Classroom Strategies Designed to Reduce Child Problem Behavior and Increase Peer Inclusiveness: Does Teacher Use Predict Students' Sociometric Ratings?

Amori Yee Mikami, Julie Sarno Owens, Kristen L. Hudec, Hannah Kassab & Steven W. Evans

Springer

Springer

ORIGINAL PAPER

Classroom Strategies Designed to Reduce Child Problem Behavior and Increase Peer Inclusiveness: Does Teacher Use Predict Students' Sociometric Ratings?

Amori Yee Mikami[1] · **Julie Sarno Owens**[2] · **Kristen L. Hudec**[1] · **Hannah Kassab**[2] · **Steven W. Evans**[2]

Abstract

Establishing a positive peer climate in the elementary school classroom is an important goal for educators. This pilot study examined if children's liking and disliking of their classroom peers are predicted by teachers' use of practices designed to address child disruptive behaviors that are off-putting to peers, and practices designed to enhance peer inclusivity. Whereas teacher practices to foster good peer relationships are useful for all students, they are particularly important for those with attention-deficit/hyperactivity disorder (ADHD) symptoms, as these children are often poorly regarded by classmates. Thus, we explored the moderating effect of child ADHD symptom status. Participants were 194 children (grades K-4) in the classrooms of 12 teachers. The teachers were helping our study team revise the Making Socially Accepting Inclusive Classrooms (MOSAIC) program for use in general education classrooms. The MOSAIC program contains a set of teacher strategies to encourage students' increased liking and decreased disliking of one another, which was measured by sociometric ratings. Teachers' use of MOSAIC strategies was observed and self-reported over a school year. Results indicated that teacher practices designed to improve children's classroom behaviors, as well as practices that encouraged peers to be more inclusive, each predicted children receiving better sociometric ratings at the end of the year after accounting for ratings at the beginning of the year. Some practices appeared uniquely efficacious for children with elevated ADHD symptoms, whereas others were useful for all children but had accentuated benefits for typical children. Implications for practitioners are discussed.

Keywords Teacher practices · Peer relationships · Sociometrics · ADHD · MOSAIC program

Introduction

Establishing a classroom climate where students have positive social impressions of one another and get along is an important goal for educators. Such a peer climate is known to foster children's emotional as well as academic adjustment (Buhs, Ladd, & Herald, 2006; Wentzel, Battle, Russell, & Looney, 2010). These findings underscore the importance of strategies that teachers can use to achieve a positive peer context in the elementary school classroom.

A growing area of research documents how teachers influence classroom social dynamics, such as students' liking and disliking of one another as measured through sociometric methods (Farmer, Lines, & Hamm, 2011). Nonetheless, historically, classroom interventions to improve children's peer relationships have focused on the teacher encouraging the positive behavior and reducing the negative behavior of children who are disliked (Mikami & Normand, 2015). It is assumed that peers will naturally notice children's behavioral changes and respond with improved sociometric judgments. However, this assumption has not been supported when empirically tested in samples of children with attention-deficit/hyperactivity disorder (ADHD), a group with high rates of negative behaviors. Despite children showing behavioral changes as a result of intervention, this has not affected the sociometric impressions of their classroom peers (e.g., Hoza, Gerdes, et al., 2005).

In line with more recent ideas (Farmer et al., 2011), we posit that changing children's problem behavior is necessary; however, reducing problem behavior alone may not maximally affect peers' sociometric judgments unless the

✉ Amori Yee Mikami
mikami@psych.ubc.ca

1 Department of Psychology, University of British Columbia, 2136 West Mall, Vancouver, BC V6T 1Z4, Canada

2 Department of Psychology, Ohio University, Athens, USA

teacher also encourages peers to be socially inclusive. In other words, teachers best foster a positive peer climate through practices that both improve children's classroom behaviors and also elicit peers' inclusiveness toward others (Mikami & Normand, 2015). In the current pilot study, we examined the extent to which improvements in peer sociometric ratings are predicted by teachers' use of day-to-day practices designed to address children's problem behaviors (Aim 1) and designed to enhance peer inclusivity (Aim 2). In addition, we explored whether these effects are attenuated or enhanced for children with elevated ADHD symptoms (Aim 3).

Improving Children's Classroom Behavior

There are several evidence-based strategies that teachers enact to increase positive student behaviors and reduce negative student behaviors in the classroom (Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008). For example, teachers can communicate about the importance of specific behaviors and can reinforce their use. These techniques involve teachers setting a social norm for the behaviors that they wish to see, and encouraging children to demonstrate desired behaviors in real time. Teacher strategies, such as use of posted rules or a classroom charter (e.g., a behavioral contract created by the teacher with the students) to set overt expectations for appropriate behaviors, are part of best practices for classroom management because they have been shown to improve child behavior (Epstein, Atkins, Culinan, Kutash, & Weaver, 2008). It is also recommended that teachers reinforce behavioral expectations by pointing out children displaying the desired behaviors in real-life situations with classmates, as such praise shapes child actions (Jenkins, Floress, & Reinke, 2015).

As children improve their classroom behavior to align with the teacher's expectations, this may facilitate peers' liking and reduce peers' disliking. Importantly, because the social and academic worlds in elementary school are intertwined, academic enabler behaviors such as following directions, staying on task, and using materials appropriately are strongly linked to peer sociometric judgments among children this age (Ladd, Kochenderfer-Ladd, & Sechler, 2014). Therefore, we expected that teachers can foster peers' positive sociometric judgments of a child by improving that child's socially appropriate academic behaviors, in addition to that child's prosocial behaviors toward peers. Although reviewing and reinforcing behavioral expectations have a strong evidence base for addressing problem behaviors (Simonsen et al., 2008), in the current study, we aimed to document their utility for improving the sociometric ratings that children receive from their classmates.

Improving Peers' Inclusiveness

In addition to addressing child behaviors that are off-putting to peers, we propose that it is also useful for teachers to encourage peers to be socially inclusive. This is important because peers have a tendency to dismiss, mistrust, and/or dislike children who seem behaviorally different from themselves, even when those behaviors may be harmless (Chang, 2004). Once a child is disliked, peers have cognitive biases wherein they interpret ambiguous behaviors of the disliked child as negative and minimize positive behaviors; these biases are reversed with liked children (Peets, Hodges, Kikas, & Salmivalli, 2007). This means that peers may be predisposed to resist changing their impressions about disliked children, once established. Taken together, this literature underscores the potential importance of teachers addressing peer group factors, in addition to children's problem behaviors, to create a positive peer climate in the classroom (Mikami & Normand, 2015).

Teachers can increase peers' inclusiveness through behavioral techniques that specifically encourage inclusivity. Similar to the way in which teachers use behavioral techniques to foster other desired child behaviors like staying on task or waiting to speak (as described above), teachers can also use these techniques to encourage peers' inclusiveness, kindness, and support for classmates. Such practices set a norm that children should treat one another with tolerance and an open-mindedness to personal differences (Gasser, Grütter, & Torchetti, 2018). Evidence supports the utility of teachers setting norms for inclusive behaviors. For example, research suggests that declaring "you can't say you can't play" as a classroom rule, or including language in a classroom charter about respectful treatment of others, promotes favorable sociometric ratings (Harrist & Bradley, 2003). Similar to the way in which teachers reinforce children's displays of positive academic enabler behaviors, teachers can also reinforce children who are showing inclusive behavior, to encourage the recipients, as well as observing peers, to display more of such behavior.

Another strategy that teachers use to encourage peers' inclusiveness involves the teacher acting as an "invisible hand," whereby the teacher guides peers to have positive impressions of a classmate without explicitly instructing them to this end (Farmer et al., 2011). This is based on the assumption that in the early elementary grades, peers make social judgments about children, in part, based on how they perceive that their teacher evaluates these children (Chang et al., 2007). Teachers can send a message that a child is likeable by displaying that they value that child, through the practices of highlighting positive qualities

in that child or showing personal interest in that child (Mikami & Mercer, 2017). Peers may be influenced by the teacher's cues and evaluate that child more favorably as a result. In addition, a common challenge is for teachers to communicate that they value a child while also correcting that child's behavior. However, teachers can help to preserve the child's reputation with peers by issuing discreet behavioral corrections (instead of public corrections) and using a non-critical tone, both of which call less attention to the correction (Mikami & Mercer, 2017).

