specific praise or general praise, at 0.57 per min ($SD = 0.35$) with a range of 0.08 to 1.55 (see Figure 3). Overall, the use of harsh reprimands was low, at 0.01 per min ($SD = 0.03$) with a range of 0 to 0.18 (see Figure 3).

< **Insert Figure 3 about here** >

Research Question 2: What is the Rate of Disruptive Behavior and Level of Academic Engagement in the Classrooms?

The average number of classroom disruptive behaviors across 32 classrooms was 3.20 per min ($SD = 1.20$), with a range of 1.10 to 6.55 per min. The majority of the classrooms (90.60%) had more than two disruptive behaviors per min. The disruptive behaviors were typically mild in nature, such as talking out, disturbing other children, fidgeting, and fiddling with objects. The mean percentage of time the children were engaged during an academic instruction was 81.06% ($SD = 7.39$), with a range of 57.50% to 91.25%. About 34% of the classrooms had academic engagement levels below 80%.

Research Question 3: Is there a Relationship between the Rate of Disruptive Behavior, and Teachers' Use of Praise and Reprimands?

There was no correlation between rates of disruptive behavior and praise (general and behavior specific combined), $r = -.30$, $p =.11$. However, there was a strong, positive correlation between rates of disruptive behavior and reprimands (explicit and harsh

combined), $r = .66$, $p < .001$, with high rates of disruptive behavior associated with high rates of reprimands.

Discussion

The aim of this study was to assess the state of classroom management in Singapore preschools, specifically, teachers' use of universal PW-PBS practices at the class-wide level, the levels of disruptive behavior and academic engagement, and the relationships between the rates of disruptive behavior, and praise and reprimands. PW-PBS has not been systematically implemented in Singapore preschools, but the majority of the teachers have received training in PW-PBS universal practices. Overall, the findings indicated that while a few of the universal practices were adopted in the majority of the classrooms, many of the core practices were not evident. The results also showed relatively high rates of disruptive behavior, which were associated with high rates of reprimands, consistent with previous studies (Van Acker et al., 1996; Wehby et al., 1995). Contrary to many previous studies (e.g., Sutherland et al., 2000), this study did not show a relationship between rates of disruptive behavior and praise, possibly because teachers in this study largely delivered praise to children for their correct academic responses rather than appropriate behaviors. Findings also revealed that although the overall level of academic engagement across all classrooms was relatively high, a third of them had low academic engagement levels. In sum, the observation data suggest that preschools in Singapore are likely to benefit from PW-PBS implementation, and that existing teacher training on universal PW-PBS practices might need to be enhanced.

Some universal PW-PBS practices were evident in more than 80% of the participating classrooms. These included the teaching of rules and expectations to the children several times throughout the year, use of effective error corrections, and having more than 70% of class time allocated to academic instruction. More teachers in this study taught rules and expectations as compared to the study by Carter et al. (2011) at both pre and post

implementation phases, and by Benedict et al. (2007), where the teachers had been trained in PBS. The higher implementation rate in this study could be because there is a strong culture in Singapore preschools to teach children rules and expectations. Nonetheless, teacher training should still emphasize the need to review rules and expectations with children and remind children of them daily (Hemmeter, Fox, & Synder, 2014).

Perhaps unsurprisingly, given the absence of relevant PW-PBS training, a number of core universal practices were used by less than 40% of the teachers. None of the teachers had a system for documenting and for rewarding appropriate child behavior. Also, none of the teachers had a documented system to address specific behavioral violations. These practices were not as widely implemented in the current study as in Carter et al. (2011) and Benedict et al. (2007). Although greater than in Singapore, the adoption rates of these practices in the Carter et al. study were less than 70%, even at the post PW-PBS implementation phase. We suggest, therefore, that most teachers are likely to need support in implementing these practices in the classrooms. Given that dissemination of knowledge/information (e.g., theory, descriptions of skills) alone has been shown to be insufficient to result in adoption of effective practices by classroom teachers, it may be beneficial for teacher training to employ additional methods that are known to help increase adoption in the classrooms, such as practice, performance feedback, or coaching (Fullerton, et al., 2009; Gage, MacSuga-Gage, & Crews, 2017; Joyce & Showers, 2002; Mathews, McIntosh, Frank, & May, 2014).

Additionally, only one teacher was observed to use a continuum of consequences to manage rule violations, and less than a third of the teachers provided non-contingent attention to every child in the classroom. This may in part be a function of observations in this study being restricted to large group instructional time. Further research exploring instructional and interactional patterns during other classroom routines is clearly warranted.

The use of general praise was also found to be low and delivery of specific praise, a recommended practice, even lower. The overall use of praise was also much lower than the use of reprimands; and thus, with one exception, all teachers provided non-optimal positive to negative interaction ratios. Despite methodological differences, this finding is similar to that of Kim and Stormont (2012) in a study conducted in South Korea. However, compared to preschool teachers in the United States, praise rates of Singaporean and South Korean teachers have been found to be much lower (Floress, Berlinghof, Rader, & Riedesel, 2017), suggesting that there may be cultural differences. In Asian cultures it is common not to acknowledge appropriate behavior in children, as educators have the philosophy that it is expected. Besides using instructional procedures that have been shown to increase teachers' praise rates during teacher training, such as performance feedback, video self-monitoring, and coaching (Hawkins & Heflin, 2011; Myers, Simonsen, & Sugai, 2011; Thompson, Marchant, Anderson, Prater, & Gibb, 2012), it may also be important to explore and address teachers' acceptability of using praise.

A third of these preschool teachers did not provide the children with at least three OTRs per min, a guideline recommended for elementary school students by MacSuga-Gage and Simonsen (2015). Researchers have yet to recommend a guideline for preschoolers, but it is possible that more than three OTRs are required to maintain engagement, as younger children have a shorter attention span. Furthermore, in providing OTRs to the children, about 62% of the teachers did not provide the majority of children with individual opportunities to respond. To help teachers meet the recommended guidelines, teacher training could include certain effective strategies, such as using a tracking system to ensure that all children are provided with individual opportunities to respond, asking drill-and-practice questions, and breaking complex problems into smaller chunks (Reinke et al., 2011). Researchers are encouraged to continue studying the cultural compatibility of specific instructional

procedures like increased delivery of non-contingent attention, praise, and opportunities to respond.

One limitation of this study is that observations were only carried out during large group instruction time, which might have limited the opportunities to observe for teachers' use of various practices. Future work could consider carrying out observations during other class routines. It might also be useful to carry out observations early in the school year, when use of certain practices (e.g., teaching expectations) might be more intense. Another limitation of this study is the small sample size in terms of the number of participating teachers, which may therefore limit the generalizability of the findings. The participating schools and teachers being volunteer participants may also limit the generalizability of the findings. Further, no validity studies have yet been conducted to assess measurement invariance across cultural contexts for the measures used in the study; however, this limitation does not apply to the direct observational measures used. Despite these limitations, this study provides a starting point to understanding and consequently improving classroom management in Singapore preschools. Our findings suggest that PW-PBS implementation in Singapore preschools is likely to be beneficial, and that there is a need to enhance current teacher training in universal practices. This study also adds to the literature of PW-PBS by providing insight into the implementation of a range of universal PW-PBS practices at a class-wide level in typical classrooms.

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