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Article

Enhancing Social Inclusion of Children With Externalizing Problems Through Classroom Seating Arrangements: A Randomized Controlled Trial

Y. H. M. van den Berg, PhD[1] and S. Stoltz, PhD[1]

Abstract

Inclusive education has brought new challenges for teachers, including the search for a suitable place in the classroom for children with externalizing problems. In the current study, we examined whether a careful rearrangement of the classroom seats could promote social acceptance and more prosocial behaviors for children with externalizing problems, and limit the potential negative consequences for classmates sitting next to them. The sample of this randomized controlled trial consisted of 64 classrooms with 221 fourth- to sixth-grade children selected by their teachers because of elevated levels of externalizing behavior. Results showed that over time children with externalizing behavior were better liked by their seatmates and showed fewer externalizing problems according to the teacher. This was particularly the case when students sat next to a well-liked and prosocial buddy, or when they were initially disliked. Classmates who sat next to a child with externalizing problems did not become more aggressive or less prosocial over time. Yet their social status did decrease slightly over time as a result of the rearrangement. We discuss implications and future directions for research on classroom seating arrangements to support children with externalizing problems.

Keywords

externalizing behavior, teaching strategies, peer relations, classroom environment, child interventions

Inclusive education has brought new challenges for teachers, including the search for a supportive environment for children with special education needs within mainstream classes (Evertson & Weinstein, 2006). Certain children with special needs are at heightened risk to be rejected and excluded by their classmates, such as children with externalizing behaviors, as they can be seen as troublesome and socially aversive by their peers (Coie, Terry, Lenox, Lochman, & Hyman, 1995). As a result, peer rejection is a common problem among these children and the experience of being rejected by peers may further increase more serious and chronic externalizing problems (Coie et al., 1995; Prinstein & La Greca, 2004). With effective classroom management, teachers try to create an orderly as well as engaging environment that supports students' academic and social-emotional learning (Evertson & Weinstein, 2006). However, in inclusive classrooms, teachers have to work with an even more diverse group of children, which makes effective classroom management more critical as well as challenging (Soodak, 2003).

As a part of classroom management, teachers regularly face the questions of how and where to seat children with special needs (Gremmen, van den Berg, Segers, & Cillessen,

2016). When arranging classroom seats, they have to take into account not only students' individual characteristics but also the risks and benefits of children sitting next to one another. Looking at the potential risks for seatmates may be especially important when trying to position children with externalizing behaviors, as they can negatively influence their peers with their behavior (Dishion & Patterson, 2006; Mrug & Windle, 2009; Snyder et al., 2008). Positioning children with externalizing behaviors at a separate, individual place may seem as one of the safest options at first sight. However, this may increase their already heightened risk for social isolation (Choukas-Bradley & Prinstein, 2014). Grouping children with externalizing behavior together might be risky, as this may result in deviancy training (Dishion, McCord, & Poulin, 1999; Snyder et al., 2008). The most favorable strategy might be to place a child with externalizing problems next to a classmate who could model

[1]Radboud University, Nijmegen, The Netherlands

Corresponding Author:
Y. H. M. van den Berg, PhD, Behavioural Science Institute, Radboud University, P.O. Box 9104, 6500 HE Nijmegen, The Netherlands.
Email: y.vandenberg@psych.ru.nl

desired behaviors and resist potential negative influences (Bandura, 1973; Hektner, August, & Realmuto, 2003; Vitaro, Brendgen, Pagani, Tremblay, & McDuff, 1999).

The current study, therefore, examines the consequences of placing a child with externalizing behavior next to a prosocial and socially accepted classmate. We will look at consequences for children with externalizing problems and their seatmates with regard to social status and behavior, resulting in the following research questions:

> **Research Question 1:** Do children with teacher-identified externalizing problems become better liked, less aggressive, and more prosocial when sitting next to a well-liked and prosocial buddy compared with a random classmate?
>
> **Research Question 2:** Do classmates become less liked, more aggressive, and less prosocial when sitting next to a child with teacher-identified externalizing problems?

A Suitable Place for Children With Externalizing Problems

Jacob Moreno (1953), who was one of the founders of social network analysis, argued that reciprocal affection between children would never become active unless they were proximal in distance. Relatedly, in the intergroup contact theory and the contact hypothesis, Allport (1954) and Walker and Crogan (1998) stated that people have more opportunities to interact if they are brought together. Increased interpersonal contact not only facilitates positive perceptions among individuals but also reduces negative peer perceptions (Pettigrew & Tropp, 2006).

Based on these theories, van den Berg, Segers, and Cillessen (2012) conducted a field experiment in which they examined whether increased interpersonal contact would also improve peer perceptions among children. They identified pairs of students in which at least one child disliked the other. Next, they reduced the distance between these students by carefully rearranging the classroom seats for several weeks. Sitting closer to one another indeed promoted interpersonal liking, especially for initially highly disliked children. As mentioned before, children with externalizing behavior are at heightened risk to be rejected by their peers (Coie et al., 1995; Prinstein & La Greca, 2004). Based on results of the field study by van den Berg and colleagues (2012) and the intergroup contact theory, it can be expected that children with externalizing behavior may also benefit from a careful and conscious rearrangement of seats. Yet, the question remains: Who to place next to these children?