Evidence also supports a teacher "invisible hand" with regard to shaping students' sociometric judgments. Empirical studies find that when a teacher has a warm relationship with a child, this predicts peers' reduced disliking of that child over time (Hughes & Im, 2016). Conversely, teacher criticism of a child predicts increased peer disliking of that child; this holds after statistical control of the child's behavior problems (McAuliffe, Hubbard, & Romano, 2009). These studies support the idea that the teacher's behavior and the teacher–student relationship affect peers' perceptions of the value and worth of classmates. Moreover, positive relationships with teachers also tend to reduce children's oppositional or noncompliant behaviors (Hughes & Cavell, 1999), which could additionally support improving behavior in children as a route to improving the sociometric ratings they receive.

Students at Risk of ADHD

General education teachers' practices have been found to influence peers' sociometric judgments across a classroom as a whole (Mikami, Griggs, Reuland, & Gregory, 2012), as all children are expected to respond to teachers setting and reinforcing expectations for behavior, and communicating that children have value. However, teacher practices may have a different effect on peers' judgments of children who have behavior problems, such as children with ADHD symptoms. In general education classrooms, 5–8% of children meet criteria for clinical diagnoses of ADHD and an additional 8% show subclinical symptoms (Balázs & Keresztény, 2014). Children with ADHD symptoms at subclinical and diagnostic levels commonly experience poor relationships with classmates (Hoza, Mrug, et al., 2005). We use the term "ADHD symptoms" herein to encompass both subclinical and diagnostic levels of risk.

Evidence is mixed regarding whether teacher practices have accentuated or attenuated effects for influencing peers' sociometric judgments of children with ADHD symptoms relative to typically developing children. On the one hand, classmates may be attuned to teachers' interactions with, and evaluations of, children with ADHD symptoms because these children require a lot of teacher corrections of their behavior. Therefore, teachers' positive (Mikami et al., 2012),

as well as negative, behaviors (McAuliffe et al., 2009) toward a child with ADHD symptoms may have accentuated effects on classmates' judgments of this child. On the other hand, evidence suggests that positive child characteristics (such as verbal ability) may be less related to peer liking of a child with ADHD relative to a typically developing child (Mikami, Münch, & Hudec, 2018). This may occur because many children with ADHD display intrusive or aggressive behaviors that are strong determinants of sociometric ratings and overshadow the impact of positive characteristics. These negative behaviors may also override the influence of more subtle factors, such as teacher practices. Thus, it is unclear if teacher practices have a greater influence on peers' impressions of children with or without robust negative behaviors associated with ADHD symptoms. In this study, we test this potential moderating effect.

The Making Socially Accepting Inclusive Classrooms Program

The Making Socially Accepting Inclusive Classrooms (MOSAIC) program was developed to harness teacher influences on creating a positive peer climate in the classroom. MOSAIC consists of a set of strategies for teachers to enact that not only improve children's behavior problems, but also increase peers' inclusiveness, with the end goal of helping teachers shape classroom peer dynamics. However, MOSAIC differs from curriculum-based social emotional learning interventions in that it does not contain lesson plans. Rather, teachers are encouraged to infuse the strategies throughout all day-to-day activities (e.g., arrivals and departures, classroom meetings, instruction time, transitions).

The MOSAIC program was initially piloted in a 2-week summer day camp, enrolling 24 children with ADHD and 113 typically developing children in grades 1–3. All children were previously unacquainted, and summer camp teachers were preservice teachers. Results suggested that when children were in summer camp classrooms where the teacher administered MOSAIC, they received more favorable peer sociometric ratings and sociometric nominations of liking and disliking relative to when they were in classrooms with a comparison intervention containing evidence-based behavioral management (Mikami, Griggs, et al., 2013; Mikami, Reuland, Griggs, & Jia, 2013). These results were found for typically developing children as well as children with ADHD, suggesting the potential for universal intervention effects. Follow-up analyses found that the MOSAIC strategy of teachers highlighting positive personal attributes in children predicted these children receiving more positive sociometric judgments. By contrast, the extent to which teachers corrected a child's behavior problems in public predicted negative

sociometric judgments of that child (after accounting for the child's displayed behavior problems); but there was no association between discreet corrections (another MOSAIC strategy aimed to minimize the negative effect of behavioral corrections) and peers' sociometric impressions (Mikami & Mercer, 2017).

The Current Study

We examined whether teachers' use of MOSAIC strategies designed to address child disruptive behavior problems (Aim 1) and to enhance peer inclusivity (Aim 2) predicts improvement in peer sociometric ratings and whether these effects are moderated by child ADHD symptom status (Aim 3). These aims were examined in the context of a pilot study designed to adapt MOSAIC from its summer program version to be suitable for general education classrooms. All teachers in the current study had agreed to implement MOSAIC and to provide the study team with feedback about how to improve the program. However, there was variability in the extent to which teachers adopted individual strategies within the program, allowing us to examine the relationships between strategy use and students' sociometric ratings.

Our first hypothesis was that the teacher's use of practices designed to help children to increase their positive behaviors and reduce their problem behaviors would predict children receiving more positive sociometric ratings at the end of the school year, with statistical control of beginning of the year ratings. Our second hypothesis was that the teacher's use of practices that encourage peer inclusiveness and that highlight positive characteristics and student value would also predict more positive sociometric ratings. These practices align with increasing peers' inclusiveness. Third, we explored children's ADHD symptom levels as a moderator of the effect of the teacher practices on their sociometric ratings received.

Method

Participants

Participants were 194 children (grades K-4) nested in the classrooms of 12 general education teachers. The classrooms were located in six schools distributed across two sites: an urban and suburban area in Western Canada (98 children; 6 classrooms) and a rural area in the midwest USA (96 children; 6 classrooms). See Table 1 for participant demographics.

Procedure

Study procedures were approved by the research ethics boards at the participating universities and school districts. In May/June of 2017, our team described the study to teachers at school staff meetings or asked principals to share the information with their staff. Eligible teachers were general education teachers of grades K-4, who were in the classroom the majority of the week. Teacher participants provided written consent. At the start of the 2017–2018 academic year, the teachers distributed information about the study to all parents of children in their classroom. Child participants had active parent consent, and child assent. On average, 76% of children in a classroom consented to take part (range 56–95% across the 12 classrooms). We note that a cutoff of 50% participation has been established to be necessary for valid sociometric data (McKown, Gumbiner, & Johnson, 2011).

All teachers agreed to implement the MOSAIC program, consisting of a set of teacher strategies designed to improve students' sociometric judgments (details described below). As part of the program, teachers identified three to five target children (from among consented children), based on having elevated ADHD symptoms and peer problems, to receive an accentuated dose of MOSAIC strategies. As such, 51 target children (of the sample of 194) were designated; see Table 1. To select the target children, approximately 5–6 weeks into the school year, teachers completed the ADHD-IV questionnaire to assess children's ADHD symptoms (DuPaul, Power, Anastopoulous, & Reid, 1998) and estimated children's peer problems using the Dishion Social Acceptance Scale (Dishion & Kavanagh, 2003). Parents completed the Hyperactivity and the Peer Problems subscales of the Strengths and Difficulties questionnaire (Goodman, 1997). We prepared a spreadsheet that ranked all consented children in a teacher's classroom in order of teacher-rated ADHD symptoms first and then teacher-rated peer problems. We suggested that the teacher pick the top three to five children who had high ADHD symptoms and also peer problems as targets. In the event of a tie, we examined parent ratings. However, we prioritized the teacher ratings because MOSAIC is designed to affect social dynamics in the classroom as opposed to at home.