Partnering a child with externalizing problems with a prosocial classmate may have a protective impact as prosocial peers have the ability to serve as a role model (i.e., social learning theory; Bandura, 1973). When children with externalizing behaviors are seated next to a role model, they can observe the desired prosocial behavior as well as the positive attention and recognition from others following the prosocial behavior. As a result, the child may begin to behave in a more desired manner in hopes of pleasing others and being praised for it (i.e., vicarious reinforcement; Bandura, 1973; Barry & Wentzel, 2006). The interaction with the prosocial peer may thus offer the child with externalizing problems opportunities for skill practice and feedback from teachers on their behavior (Fabes, Hanish, Martin, Moss, & Reesing, 2012). In addition, if prosocial behavior is also valued in the group and associated with high social status, it is not just the behavior that may serve as a reward but also the potential of being more accepted by one's peers (Aikins & Litwack, 2011).

Social acceptance may not only improve as a result of prosocial modeling and accompanying behavioral changes. Research has shown that prosocial and socially competent children are often well accepted by their peers (Aikins & Litwack, 2011). Just being associated with classmates from higher social networks may elevate one's own status (Dijkstra, Cillessen, Lindenberg, & Veenstra, 2010); classmates may view a child with externalizing problems more positively as he or she sits next to a socially well-liked and prosocial buddy. This phenomenon has been referred to as "basking in reflected glory" (Cialdini & Richardson, 1980, p. 406).

Indeed, there is evidence for both social modeling and basking in reflected glory when pairing high and low status peers. A study by Hektner, August, and Realmuto (2000) showed that children shape their behavior to peers with whom they associate. In dyads comprised of a moderately aggressive and a nonaggressive child, it was found that aggressive children were more likely to adapt their behavior and become less aggressive (Hektner et al., 2003). In addition, peer perceptions and attitudes toward aggressive children changed (Hektner et al., 2003). More positive responses of high-status buddies toward low-status and aggressive children may have served as an attributional cue to the aggressive children and their classmates, leading to more positive perceptions and social acceptance (Lavallee, Bierman, & Nix, 2005). So, both changes in actual behavior and in others' perceptions as a result of being affiliated with a socially accepted and prosocial classmate may result in more social acceptance of children with externalizing behavior.

The Risks of Sitting Next to Children With Externalizing Problems

However, interventions such as these may raise the question as to whether aggressive children can negatively influence others (Lavallee et al., 2005). Assuming that peer influence is mutual, it is possible that an aggressive child could learn more normative behavior, but that a prosocial child could

acquire more deviant behaviors. In particular, parents of well-adjusted children express their concerns about exposing their children to aggressive children (Dodge, Dishion, & Lansford, 2006). Teachers have to take these concerns into consideration when making a classroom arrangement (Gremmen et al., 2016).

There is evidence that prosocial children who serve as buddies for aggressive children are relatively unaffected in their behavior and do not become more disruptive over time (Hektner et al., 2003; Vitaro et al., 1999). These studies showed that aggressive children did adjust their behavior to conform to their buddies' standard but not vice versa. However, this might only be the case when the prosocial child is also socially accepted by his or her peers (Dijkstra et al., 2010). Perhaps then there is no motivation for the prosocial child to conform to the child with aggressive behavior, because the prosocial behavior is already reinforced and encouraged by positive peer evaluations. In addition, experiencing the social rewards from having a high social status may make prosocial children more resilient against negative peer influence (Aikins & Litwack, 2011; Mayeux, Houser, & Dyches, 2011). Moreover, prosocial children may be more susceptible to influences from similarly behaving friends who reinforce existing behavior than from friends with opposite behaviors (Hektner et al., 2003; Vitaro et al., 1999). In the current study, we examine whether this is also the case when a prosocial child sits next to a child with externalizing behavior and is exposed to that child's behavior on a frequent basis for a prolonged time.

In the current study, we examine whether a careful rearrangement of the classroom seats could promote social acceptance and more positive behaviors for children with externalizing behaviors, and limit potential negative consequences for classmates sitting next to them. In a randomized controlled design, we placed children identified by their teachers as having externalizing problems either next to a prosocial and well-liked classmate (e.g., experimental condition) or next to a random classmate (e.g., control condition).