Each teacher received coaching from a consultant (a study staff member) approximately twice per month to encourage the teacher to implement the MOSAIC strategies, and to troubleshoot any difficulties. Approximately 1–2 times per month throughout the academic year, study staff conducted 40-min classroom observations during which they recorded teachers' use of practices consistent with specific MOSAIC strategies. In addition, approximately 1–2 times per month teachers responded to surveys regarding whether they had used these practices during the last school day. Although the

Table 1 Characteristics of teacher and child participants

	Teachers ($n=12$)
Age	42.1 (*7.5*)
Years of teaching experience	11.2 (*8.9*)
Gender	
Female	12 (*100*)
Race	
White/Caucasian	10 (*83.3*)
Asian/Asian-American/Asian Canadian	1 (*8.3*)
Multiracial	1 (*8.3*)
Ethnicity	
Non-Hispanic	12 (*100*)
Degree	
Bachelor's	2 (*16.7*)
Master's	10 (*83.3*)

	Children: full sample ($n=194$)	Children: target sample ($n=51$)
Age	6.6 (*1.4*)	6.5 (*1.4*)
Gender		
Female	90 (*46.4*)	13 (*25.5*)
Male	103 (*53.1*)	38 (*74.5*)
Transgender	1 (*.5*)	0 (*.0*)
Grade		
Kindergarten	21 (*10.8*)	6 (*11.8*)
First grade	102 (*52.6*)	27 (*53.0*)
Second grade	25 (*12.9*)	9 (*17.6*)
Third grade	23 (*11.9*)	4 (*7.8*)
Fourth grade	23 (*11.9*)	5 (*9.8*)
Race		
White/Caucasian	122 (*62.9*)	30 (*58.8*)
Asian/Asian-American/Asian Canadian	26 (*13.4*)	4 (*7.8*)
Black/African-American/Afro-Canadian/Black Canadian	3 (*1.5*)	1 (*2.0*)
American Indian/Alaska Native	1 (*.5*)	0 (*.0*)
Multiracial	36 (*18.6*)	14 (*27.5*)
Missing/did not report	6 (*3.1*)	2 (*3.9*)
Ethnicity		
Hispanic	5 (*2.6*)	2 (*3.9*)
Non-Hispanic	162 (*83.5*)	46 (*90.2*)
Missing/did not report	27 (*13.9*)	3 (*5.9*)

Values for continuous variables represent means with standard deviations in parentheses. Values for categorical variables represent *n* with percentages in parentheses

observations and surveys were both scheduled to be completed between consultation sessions, they were not meant to occur on concurrent days. In the fall and again in the spring of the academic year, children completed a sociometric procedure (taking about 5 min) in private, individual interviews with a study staff member.

The MOSAIC consultants were a postdoctoral fellow and two graduate students in clinical or school psychology, and two research associates (at the BA level) with experience working in schools. All received a full day training and weekly supervision. The team of study staff who served as observers consisted of the consultants, other graduate students and research associates (who were not consultants assigned to the teacher), and undergraduate research assistants. The study staff who interviewed children were research associates and undergraduate research assistants.

The MOSAIC Program

Teachers received a 2-h orientation to study procedures and to the MOSAIC strategies in May/June of 2017. They were provided with an intervention manual and encouraged to review it over the summer. Then, during the 2017–2018 academic year, teachers had 45-min, individual meetings approximately twice per month with their consultants to receive coaching on how to implement the strategies in the MOSAIC manual in their classrooms. Consultants also observed teachers in the classroom in between each consultation session throughout the academic year (in addition to other observations conducted by the study staff who were not consultants) and emailed feedback to teachers after each observation with the intention of encouraging them to use the MOSAIC strategies. All 12 teachers in the sample completed the orientation and all consultation sessions and observations as planned.

We asked teachers to try multiple MOSAIC strategies and to give our team feedback on each. We began with approximately 20 strategies and sought teacher suggestions to narrow the pool to a more manageable set to be retained in subsequent studies of MOSAIC. In the current manuscript, we focus on the seven strategies displayed in Fig. 1, as these have the most empirical support for their utility (as described in the Introduction) and were the most emphasized in consultation. As seen in Fig. 1, some strategies are intended to affect peer dynamics through improving child behaviors, whereas others are thought to operate through increasing peers' inclusiveness. The MOSAIC program manual suggested that teachers initiate the strategies targeting children's behavior problems and to set expectations for peers' inclusiveness at the start of the year and, later in the fall as they got to know students, to initiate the strategies to show peers that children have value.

We asked teachers to deliver all MOSAIC strategies to the whole class (universal) and to provide an accentuated dose to the target children selected for high ADHD symptoms and peer problems, that is, if teachers highlighted positive attributes of all children 1–2 times per week; they were
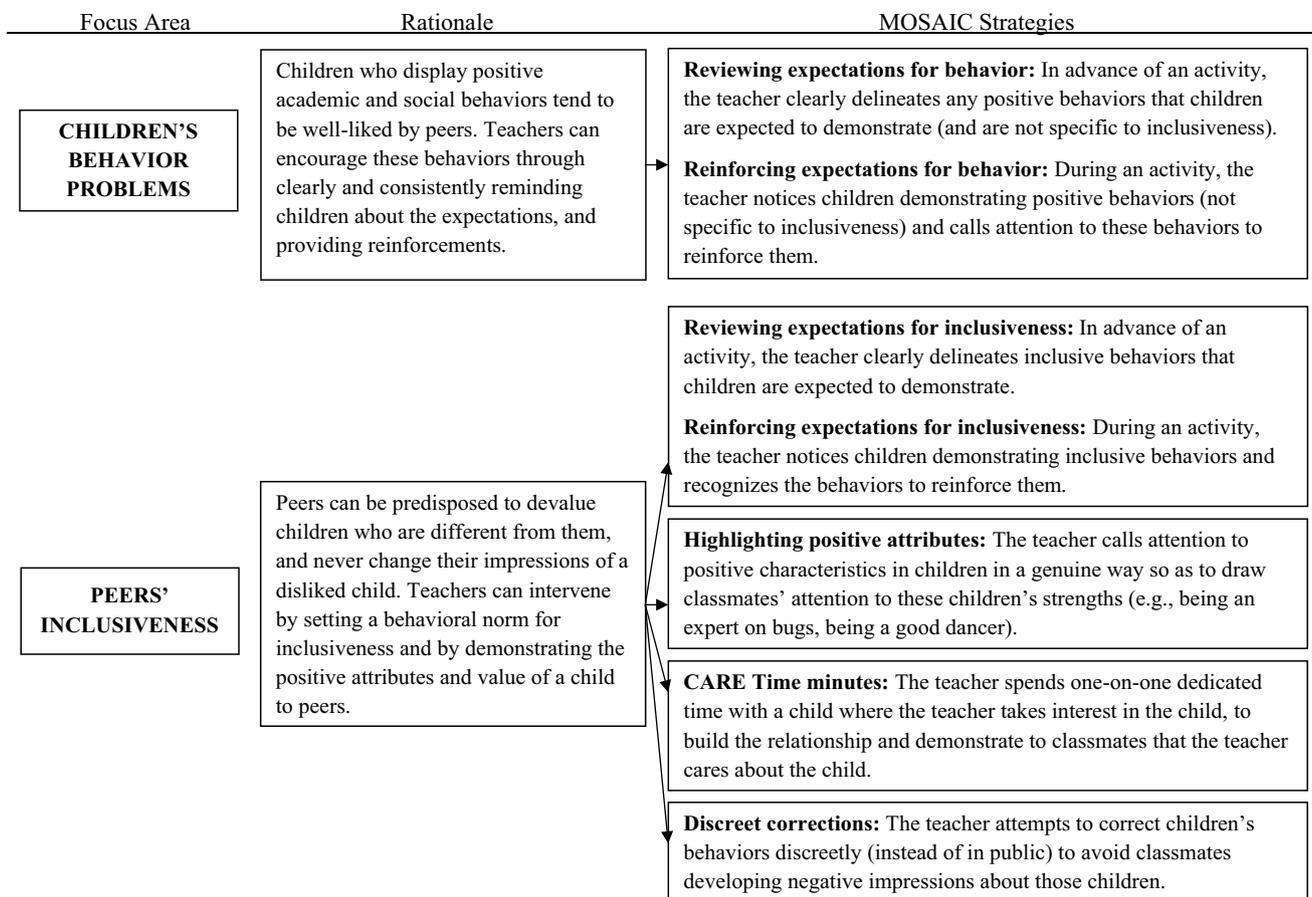
MOSAIC Program Model

Focus Area	Rationale	MOSAIC Strategies
CHILDREN'S BEHAVIOR PROBLEMS	Children who display positive academic and social behaviors tend to be well-liked by peers. Teachers can encourage these behaviors through clearly and consistently reminding children about the expectations, and providing reinforcements.	**Reviewing expectations for behavior:** In advance of an activity, the teacher clearly delineates any positive behaviors that children are expected to demonstrate (and are not specific to inclusiveness). **Reinforcing expectations for behavior:** During an activity, the teacher notices children demonstrating positive behaviors (not specific to inclusiveness) and calls attention to these behaviors to reinforce them.
PEERS' INCLUSIVENESS	Peers can be predisposed to devalue children who are different from them, and never change their impressions of a disliked child. Teachers can intervene by setting a behavioral norm for inclusiveness and by demonstrating the positive attributes and value of a child to peers.	**Reviewing expectations for inclusiveness:** In advance of an activity, the teacher clearly delineates inclusive behaviors that children are expected to demonstrate. **Reinforcing expectations for inclusiveness:** During an activity, the teacher notices children demonstrating inclusive behaviors and recognizes the behaviors to reinforce them. **Highlighting positive attributes:** The teacher calls attention to positive characteristics in children in a genuine way so as to draw classmates' attention to these children's strengths (e.g., being an expert on bugs, being a good dancer). **CARE Time minutes:** The teacher spends one-on-one dedicated time with a child where the teacher takes interest in the child, to build the relationship and demonstrate to classmates that the teacher cares about the child. **Discreet corrections:** The teacher attempts to correct children's behaviors discreetly (instead of in public) to avoid classmates developing negative impressions about those children.

Fig. 1 MOSAIC program model

encouraged to do so 3–4 times per week for target children. During each meeting, consultants prompted teachers to consider how a higher dose of MOSAIC strategies could be delivered to target children and whether target children were responding to the strategies.

Measures

Observed Teacher Practices

Each teacher was observed an average of 29.3 times (SD = 6.8, range = 19–37) across the academic year. Each observation period lasted for 40 min, divided into five, 8-min blocks within this time. This time period was chosen to render the data comparable to that obtained in the summer program pilot of MOSAIC (Mikami, Griggs, et al., 2013) and to align with the duration of elementary class periods in several of our buildings (which allowed us to observe instruction, as well as transitions to and from an activity, which is important because many MOSAIC strategies can occur during transitions).

An average of 39.8% of observation periods were completed by the consultant assigned to the teacher, whereas the remaining periods were completed by independent observers (e.g., other study staff members who were not the consultants). We found no significant differences in the rates of practices observed by the consultant relative to independent observers. In addition, 30.2% of observation periods were conducted by two observers (60.4% of these were by the consultant and an independent observer, while the remaining 39.6% were by two independent observers). We calculated inter-rater reliability during the double-coded observations using inter-class correlation (ICC) coefficients. Conventions for interpreting ICC for inter-rater reliability are: < .40 = poor, .40–.59 = fair, .60–.74 = good, > .75 = excellent (Cicchetti, 1994).

In the context of our development work, we explored approximately 20 practices for feasibility of measurement, frequency of use and observation, teacher acceptability, and inter-rater reliability. In the current study, we focus on the seven key strategies and their associated practices (described below and depicted in Fig. 1) that had adequate reliability, acceptability, and frequency. The first two address behavior problems in children (reviewing and reinforcing expectations for behavior), and the latter five target peers' inclusiveness (reviewing and reinforcing expectations for inclusiveness, highlighting positive attributes, CARE Time, and discreet corrections). Teachers' application of strategies (observed and self-reported) were not distinguished between target versus nontarget students, although this has been corrected in subsequent studies of MOSAIC.

Reviewing Expectations for Behavior In advance of an activity and before behavioral problems occur, the teacher states expectations for the positive behavior that the teacher wants children to demonstrate (e.g., sit quietly, raise hand to speak, use materials appropriately). Reviewing behavioral expectations is often paired with a reminder about classroom rules or a classroom charter that outlines what behaviors are appropriate. The purpose is to encourage children's displays of this behavior. The teacher reviewing expectations for any general behavior were tallied here, unless specific to inclusiveness (see below). ICC for this practice was .99.

Reinforcing Expectations for Behavior When the teacher observes a child demonstrating a desired behavior, the teacher calls positive attention to it. The teacher may praise the child's demonstration of behavior as being in line with the classroom rules or the classroom charter. This encourages children to continue the behavior. We tallied each time the teacher reinforced any positive behavior here, unless specific to inclusiveness. ICC was .99.

Reviewing Expectations for Inclusiveness The teacher reviews expectations for inclusive behavior (such as being respectful, listening to others, or cooperating) in advance of an activity or problems occurring. ICC for this code was .96.

Reinforcing Expectations for Inclusiveness The teacher calls positive attention to a child's display of inclusive behavior after the behavior has occurred (e.g., child was kind, respectful, helpful to a peer). ICC for this code was .97.

Highlighting Positive Attributes The teacher calls attention to a child's positive personal qualities—unrelated to behavioral compliance—in front of peers. Qualities are genuine things that the teacher perceives the child to be good at, and the teacher finds admirable. The qualities should be enduring attributes, seen as persisting over time and related to the child's talent or character. For example, the teacher might point out that a child can run fast or is always quick at figuring out puzzles or creates the best jokes. This helps peers gain a more positive impression of the child, because peers see that the child has value to the teacher. We tallied the number of times the teacher was observed to engage in this practice (ICC = .86).

CARE Time Minutes CARE Time fosters teacher–student relationships by encouraging teachers to take an interest in the child and what the child likes to do. The goal is to increase teachers' personal liking of a child and to show peers that the teacher values that child. CARE Time is one-on-one time (e.g., 3–5 min) between the teacher and child that is separate from instruction, during which the teacher is focused on bonding with the child. We adapted this technique for elementary students, based on practices used with preschoolers (e.g., Banking Time; Driscoll & Pianta, 2010). We referred to this procedure using the acronym of CARE Time to help teachers remember that it has a *C*hild-centered focus, *A*ffirms the child, where the teacher *R*eflects the child's feelings and behavior, and the teacher *E*njoys the

child. We tracked the number of minutes that the teacher was observed to engage in CARE Time (ICC = .99).

Discreet Corrections When the teacher must correct a child's behavior, the teacher makes an attempt to do so discreetly (when possible). A teacher might call a child aside, bend down and use a lower voice to speak to a child, or give the child a secret signal or physical cue such as gently patting the child's shoulder. Peers may be aware of the teacher's intentions, but this does not defeat the purpose of the practice. Rather, the teacher is communicating that the correction is between the child and the teacher, the child should not be shamed for a behavioral problem, and that the teacher likes and respects the child regardless of correcting the child's behavior. This minimizes the amount of observable negative attention to a given child and reduces peers' negative impressions about the child being corrected. We tallied each time the teacher engaged in a discreet correction (ICC = .99).

Self-reported Teacher Practices

Teachers completed nine surveys, distributed over the academic year, to assess their self-reported use of MOSAIC strategies. So as not to overburden teachers, not all practices were contained on all surveys; specifically, each of the seven teacher practices was assessed on either four or five surveys. Of the 12 teacher participants, seven completed 100% of the surveys, and the remainder completed all but one survey. On each survey, teachers reported whether they engaged in a practice during the last full school day; thus, in contrast to the observed variables, teachers' reports of strategy use on the surveys reflect a binary outcome (used/did not use) across a time period of a whole day. For each teacher, we calculated a proportion representing the number of completed surveys in which the teacher endorsed using the practice, divided by the number of completed surveys in which we asked about the practice.