We first examined whether children with externalizing behavior would become better liked by their peers. Based on the intergroup contact theory and the contact hypothesis (Allport, 1954; Pettigrew & Tropp, 2006), children sitting next to each other would have more frequent opportunities for interpersonal contact, which could contribute to positive perceptions about each other (van den Berg et al., 2012). Moreover, we expected that children with teacher-identified externalizing problems would, as a result of the new seating arrangements, become better liked by the entire group. We predicted that this result would be true for the children in the experimental condition, due to positive behavioral changes or as a result of basking in reflected glory (Cialdini & Richardson, 1980; Hektner et al., 2003). Second, we examined the extent to which sitting next to a prosocial classmate would result in fewer teacher-reported externalizing problems, less frequent aggressive behavior, and more frequent prosocial behavior according to the peers as a result of opportunities for social modeling (Bandura, 1973). Third, we examined potential negative peer-reported behavioral ratings for classmates sitting next to the child with externalizing problems. Children who are considered to be highly prosocial are less susceptible to antisocial behaviors of an aggressive child (Hektner et al., 2003; Vitaro et al., 1999). Thus, we hypothesized that prosocial buddies would be unlikely to be influenced by the negative behaviors of a child with externalizing behavior, particularly when compared with randomly selected seatmates.

Method

Recruitment and Assignment to Condition

Schools in the Netherlands were recruited through general information letters, registration at the project website, and media attention resulting in self-registration. If teachers showed interest, they received a letter and follow-up call, explaining the goal and arrangement of the study (e.g., timing and number of assessments, content of the assessments, consent procedure). Teachers knew and approved that the seating arrangements would be changed to promote positive peer relations, but were unaware which strategies would be used to place specific children next to specific classmates. Next, teachers were asked to fill in the active consent form. In total, 64 teachers (Grade 4-Grade 6) were willing to participate. Each teacher and corresponding students were randomly assigned to either the experimental or control condition (see Figure 1). Teachers were kept blind to their assigned research condition until the end of the project.

Parents and guardians of all children received a general information letter explaining the study and requesting permission for participation. If they did not want their child to participate, they could return the consent form. In total, 34 parents at pretest and 32 parents at posttest declined to participate. Students were asked for active assent to participate before each assessment. No child declined to participate. Recruitment and procedures were approved by the Institutional Review Board (ECSW2015-1210-347).

Participants

A total of 1,569 students (50.3% boys) in 64 classrooms in 28 schools participated. At pretest, students were on average 10.45 years old ($SD = .89$) and the majority (81.5%) were considered to be native Dutch (e.g., both parents born in the Netherlands; Statistics Netherlands, 2016). Demographic statistics at pretest are presented in Table 1. No significant differences in participants' demographic characteristics between the experimental conditions were
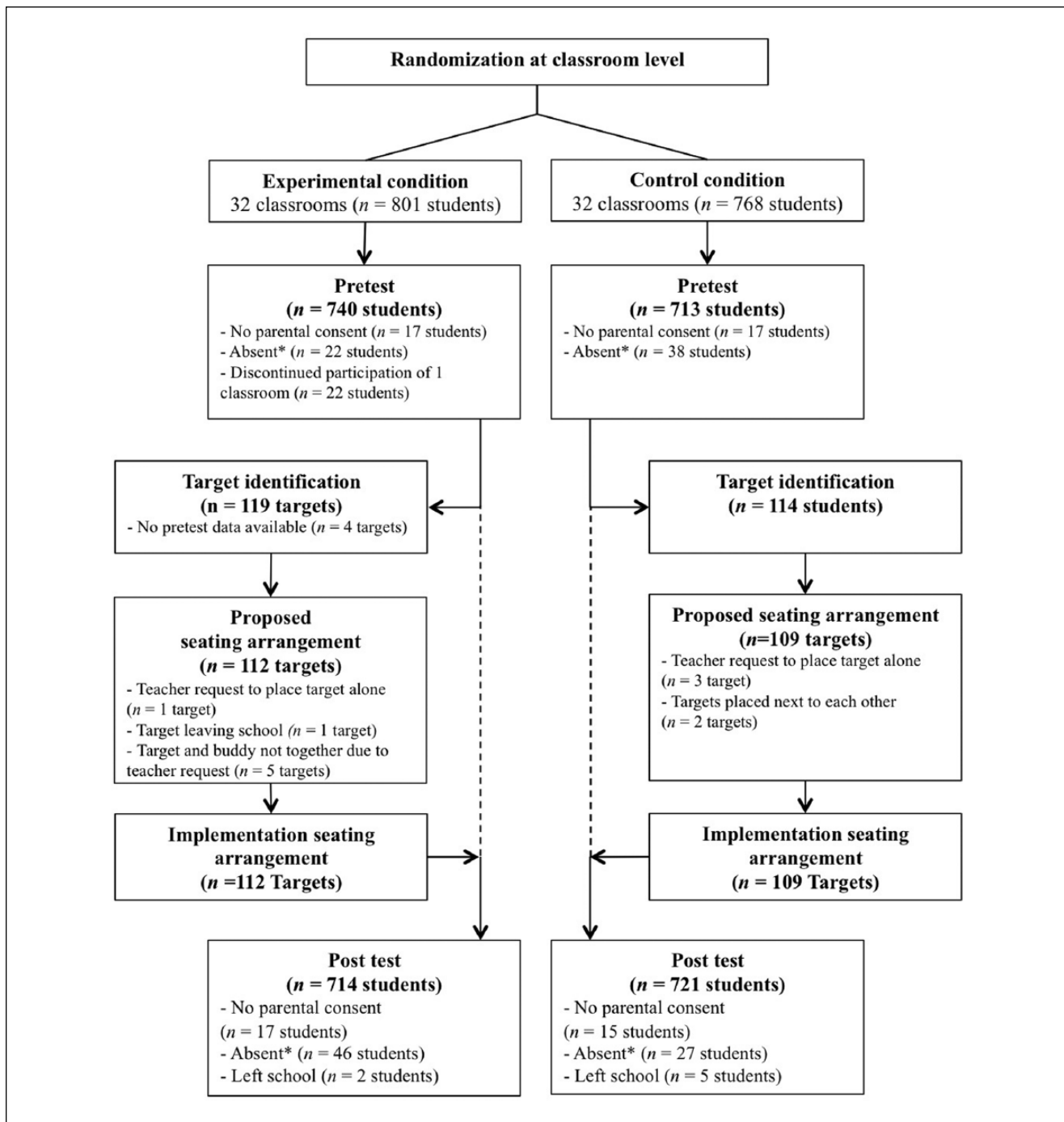
Figure 1. Flowchart of the randomization process and participant flow.
*Those who were absent did not fill in the questionnaire themselves, yet remained part of the final sample as they still received scores based on peer and teacher reports.