Sociometric Ratings

A sociometric procedure (Coie, Dodge, & Coppotelli, 1982) was conducted at the beginning (fall) and again at the end (spring) of the academic year. Consented children were interviewed in private, individual interviews by a study staff member who read each question aloud to the child and recorded the child's answers. The staff member provided a board containing the names and pictures of all consented children in the classroom to facilitate recall; pictures were placed on the board in alphabetical order based on the child's name. Children were asked to give sociometric ratings of each consented classmate on a scale of 1–5 (1 = *really do not like*; 5 = *really like*) and were provided a visual of a face that ranged from frowning to smiling. The average rating each child received from peers was computed.

Data Reduction

As shown in Table 2, the reports from the observations and surveys of teacher practices were positively correlated in the range of .31–.63 (although most correlations were nonsignificant, owing to the small sample size). To reduce the number of analyses being conducted, we created composite scores for each of the seven MOSAIC strategies that reflected the average of the data from the observations and surveys. We did this by first converting each observed and self-reported teacher practice to a z-score and then computing the average of the z-scores for each practice. One exception to this is that all teachers endorsed reinforcing expectations for behavior in their self-report on 100% of the surveys. Therefore, this variable represents the z-score of the observations only.

Data Analytic Plan

Analyses were conducted using hierarchical linear modeling (HLM; Raudenbush & Bryk, 2002), with children (Level 1) nested in classrooms (Level 2). All teachers had complete data on all variables. Of the 194 students, 183 had complete data (94.3%); missing data were largely attributable to children joining the class late or leaving before the end of the year. Of the 51 target students, 48 had complete data (94.1%). There were no significant differences on any demographic or sociometric variable for students in the full sample, or target students, with complete versus missing data. Missing data were handled by listwise deletion.

We first created an unconditional model with sociometric ratings in spring as the outcome variable and sociometric ratings in fall as a covariate. We placed target child status, child gender, and child race at the child level (Level 1); these three variables were dichotomous and dummy coded (see Table 4). We then calculated an ICC to determine the proportion of variance at the classroom level (Level 2); values above .08 are often thought to necessitate the use of HLM to account for the nested structure of the data (Guo, 2005). The ICC from our model representing the proportion of variance at the classroom level was .20. Although the classrooms were nested in six schools (Level 3), the school level ICC was extremely low (.0004). Therefore, for parsimony, we dropped the school level from analyses.

Adding to the unconditional model, we placed one of the teacher practices (represented by the composite score for that practice reflecting the observations and the self-report surveys) at the classroom level (Level 2). We repeated this procedure for each of the teacher practices as predictor variables, for a total of seven models. This determined the main effect of that teacher practice on sociometric ratings in spring after accounting for fall ratings. Thus,

Table 2 Descriptive statistics of study variables

Predictors: teacher practices	Mean	SD	Range	r between surveys and obs
Reviewing expectations for behavior[b]				
Surveys	.90	.20	.50–1.00	.35
Obs	.30	.20	.07–.72	
Reinforcing expectations for behavior[b]				
Surveys	1.00	.00	1.00–1.00	–
Obs	.67	.79	.09–2.97	
Reviewing expectations for inclusiveness[b]				
Surveys	.88	.20	.50–1.00	.55
Obs	.12	.10	.02–.30	
Reinforcing expectations for inclusiveness[b]				
Surveys	.88	.20	.50–1.00	.63*
Obs	.14	.10	.02–.36	
Highlighting positive attributes[b]				
Surveys	.63	.33	.00–1.00	.31
Obs	.15	.20	.01–.61	
CARE Time minutes[a]				
Surveys	2.35	1.91	.00–5.00	.38
Obs	.12	.10	.00–.34	
Discreet corrections[b]				
Surveys	.90	.22	.25–1.00	.38
Obs	.49	.39	.04–1.49	
Outcome: sociometric rating	Mean	SD	Range	r between fall and spring
Sociometric rating received[c]				
Fall	4.00	.53	2.36–4.88	.73**
Spring	3.87	.54	2.33–5.00	

Obs observations

*$p = .028$, **$p < .001$

[a]Surveys represent the average number of minutes the teacher reported using CARE Time across all surveys; obs represents the average number of minutes the teacher was observed doing CARE time across all 8-min observation periods

[b]Surveys represent the proportion of surveys where the teacher answered "yes" to doing this strategy; obs represents the average number of times the teacher was observed doing this strategy across all 8-min observation periods. All teachers reported reinforcing behavioral expectations on the surveys 100% of the time, so there was no variance on this measure

[c]Average rating received from classmates on 1–5 scale, where 1 = *really do not like* and 5 = *really like*

Level 1: Spring sociometric ratings

$$= \beta_{0j} + \beta_{1j} \text{ (target status)} + \beta_{2j} \text{ (gender)} + \beta_{3j} \text{ (race)}$$
$$+ \beta_{4j} \text{ (fall sociometric ratings)} + r_{ij}$$

Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{01} \text{ (teacher practice)} + u_{0j}$

$$\beta_{1j} = \gamma_{10}$$
$$\beta_{2j} = \gamma_{20}$$
$$\beta_{3j} = \gamma_{30}$$
$$\beta_{4j} = \gamma_{40}$$

Next, to test the exploratory hypothesis about the relative utility of MOSAIC strategies for target versus non-target children, at the classroom level (Level 2) we added the cross-level interaction between the teacher practice and target child status to each model. For any significant interaction, we examined the direction of the coefficient of target child status on the outcome and then the direction of the coefficient of the cross-level interaction effect. Thus,

Level 1: Spring sociometric ratings

$$= \beta_{0j} + \beta_{1j} \text{ (target status)} + \beta_{2j} \text{ (gender)} + \beta_{3j} \text{ (race)}$$
$$+ \beta_{4j} \text{ (fall sociometric ratings)} + r_{ij}$$

Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{01} \text{ (teacher practice)} + u_{0j}$

$\beta_{1j} = \gamma_{10} + \gamma_{11} \text{ (teacher practice)}$

$\beta_{2j} = \gamma_{20}$

$\beta_{3j} = \gamma_{30}$

$\beta_{4j} = \gamma_{40}$

Although conducting seven models (one for each teacher practice) increases risk of Type I error, we chose not to apply a correction for multiple comparisons because this is a pilot study. However, results are considered in light of the number of tests conducted.

Results

Descriptive Statistics

Table 2 shows moderate stability between sociometric ratings received from fall to spring. In addition, not surprisingly, target children received poorer ratings than did nontarget children in the fall [target mean = 3.61, SD = .57; nontarget mean = 4.15, SD = .44; $t(182) = 6.64$, $p < .001$] as well as in the spring [target mean = 3.54, SD = .57; nontarget mean = 3.98, SD = .48; $t(183) = 5.32$, $p < .001$].

The composite variables indicating the seven teacher practices (average of observations and self-report surveys) were normally distributed, with no outliers exceeding 3 SDs from the mean. As can be seen in Table 2, between 67 and 100% of the time, teachers self-reported using the MOSAIC strategies during the previous school day (at any point) when asked on the surveys. In an 8-min observation period, teachers were observed to, on average, be enacting the MOSAIC

strategies between .12 and .67 times. This translates to an estimated 5 to 25 times per school day. Regarding CARE Time, teachers self-reported doing an average of between 2 and 3 min of this practice on the previous school day, and this was consistent with the estimates extrapolated from the observations. Bivariate correlations of the composite variables, shown in Table 3, suggest that the teacher practices of CARE Time and highlighting positive attributes were correlated with one another, as were the teacher practices of reinforcing expectations for behavior and discreet corrective feedback, reviewing and reinforcing expectations for behavior, and reviewing and reinforcing expectations for inclusiveness.

Teacher Strategies that Address Children's Behavior Problems

Table 4 displays the results from the HLM analyses. The composite score for teachers' use of reviewing expectations for behavior ($B = .15$; $p = .025$) predicted children receiving higher sociometric ratings in spring, after accounting for ratings in fall. The addition of reviewing expectations was associated with a 58% reduction in the classroom level (Level 2) variance relative to the unconditional model. However, no significant effects on sociometric ratings were found for reinforcing expectations for behavior ($B = .11$; $p = .079$).

Teacher Strategies that Encourage Peers' Inclusiveness

As can also be seen in Table 4, the composite score for teachers' use of reinforcing expectations for inclusiveness ($B = .13$; $p = .039$) predicted children's receipt of higher sociometric ratings in spring after accounting for fall ratings. Similarly, composite scores for teachers' use of highlighting positive attributes in children ($B = .19$; $p = .009$), and use of more minutes of CARE Time ($B = .20$; $p = .005$), each predicted children receiving higher sociometric ratings. The addition of reinforcing expectations for inclusiveness,

Table 3 Bivariate correlations between teacher practice composite scores

	2	3	4	5	6	7
1. Reviewing expectations for behavior	.38	.40	.71*	.46	.35	.08
2. Reinforcing expectations for behavior	–	.24	.27	− .08	− .14	.67*
3. Reviewing expectations for inclusiveness		–	.85**	.40	.01	.19
4. Reinforcing expectations for inclusiveness			–	.52	.19	.14
5. Highlighting positive attributes				–	.75**	− .35
6. CARE Time minutes					–	− .06
7. Discreet corrections						–

$n = 12$ teachers. Teacher practices represent the composite scores from the self-report surveys and the observations

*$p < .05$, **$p < .01$

Table 4 Teacher practice composite scores predicting peer sociometric ratings

Fixed effects	Sociometric rating (spring)		Random effects	σ^2	τ
	B (SE)	p			
Level 1			*Unconditional model*		
Intercept β_{0j}	3.86 (.07)	<.001		.130	.033
Target child status β_{1j}	−.06 (.07)	.438			
Gender β_{2j}	.06 (.06)	.285			
Race β_{3j}	.03 (.07)	.694			
Sociometric rating (fall) β_{4j}	.72 (.06)	<.001			
Level 2			*Final model*		
Reviewing expectations for behavior on intercept γ_{01}	.15 (.06)	.025		.130	.014
Interaction with target child status γ_{11}	.06 (.09)	.473			
Reinforcing expectations for behavior on intercept γ_{01}	.11 (.06)	.079		.128	.016
Interaction with target child status γ_{11}	.13 (.06)	.047			
Reviewing expectations for inclusiveness on intercept γ_{01}	.09 (.07)	.202		.130	.023
Interaction with target child status γ_{11}	−.04 (.07)	.569			
Reinforcing expectations for inclusiveness on intercept γ_{01}	.13 (.06)	.039		.130	.015
Interaction with target child status γ_{11}	<.01 (.08)	.983			
Highlighting positive attributes on intercept γ_{01}	.19 (.06)	.009		.124	.010
Interaction with target child status γ_{11}	−.23 (.09)	.011			
CARE Time minutes on intercept γ_{01}	.20 (.05)	.005		.126	.010
Interaction with target child status γ_{11}	−.23 (.09)	.010			
Discreet corrections on intercept γ_{01}	.06 (.07)	.454		.124	.028
Interaction with target child status γ_{11}	.23 (.08)	.005			

ML estimation used. Results are reported with non-robust standard errors given the Level 2 sample size. Fall sociometric ratings were group mean centered; Level 2 predictors were uncentered. Target child status: 0 = nontarget, 1 = target. Gender: 0 = male, 1 = female (we omitted one child who was transgender). Race: (0 = white, 1 = nonwhite). Teacher practices represent the composite scores from the self-report surveys and the observations. Statistics for the unconditional model include fall sociometric ratings, target child status, gender, and race. Then, each teacher practice was added and statistics in the table for these variables are reported for this step. Then, the cross-level interaction between target child status and the teacher practice was added and statistics in the table for this variable are reported for this step. Because some teacher practices occurred more often during certain activities, we controlled for the proportion of observations in which students were doing: (a) individual work when conducting analyses with CARE Time minutes, (b) free time when conducting analyses with discreet corrections, and (c) transitions when conducting analyses with reviewing and reinforcing expectations for behavior and for inclusiveness. These covariates did not affect the results obtained

highlighting positive attributes in children, and CARE Time was associated with reductions of 52%, 70%, and 70%, respectively, in the classroom level (Level 2) variance relative to the unconditional model. There was no main effect of teachers' use of reviewing expectations for inclusiveness ($B = .09$; $p = .202$) or discreet corrective feedback ($B = .06$; $p = .454$) on sociometric ratings.

Moderation by Target Child Status

Four cross-level interactions were significant between target child status and the teacher practice composite scores (see Table 4). Specifically, interactions were found between target status and teacher practices of reinforcing expectations for behavior ($B = .13$; $p = .047$), highlighting positive attributes ($B = −.23$; $p = .011$), CARE Time minutes ($B = −.23$; $p = .010$), and discreet corrections ($B = .23$; $p = .005$). The

direction of the effects suggested that although CARE Time minutes and highlighting positive attributes were associated with positive sociometric ratings received in the full sample, this effect was weaker for target children relative to nontarget children. However, discreet corrections and reinforcing expectations for behavior had effects on positive sociometric ratings received by target children only, whereas this was not the case for nontarget children.

Discussion

The current study adds to the growing literature about elementary school teachers' influence on the peer dynamics of the classroom. Our results suggest that teachers can use practices that address children's problem behavior, as well

as practices that increase peers' inclusiveness, to affect students' liking and disliking of one another. Some practices had unique benefits for children with elevated ADHD symptoms. Our findings also support the utility of a consultation approach that encourages teachers to enact these practices.

Teacher Use of MOSAIC Strategies

This pilot project enrolled 12 teachers, all of whom agreed to implement the MOSAIC program, as part of refining the program for use in general education classrooms. Overall, teachers showed an ability to implement the recommended practices. Indeed, teachers self-reported doing all the MOSAIC strategies in any given school day, more often than not. Extrapolations from the observations suggested a similar pattern; the typical teacher in this sample enacted each strategy somewhere between 5 and 25 times in a school day. Both self-report and observational data suggested that teachers engaged in approximately one CARE Time session, of less than 5 min, per day. Although we do not know if other teachers who did not volunteer for the study could implement the same MOSAIC strategies, enacting these practices is feasible for at least some teachers. We speculate that the emphasis on integrating the MOSAIC strategies into day-to-day activities, as opposed to requiring a separate time of day, may have facilitated implementation integrity—perhaps because teachers perceived that strategy use minimally detracted from instructional time.

Teacher Influences on Children's Sociometric Judgments

Our results offer some support for teacher influences on children's sociometric ratings via changing children's behavior problems, as well as through increasing peers' inclusiveness. Both types of teacher practices were associated with positive peer dynamics, suggesting the potential for these two avenues to work in conjunction to maximize the peer climate of the classroom.

MOSAIC strategies involving teachers' explicit encouragement of children's positive classroom behavior, such as by reviewing behavioral expectations to that end, were associated with more favorable sociometric impressions received by children. These practices shape appropriate student behavior by setting behavioral norms (Simonsen et al., 2008), and we expected that they would lead to more positive peer sociometric ratings by reducing negative behaviors in children that are likely offensive to peers. Helping children at risk of being disliked to engage in better behaviors is the main purpose of reviewing and reinforcing expectations for behavior, and our finding suggests that the benefits of classroom behavior management may extend to improving students' peer relationships.

However, addressing the behaviors of disliked children is only one approach to improving peers' sociometric impressions about them, and may not yield maximal results by itself (Hoza, Gerdes, et al., 2005); increasing the inclusiveness of the peer group may also be important (Mikami, Griggs, et al., 2013). Crucially, we also found evidence for MOSAIC strategies that attempt to change peers' perceptions on improving children's sociometric ratings. Because increasing peers' inclusiveness is less often targeted in interventions relative to addressing problem behaviors in children, the findings from the current work are notable and may suggest an additional intervention direction for educators (Mikami & Normand, 2015).