found. The randomization process and participant flow are shown in Figure 1.

Procedure

Pretest. The pretest took place in the last 2 weeks before fall vacation (October 2015). Teachers were asked to complete a

short paper questionnaire and to draw a map of the default seating arrangement in the class (van den Berg & Cillessen, 2015). Children completed a computerized questionnaire using netbook computers during a 45- to 60-min classroom session. Prior to conducting the initial assessment, one of the researchers explained the goal and arrangement of the study. Children were told that the data would be processed anonymously and

Table 1. Demographic Characteristics at Pretest by Condition.

Demographic Characteristic	Control			Experimental		
	Total	Target	Random seatmate	Total	Target	Buddy
Students with parental consent (n)	751	109	109	784	112	112
Age at pretest (in years, M with SD)	10.49 (.90)	10.53 (.86)	10.35 (.89)	10.42 (.89)	10.50 (.82)	10.33 (.93)
Gender (% boys)	48.6	85.3	78.9*	52.0	84.8	56.3*
Ethnic background[a]						
Dutch	80.8	78.3	81.5	82.2	81.8	85.7
First generation immigrant	3.0	4.7	1.9	2.7	1.8	0.9
Second generation immigrant	16.3	17.0	16.7	15.2	16.4	13.4
Teacher (n)	32			32		
Age (in years, M with SD)	40.91 (12.09)			41.38 (12.14)		
Gender (% male)	28.1			38.7		
Teaching experience (in years, M with SD)	15.14 (10.93)			15.43 (11.39)		
Full-time employment (% >4 days in class)	56.3			54.8		
Classroom (n)	32			32		
Size (M with range)	23.97 (13–33)			25.00 (12–33)		

[a]Categorization following Statistics Netherlands (2016).
*Different between conditions, $p < .05$.

handled confidentially. They could withdraw from the study at any given moment regardless of the reason.

Implementation period. Immediately after the pretest, new seating arrangements were designed (see Intervention). After teachers' approval, the new arrangements were implemented on the first day after fall vacation. Teachers were asked to maintain the arrangement until the posttest.

Posttest. The posttest took place during the first 2 weeks after Christmas holidays (January 2016). This was on average 10 weeks after pretest (range = 8–13 weeks). Teachers and students were asked to complete questionnaires. After completion, they were provided with a debriefing of the goals of the project. Students received a small gift as a token of appreciation.

Measures

Likeability (peer report). All participating children were asked to rate each other on likeability in a complete round-robin fashion. They were asked how much they liked each participating classmate on a 5-point Likert-type scale (1 = *dislike very much*, 5= *like very much*). First, we coded the degree to which the buddy or random seatmate liked the target child (96.2% complete data; Little's MCAR test, $\chi^2/2 = 3.38$, $p = .18$). Next, we coded the degree to which the target child liked the buddy or random seatmate (96.0% complete data; Little's MCAR test, $\chi^2/2 = .01$, $p = .99$). Third, these ratings about the target children given by the entire class were averaged. Finally, we averaged these ratings about the buddy or random seatmate given by the entire class. There were no missing data in group likeability at

pretest or posttest.

Externalizing behavior (teacher report). Teacher questionnaires were used to identify children with externalizing problems. Children with externalizing problems were described as ". . . often get into fights, solve problems with swearing, kicking and hitting others, are easily upset, are stubborn, angry, rude, bully, think they are always blamed, threaten others, blame others, have few friends etc." Based on this description, teachers were asked to select children in their classes showing the highest levels of externalizing problems, depending on classroom size. In classrooms with fewer than 15 students, a minimum of three students had to be selected; in classrooms with 15 to 20 students, at least four students had to be selected; and in classrooms with more than 30 students, at least five students had to be selected (i.e., the top 30%; Stoltz et al., 2013).

For each of the selected children, teachers rated the level of externalizing behavior at pretest and posttest by answering four items from the conduct problems subscale of the *Strengths and Difficulties Questionnaire* (van Widenfelt, Goedhart, Treffers, & Goodman, 2003) on a 3-point Likert-type scale (1 = *not true*, 3 = *definitely true*). We added two items regarding externalizing behavior at school (i.e., *often disturbs class, argues a lot*). Scores were averaged at pretest (α = .64) and posttest (α = .64), with higher scores indicating more externalizing behavior. Ninety-one percent of the target students had complete data (Little's MCAR test, $\chi^2/1 = .75$, $p = .39$).

Prosocial and aggressive behavior (peer report). Peer nominations were used to assess children's prosocial and aggressive behavior. For each nomination question, children could nominate as many or as few classmates as they wanted

(except for themselves), with a minimum of one. Children answered four nomination questions regarding prosocial behavior, such as "Who cooperates well with others." Proportion scores were computed by dividing the number of received nominations by the number of voters in the classroom. The resulting scores were averaged to create scores for prosocial behavior at pretest (α = .91) and posttest (α = .93), with higher scores indicating more prosocial behavior. Children answered eight nomination questions regarding aggressive behavior, such as "Who gets angry or mad easily?" Nominations received were counted for each child for each question and computed into proportion scores. Resulting scores were averaged to create composite scores for aggression at pretest (α = .93) and posttest (α = .94), with higher scores indicating more aggression.

Intervention

Identification of target students (externalizers). Target students were selected based on teacher-identified children with elevated levels of externalizing behavior at school. Teachers initially selected 237 target students. However, 11 students in the experimental condition and five students in the control condition had to be excluded from the analyses (see Figure 1). Students who were excluded from the analyses did not differ from students who were included on any of the outcome measures.

The remaining group of 221 target students was 10.52 years (*SD* = .84) and the majority were male (85.1%) and native Dutch (80.2%). At pretest, target students were more aggressive (*M* = .28, *SD* = .18), *t*(1509) = −29.26, *p* < .001, and less prosocial (*M* = .16, *SD* = .10), *t*(1509) = 10.86, *p* < .001, compared with their classmates (*M* = .07, *SD* = .08 for aggression; *M* = .27, *SD* = .13 for prosocial behavior). Teachers reported at least one symptom of externalizing behavior among 98.4% of the target students (*M* = 1.75, *SD* = .40). Demographic statistics are presented in Table 1.

Some children with externalizing behavior are at increased risk for peer rejection (Coie et al., 1995; Prinstein & La Greca, 2004) whereas others can acquire a high status (Rodkin & Roisman, 2010). Moreover, proximity in the classroom has shown to be especially beneficial for those who are socially rejected (van den Berg et al., 2012). We therefore examined the degree to which target students were liked or disliked. Of the target students, 34.1% were disliked by their buddies or random seatmate (likeability ratings of 0 or 1), 31.3% were liked (likeability rating of 2), and 34.6% were liked (likeability ratings of 3 or 4).

Identification of buddies. Buddies were identified as children at the top of their classes for prosocial behavior and social status as reported by peers. Buddies could not be named by teachers as a target student, and their score on aggression had to be below average.

New seating arrangements. Immediately after the pretest, new seating arrangements were designed by the research team. Teachers were asked whether certain students had to sit at specific places (e.g., because of hearing or vision problems, learning difficulties, or other reasons). These requests were taken into account by members of the research team when making the new arrangements. The layout of the classroom (e.g., rows, groups, other) remained the same, yet all students were placed in different seats, mixing boys and girls as often as possible.

In the *control condition*, target students were placed next to a random classmate. To do so, each seat in the classroom received a number. Next, each child was randomly assigned to one of these numbers with even numbers for boys and uneven numbers for girls. As a result, each target student was placed next to a randomly selected classmate and all other students were assigned a different seat, mixing boys and girls as often as possible.

In the *experimental condition*, target students were placed next to a buddy. First, target students were randomly paired with one of the identified buddies and assigned to adjacent seats. If there were multiple target students in the class, they were placed next to different peer buddies, and as much as possible in separate groups in the classroom. All remaining students—those who were not a target or buddy—were randomly assigned to a seat using the same procedure as in the control condition.

The new seating arrangements were discussed with teachers before implementation and then adjusted to accommodate teacher requests. Thirty-one teachers (15 experimental condition and 16 control condition) requested at least one change. Although the majority of these requests did not concern the placement of the target students, five target students could not sit next to the selected seatmate both in the experimental and in the control condition (see Figure 1).