We found that the teacher reinforcing behavioral expectations with content specific to inclusiveness predicted more positive sociometric ratings. This may have occurred because this teacher practice set a norm for inclusive behavior (Gasser et al., 2018), which increased the tolerance of peers toward children who they would otherwise have disliked. When the teacher engaged in practices to demonstrate that the teacher personally valued a child (CARE Time) and to improve a child's reputation by highlighting positive attributes in the child, this was also associated with children receiving higher sociometric ratings. These practices are thought to change peer dynamics via teachers modeling that children have value and demonstrating a positive way of treating others that peers emulate with classmates (Hughes & Im, 2016). Importantly, we speculate that there is a distinction between a teacher calling attention to positive, enduring attributes in a child (e.g., child is talented at drawing cartoons) versus a teacher reinforcing behavioral compliance (e.g., child did a good job staying seated). Perhaps, the former is something that peers view as a desirable trait that not everyone possesses. By contrast, peers may perceive behavioral compliance as something that everyone should be able to do. Thus, the purpose of a teacher highlighting a child's positive personal attributes is to help peers notice valuable characteristics in that child, whereas the purpose of a teacher reinforcing displays of behavioral compliance is to reduce a child's problem behavior that is off-putting to peers.

Effects for Children with Elevated ADHD Symptoms

Target status (a designation applied to children high in ADHD symptoms and peer problems) was suggested to moderate four of the seven effects of teacher practices. The teacher practices of CARE Time and highlighting positive attributes each appeared efficacious for the whole sample, but relatively less so for target children compared to nontarget children. By contrast, the practices of reinforcing expectations for behavior, and discreet corrections were associated with improved sociometric ratings for target children only

and had no effects in nontarget children. As noted above, the research literature has sometimes found that social contextual factors are more related to the peer problems of children with high ADHD symptoms, yet other times has found that social contextual factors are less related to peer problems in these children (Mikami et al., 2012, 2018).

One explanation for this pattern of results is that it may be important to reduce negative behaviors in children first before teacher practices that promote inclusive peer behavior toward those children will work, that is, children with ADHD symptoms display disruptive behaviors that are extremely off-putting to peers, so without reducing these behaviors, the subtle effects of teachers showing they like these children may not be enough to override their classmates' negative impressions. The teacher practice of reinforcing expectations for behavior directly targets reducing negative behaviors that are common in ADHD and therefore may work immediately. If this is the case, we might also expect that over a longer period of time, highlighting positive attributes and CARE Time may begin to affect peers' views of children with ADHD symptoms once these children's negative behaviors are better managed.

However, another explanation for these results could lie in the extent to which teachers actually delivered the strategies to target children. In the current study, we instructed teachers to give accentuated doses of all strategies to target children relative to nontarget children; however, we did not monitor whether they actually did so (something we have corrected in subsequent studies). We wonder if discreet corrections and reinforcing expectations for behavior are practices that are more likely to naturally be applied to target children. This is because target children have many behavior problems so, by definition, teachers are looking for ways to shape behaviors and are required to issue behavioral corrections. Therefore, target children may have received more of these practices relative to nontarget children.

On the other hand, teachers may have had more difficulty applying the practices of highlighting positive attributes and CARE Time to target children because of these children's disruptive behaviors. Therefore, it is possible that target children in fact received lower doses of these practices compared to nontarget children. Our results suggested that highlighting positive attributes and CARE Time were associated with positive sociometric ratings in both nontarget and target children, even if the results were stronger in nontarget children. Still, it is possible that teachers who give higher doses of these affirming, relationship-building practices to nontarget students relative to target students could potentially accentuate the differences between these two groups of students and contribute to peers' negative impressions about target children.

Study Strengths and Limitations

Study strengths include the use of both observed and self-reported measures of teacher practices (which correlated with one another), and sociometric ratings as the outcome variable. As such, there was good separation of method variance. Peers are considered to be the best informants of classroom social dynamics, and sociometric measures are preferable to teacher report of this construct (Cillessen & Bukowski, 2018). Another strength of this study was the use of a short-term longitudinal design across one school year, where fall sociometric ratings were controlled for in analyses predicting spring sociometric ratings. This methodology helps to suggest that teacher practices may be resulting in changes in peer sociometrics, as opposed to peer sociometrics influencing teacher practices.

Limitations of this study mostly reflect its nature as a pilot investigation. One limitation is that because we were getting feedback from participating teachers about which MOSAIC strategies to retain for the future, we attempted to assess many teacher practices, and either they had low inter-rater reliability in the observations, or they had very low variance, or the teacher self-report did not correlate with the observations. Therefore, we only analyzed a subset of the teacher practices. Based on our experience and these analyses, this subset of strategies is emphasized in the new MOSAIC program manual. Second, we did not measure whether the teacher practices were delivered to target versus nontarget children. Third, it also would be interesting in future work with a larger sample to examine changes over the school year in rates of MOSAIC strategy use, as presumably, consultation was increasing these rates.

Another limitation is that the sample of 12 teachers, all of whom received the MOSAIC program, does not allow us to infer that the MOSAIC strategies led to changes in sociometrics. We cannot infer causality, because teachers who were more inclined to use the MOSAIC strategies may also have used other unmeasured practices that contributed to improved sociometric ratings. It is also unclear to what extent these teachers would have enacted the same practices without our program.

In addition, we elected to use a continuous measure of sociometric ratings (ranging from 1 = *really do not like* to 5 = *really like*) as the outcome variable to limit the number of analyses conducted, but including appraisals of peer liking and disliking separately would allow us to examine effects of MOSAIC strategies on positive relative to negative sociometric judgments. It is possible that some practices could have stronger effects on increasing liking relative to decreasing disliking, or vice versa (see, for example, Hughes & Im, 2016).

Another issue is that although we also view our dual site study as a strength because it adds to the diversity of our sample, it also introduces potential demographic differences across sites that may have affected our results in unknown ways. We statistically controlled for student gender and race, but there are other student demographics (such as socioeconomic status) that we could have included as covariates but for which we lacked measures; additionally, the teacher sample was too small to include demographic covariates at the teacher level. Further, we do not have measures about non-consented students so we do not know how they may differ from the consented students in our sample. Finally, the target children were at risk of ADHD, but we do not know if results can be extrapolated to children with confirmed ADHD diagnoses in the general education classroom.

Implications for Practice

Although children with ADHD symptoms often require pull-out or special education services, the teacher strategies that make up MOSAIC, and that were examined in this study, are day-to-day practices that general education teachers can integrate into any activity, that is, reviewing and reinforcing expectations can be done regardless of the curricular content being taught (academic or non-academic). Teachers can communicate that a child has value by taking a personal interest in that child, or highlighting strengths, during any activity. The need to correct child behavior occurs during every activity across the day, so teachers have many opportunities to consider how to correct behavior discreetly. Therefore, the MOSAIC strategies may be useful to general education teachers because they do not require special attention to them or take much time out of their regular lesson planning. In addition, it is challenging for general education teachers to devote intensive efforts to a few children with high ADHD behavior problems, given the need to manage the rest of the class at the same time. The fact that these teacher practices seem to have universal effects (in addition to unique benefits of some practices for target children) may make them more feasible for general education teachers to adopt.

Summary

Elementary school teachers may affect the peer social dynamics of their classrooms through their own practices. This potentially occurs via the teacher addressing children's behavior problems. However, teachers may also create a positive peer climate via guiding peers to be more inclusive of others. This study also offers preliminary, initial evidence that enacting both types of teacher strategies may facilitate children's positive sociometric impressions.

Compliance with Ethical Standards

Conflict of interest All authors declare that they have no conflicts of interest.

References

Balázs, J., & Keresztény, Á. (2014). Subthreshold attention deficit hyperactivity in children and adolescents: A systematic review. *European Child and Adolescent Psychiatry, 23,* 393–408. https://doi.org/10.1007/s00787-013-0514-7.