Duration of seating arrangements. After implementation, teachers completed a weekly logbook, in which they reported any changes in rearrangements of seats. For each target student, we coded the number of weeks they sat next to the assigned buddy or random seatmate and divided this number by the total number of weeks between the start of implementation and posttest. The proportion of time was used as a score for duration. Five teachers did not complete the logbooks. In those classes, for target students (*n* = 18) duration was coded zero as we could not be certain that they sat next to the requested seatmates.

Plan of Analyses

First, we tested for possible group differences in descriptive statistics at pretest. Next, we tested whether the likeability and behavior of target students changed over the course of the intervention. We conducted two 2 (time: pretest vs.

posttest) × 2 (condition: experimental vs. control) analyses of variance: once for likeability according to the buddy or random seatmate, and once for likeability according to the entire class. We conducted three 2 (time: pretest vs. posttest) × 2 (condition: experimental vs. control) analyses of variance to examine changes in externalizing behavior (teacher report), aggressive behavior (peer report), and prosocial behavior (peer report) over the course of the intervention period.

In addition, we ran four 2 (time: pretest vs. posttest) × 2 (condition: experimental vs. control) analyses of variance to examine the effects on likeability (according to target students and entire class) and on the aggressive and prosocial behavior of the buddies or random seatmates.

We further explored whether changes in target students' likeability and behavior depended on their initial likeability. We therefore ran the analyses separately for target students who were disliked (34.1%), received average likeability ratings (31.3%), or were liked (34.6%) according to the buddies and random seatmate.

Results

Descriptives

Except for gender, we identified no significant differences between groups assigned to the two experimental conditions in demographic characteristics (see Table 1). Although the majority of the random seatmates were male, the number of male and female buddies was about equal. Table 2 presents the means and standard deviations of the main outcome variables. As expected, given our selection criteria for buddies in the experimental condition and random selection of seatmates in the control condition, buddies scored significantly higher on peer ratings of likeability and prosocial behavior, but lower on aggressive behavior compared with random seatmates. Although teachers were asked to maintain the seating arrangements the same during the implementation period, 29.1% of the target students (*n* = 59) did not sit next to their buddy or random seatmate for the entire period. Although duration of seating arrangements did not predict differences over time or between conditions for any of the outcome variables, we controlled for duration in all of the analyses described below.

Changes in Target Students' Likeability

At both pretest and posttest, target students in the experimental condition were better liked by their buddies than by a random seatmate, $F(1, 202) = 6.86$, $p < .01$, $\eta_p^2 = .03$. Target students were also better liked at pretest and posttest by members of the class in the experimental condition compared with the control condition, $F(1, 218) = 9.93$, $p < .01$, $\eta_p^2 = .04$. However, target students were not perceived

differently by their peers over time nor did the difference between students within conditions change over time. Thus, target students did not become better liked by their buddy or random seatmate or by the group as a result of the seating rearrangement.

Next, we explored changes in target students' likeability. Those who were initially liked or received average likeability scores were not perceived differently over time by their seatmates, nor did the difference between students within conditions change over time. Yet, disliked target students became better liked over time, $F(1, 68) = 6.78$, $p = .01$, $\eta_p^2 = .049$. Post hoc comparisons showed that target students became better liked in the experimental, $t(25) = -4.17$, $p < .01$ ($d = 1.09$), and the control condition, $t(44) = -3.47$, $p < .01$ ($d = .79$). This increase was slightly stronger in the experimental condition, $t(69) = -1.96$, $p = .05$ ($d = .47$). We also explored whether changes in target students' likeability by the entire class depended on their initial likeability. We found that those who were initially disliked or liked by the entire class were not perceived differently over time or in either condition. However, a significant time by condition effect was found for target students who received average scores for likeability, $F(1, 56) = 4.54$, $p = .04$, $\eta_p^2 = .07$. Post hoc comparisons revealed that target students in the experimental condition were better liked than target students in the control condition at pretest, $t(66) = -2.85$, $p < .01$ ($d = .72$), but no longer at posttest, $t(66) = -1.04$, $p = .30$ ($d = .27$).

Changes in Target Students' Behavior

Teachers rated the target students as displaying fewer externalizing behaviors over time, $F(1, 198) = 5.34$, $p = .02$, $\eta_p^2 = .03$, regardless of condition, $F(1, 198) = 3.12$, $p = .08$, $\eta_p^2 = .02$. Analyses for target students indicated no changes in teacher-rated externalizing behavior for those who were initially liked, or received average likability ratings. However, target students who were initially disliked showed significantly fewer externalizing behaviors, according to teachers, over time in both conditions, $F(1, 66) = 4.69$, $p = .03$, $\eta_p^2 = .07$.