Buhs, E. S., Ladd, G. W., & Herald, S. L. (2006). Peer exclusion and victimization: Processes that mediate the relation between peer group rejection and children's classroom engagement and achievement? *Journal of Educational Psychology, 98,* 1–13. https://doi.org/10.1037/0022-0663.98.1.1.

Chang, L. (2004). The role of classroom norms in contextualizing the relations of children's social behaviors to peer acceptance. *Developmental Psychology, 40,* 691–702. https://doi.org/10.1037/0012-1649.40.5.691.

Chang, L., Liu, H., Fung, K. Y., Wang, Y., Wen, Z., Li, H., et al. (2007). The mediating and moderating effects of teacher preference on the relations between students' social behaviors and peer acceptance. *Merrill-Palmer Quarterly: Journal of Developmental Psychology, 53,* 603–630. https://doi.org/10.1353/mpq.2008.0006.

Cicchetti, D. V. (1994). Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. *Psychological Assessment, 6,* 284–290.

Cillessen, A. H. N., & Bukowski, W. M. (2018). Sociometric perspectives. In W. M. Bukowski, B. Laursen, & K. H. Rubin (Eds.), *Handbook of peer interactions, relationships, and groups* (2nd ed., pp. 63–84). New York: Guilford.

Coie, J. D., Dodge, K. A., & Coppotelli, H. (1982). Dimensions and types of social status: A cross-age perspective. *Developmental Psychology, 18,* 557–570. https://doi.org/10.1037/0012-1649.18.4.557.

Dishion, T. J., & Kavanagh, K. (2003). *Intervening in adolescent problem behavior: A family-centered approach*. New York: Guilford.

Driscoll, K. C., & Pianta, R. C. (2010). Banking time in head start: Early efficacy of an intervention designed to promote supportive teacher–child relationships. *Early Education and Development, 21,* 38–64. https://doi.org/10.1080/10409280802657449.

DuPaul, G. J., Power, T. J., Anastopoulous, A. D., & Reid, R. (1998). *ADHD rating scale-IV: Checklists, norms, and clinical interpretation*. New York: The Guilford Press.

Epstein, M., Atkins, M., Culinan, D., Kutash, K., & Weaver, R. (2008). *Reducing behavior problems in the elementary school classroom. IES Practice Guide. (NCEE 2008-012)*. Washington, DC: U.S. Government Printing Office.

Farmer, T. W., Lines, M. M., & Hamm, J. V. (2011). Revealing the invisible hand: The role of teachers in children's peer experiences.

Journal of Applied Developmental Psychology, 32, 247–256. https://doi.org/10.1016/j.appdev.2011.04.006.

Gasser, L., Grütter, J., & Torchetti, L. (2018). Inclusive classroom norms, children's sympathy, and intended inclusion toward students with hyperactive behavior. *Journal of School Psychology, 71,* 72–84. https://doi.org/10.1016/j.jsp.2018.10.005.

Goodman, R. (1997). The strengths and difficulties questionnaire: A research note. *Journal of Child Psychology and Psychiatry, 38,* 581–586.

Guo, S. (2005). Analyzing grouped data with hierarchical linear modeling. *Children and Youth Services Review, 27,* 637–652. https://doi.org/10.1016/j.childyouth.2004.11.017.

Harrist, A. W., & Bradley, K. D. (2003). "You can't say you can't play": Intervening in the process of social exclusion in the kindergarten classroom. *Early Childhood Research Quarterly, 18,* 185–205. https://doi.org/10.1016/s0885-2006(03)00024-3.

Hoza, B., Gerdes, A. C., Mrug, S., Hinshaw, S. P., Bukowski, W. M., Gold, J. A., et al. (2005). Peer-assessed outcomes in the multimodal treatment study of children with attention deficit hyperactivity disorder. *Journal of Clinical Child and Adolescent Psychology, 34,* 74–86. https://doi.org/10.1207/s15374424jccp3401_7.

Hoza, B., Mrug, S., Gerdes, A. C., Hinshaw, S. P., Bukowski, W. M., Gold, J. A., et al. (2005). What aspects of peer relationships are impaired in children with attention-deficit/hyperactivity disorder? *Journal of Consulting and Clinical Psychology, 73,* 411–423. https://doi.org/10.1037/0022-006x.73.3.411.

Hughes, J. N., & Cavell, T. A. (1999). Influence of the teacher–student relationship in childhood conduct problems: A prospective study. *Journal of Clinical Child Psychology, 28,* 173–184. https://doi.org/10.1207/s15374424jccp2802_5.

Hughes, J. N., & Im, M. H. (2016). Teacher–student relationship and peer disliking and liking across grades 1–4. *Child Development, 87,* 593–611. https://doi.org/10.1111/cdev.12477.

Jenkins, L. N., Floress, M. T., & Reinke, W. (2015). Rates and types of teacher praise: A review and future directions. *Psychology in the Schools, 52,* 463–476.

Ladd, G. W., Kochenderfer-Ladd, B., & Sechler, C. M. (2014). Classroom peer relations as a context for social and scholastic development. In S. H. Landry & C. L. Cooper (Eds.), *Wellbeing in children and families* (Vol. I, pp. 243–270). London: Wiley-Blackwell.

McAuliffe, M., Hubbard, J., & Romano, L. (2009). The role of teacher cognition and behavior in children's peer relations. *Journal of Abnormal Child Psychology, 37,* 665–677. https://doi.org/10.1007/s10802-009-9305-5.

McKown, C., Gumbiner, L. M., & Johnson, J. (2011). Diagnostic efficiency of several methods of identifying socially rejected children and effect of participation rate on classification accuracy. *Journal*

of School Psychology, 49, 573–595. https://doi.org/10.1016/j.jsp.2011.06.002.

Mikami, A. Y., Griggs, M. S., Lerner, M. D., Emeh, C. C., Reuland, M. M., Jack, A., et al. (2013). A randomized trial of a classroom intervention to increase peers' social inclusion of children with attention-deficit/hyperactivity disorder. *Journal of Consulting and Clinical Psychology, 81,* 100–112. https://doi.org/10.1037/a0029654.

Mikami, A. Y., Griggs, M. S., Reuland, M. M., & Gregory, A. (2012). Teacher practices as predictors of children's classroom social preference. *Journal of School Psychology, 50,* 95–111. https://doi.org/10.1016/j.jsp.2011.08.002.

Mikami, A. Y., & Mercer, S. H. (2017). Teacher behaviors toward children with attention-deficit/hyperactivity disorder predict peers' initial liking and disliking impressions in a summer camp setting. *Journal of Social and Clinical Psychology, 36,* 506–534.

Mikami, A. Y., Münch, L. P., & Hudec, K. L. (2018). Associations between peer functioning and verbal ability among children with and without attention-deficit/hyperactivity disorder. *Journal of Emotional and Behavioral Disorders, 26,* 93–105. https://doi.org/10.1177/1063426617693380.

Mikami, A. Y., & Normand, S. (2015). The importance of social contextual factors in peer relationships of children with ADHD. *Current Developmental Disorders Reports, 2,* 30–37.

Mikami, A. Y., Reuland, M. M., Griggs, M. S., & Jia, M. (2013). Collateral effects of a peer relationship intervention for children with ADHD on typically developing classmates. *School Psychology Review, 42,* 458–476.

Peets, K., Hodges, E. V. E., Kikas, E., & Salmivalli, C. (2007). Hostile attributions and behavioral strategies in children: Does relationship type matter? *Developmental Psychology, 43,* 889–900. https://doi.org/10.1037/0012-1649.43.4.889.

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Simonsen, B., Fairbanks, S., Briesch, A., Myers, D., & Sugai, G. (2008). Evidence-based practices in classroom management: Considerations for research to practice. *Education and Treatment of Children, 31,* 351–380.

Wentzel, K. R., Battle, A., Russell, S. L., & Looney, L. B. (2010). Social supports from teachers and peers as predictors of academic and social motivation. *Contemporary Educational Psychology, 35,* 193–202. https://doi.org/10.1016/j.cedpsych.2010.03.002.