At both pretest and posttest, target students in the experimental condition were not more prosocial than those in the control condition, $F(1, 218) = 3.36$, $p = .07$, $\eta_p^2 = .01$. Regardless of condition, target students showed an increase in nominations for prosocial, $F(1, 218) = 7.99$, $p < .01$, $\eta_p^2 = .04$, and aggressive behavior over time, $F(1, 218) = 78.86$, $p < .01$, $\eta_p^2 = .04$. No significant time by condition effects were found. When comparing the target students who were disliked, received average likeability scores, and were liked by their peers, it appeared that liked target students were seen as more prosocial over time regardless of condition, $F(1, 72) = 5.47$, $p = .02$, $\eta_p^2 = .07$. Their aggressive behavior did not change, $F(1, 72) = 3.05$, $p = .09$, $\eta_p^2 = .04$. No

Table 2. Means and Standard Deviations of Liking and Behavior by Time and Condition.

Variable	Target							
	Control		Experimental		Random seatmate		Buddy	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
Interpersonal liking[a]	1.88 (1.27)	1.92 (1.20)	2.25 (1.15)	2.31 (1.25)	2.50 (1.14)	2.58 (1.20)	2.96 (0.99)	2.82 (0.99)
Group liking[a]	1.94 (0.60)	1.98 (0.62)	2.19 (0.54)	2.19 (0.56)	2.67 (0.49)	2.63 (0.51)	3.01 (0.32)	2.93 (0.33)
Externalizing behavior[b]	1.67 (0.37)$_a$	1.58 (0.38)$_b$	1.83 (0.42)$_c$	1.63 (0.40)$_b$				
Aggressive behavior[a]	0.29 (0.18)$_a$	0.30 (0.20)$_b$	0.28 (0.18)$_c$	0.30 (0.24)$_b$	0.06 (0.07)	0.06 (0.07)	0.04 (0.04)	0.04 (0.04)
Prosocial behavior[a]	0.15 (0.11)	0.20 (0.14)	0.17 (0.10)	0.24 (0.12)	0.31 (0.13)	0.40 (0.17)	0.39 (0.11)	0.47 (0.14)

Note. Means with different subscript significantly differ between condition and over time.
[a]Peer reports. [b]Teacher report.

significant changes over time in prosocial or aggressive behaviors were found among disliked and average liked target students.

Changes in Likeability and Behavior of Buddies and Random Seatmates

Buddies were better liked than random classmates by the target, $F(1, 201) = 6.75$, $p < .01$, $\eta_p^2 = .03$. However, no significant time or time by condition effects were found. Buddies were also better liked by the entire class than random classmates, $F(1, 218) = 34.83$, $p < .01$, $\eta_p^2 = .14$. Yet, we also found that both buddies and random classmates became less liked by the entire class over time, $F(1, 218) = 8.98$, $p < .01$, $\eta_p^2 = .04$.

As expected given our selection criteria, buddies were generally more prosocial, $F(1, 218) = 18.15$, $p < .01$, $\eta_p^2 = .08$, and less aggressive than random classmates, $F(1, 218) = 9.18$, $p < .01$, $\eta_p^2 = .04$. In addition, both buddies and random classmates were perceived as more prosocial over time, $F(1, 218) = 30.27$, $p < .01$, $\eta_p^2 = .12$. This increase did not differ between students by condition. For aggression, we identified no difference over time or time by condition effect.

Discussion

In the current study, we examined whether a careful rearrangement of the classroom seats could promote peer acceptance and more positive teacher-and-peer-rated behaviors for children with externalizing problems, and limit potential negative consequences for classmates sitting next to them. Results from the randomized controlled trial showed that placing children with externalizing problems next to a prosocial and socially accepted buddy can be beneficial. Children were better liked by the ones sitting next to them and showed fewer externalizing problems according to teachers, especially when they sat next to a buddy and when they had been initially disliked by their peers. Children

with externalizing problems who were already liked by their peers showed an increase in prosocial behavior over time, regardless of whether they sat next to a buddy or a random classmate. Finally, there were negative consequences for classmates who sat next to a child with externalizing behavior with regard to likeability, but not behavior. This was true for the buddies as well as the randomly selected seatmates.

Finding a Suitable Place

Finding a suitable place for children with externalizing problems can be challenging for teachers (Gremmen et al., 2016). Placing them alone may result in more social isolation, whereas grouping them together may result in deviancy training (Dishion et al., 1999; Snyder et al., 2008). Results of the current study show that teachers can support these children through careful arrangement of the classroom seats. In line with the intergroup contact theory (Pettigrew & Tropp, 2006), children became more positive about those with externalizing problems when sitting next to them for a couple of weeks. We found particularly positive effects for children with externalizing problems who were disliked in the first place. It could be that seatmates got to know the children better and discovered that they have more in common than they initially thought. In addition, children may try harder to see the good side of others when they expect to encounter them on a regular basis and cannot avoid them (i.e., expectation of continued interaction; Jackson-Dwyer, 2013). This may have also been the case in this study, as children knew that they would sit next to each other for a prolonged time (i.e., 10 to 12 weeks).

As mentioned previously, part of the challenge for teachers to find a suitable place for children with externalizing behaviors is the question about whom to place next to them (Gremmen et al., 2016). In contrast to many parental concerns (Dodge et al., 2006), seatmates did not become more aggressive over time. In fact, they were seen as more prosocial. Thus, even though they may have been exposed to the

externalizing and negative behaviors of their neighbor for several weeks, they apparently did not conform their own behaviors to them. However, their likeability did seem to have been affected. One might speculate about this phenomenon in terms of "basking in reflective negative glory" (Cialdini & Richardson, 1980): Sitting next to a child with externalizing problems and affiliating with this classmate may not be seen as cool. It may thus be recommended to rotate multiple times a year, to limit negative effects on likeability as much as possible. Moreover, future studies could examine whether the effects on likeability are permanent or whether individuals are able to recover their reputations when seated next to somebody else.

Strengths, Limitations, and Implications

The current study illustrates the daily struggle of teachers to support the needs of children with externalizing problems. Still, there are limitations and questions that remain unanswered. First, there were some methodological concerns. Although externalizing problems were measured using the conduct problems subscale of the *Strengths and Difficulties Questionnaire* (van Widenfelt et al., 2003), we obtained relatively low scores for internal consistency (Cronbach's α). We would recommend using additional clinical instruments to measure the severity of externalizing problems in future studies (see Stoltz et al., 2013). Moreover, the nested quality of the data was not taken into account. Conceptually, five levels can be distinguished: time nested within individuals, dyads, classrooms, and schools. However, every individual could only be part of one dyad and many of the schools only consisted of one or two classrooms. Moreover, our relatively small sample would not allow us to reliably estimate all of these levels. Still, future studies with a larger sample could conduct more sophisticated multilevel analyses to examine potential dyadic, classroom, and school effects.

Next, we assume that the seating rearrangement facilitated contact between classmates resulting in more positive perceptions (Allport, 1954; Pettigrew & Tropp, 2006). It would be interesting to see whether the rearrangement truly leads to more and more positive interactions. Frequent observations of interactions are needed to see if and, if so, when, changes in interactions occur, as well as changes in the frequency of externalizing behavior. Relatedly, although increased interactions are likely to lead to increased likeability under a variety of circumstances, having a common goal and cooperating together on a task can strengthen peer relationships (Pettigrew & Tropp, 2006). In future studies, it might be beneficial to assign students cooperative tasks with shared goals to increase the frequency of the positive and collaborative interactions (e.g., Allen, 2013; Bowman-Perrot, Davis, Vannest, Williams, & Greenwood, 2013).

Moreover, we did not take severity or frequency of externalizing behaviors into account. Some interventions for youth with externalizing problems are most beneficial for children with high levels of aggressive behavior (Wilson & Lipsey, 2007), whereas other interventions are more effective for children with mild externalizing problems (Kazdin & Crowley, 1997). As a result, there is an increasing awareness that some children would benefit more than others from the same intervention (Deković & Stoltz, 2014). We therefore recommend replication and extending current findings by including moderators (i.e., severity of externalizing problems, child personality, gender, ethnicity; Stoltz et al., 2013), which could clarify for whom and under what conditions this intervention works.

Next, we did not examine teachers' own strategies and considerations regarding seating arrangements. In the current study, the rearrangement of seats was based on one goal (e.g., to promote social acceptance and more positive behaviors for children with externalizing behaviors). It may very well be that this specific goal and strategy was not aligned with teachers' own considerations and concerns. This could explain why nearly 30% of the teachers moved target students prior to the end of the intervention. Although we asked teachers to complete a logbook, they did not consistently provide the reasons why they moved children. By documenting teachers' goals and strategies, we would obtain a better understanding of teachers' rationale for (re) arranging (see also Gremmen et al., 2016). We can then also examine whether an experimental rearrangement is more effective when it is aligned with teachers' own goals and strategies.

Finally, because of our sample size and large proportion of boys, we were not able to test gender differences or differences between same and mixed sex pairs in the current study. Previous studies found gender differences in structure and content of peer interactions (Rose & Rudolph, 2006). Perhaps effects of the classroom manipulation were stronger for girls or mixed sex dyads, as interactions among girls are likely to include high levels of closeness and affection, leading to more interpersonal liking (Rose & Rudolph, 2006). Moreover, intervention studies with friendship groups showed more positive changes in behavior among groups with a majority of girls (Lavallee et al., 2005).

Notwithstanding these limitations, the current study offers various suggestions for teachers. First of all, it is important that teachers become aware of the social dynamics in their classroom and their options for managing children's social experiences within the classroom. Previous studies have shown that teachers have limited knowledge about which children are socially accepted (van den Berg, Lansu, & Cillessen, 2015). Yet, when teachers know which children are at risk for social rejection, they can begin to develop strategies to support these children. In addition, when teachers have more positive relationships with children, they are more likely to work with them successfully (Pianta, Hamre, & Allen, 2012). This may be especially

important for youth with externalizing problems. Teachers may develop more positive perceptions when they observe children building positive relationships while sitting next to prosocial peers.

Furthermore, incorporating attention to the physical structure of the classroom in teacher training may provide valuable assistance to teachers for effective classroom management. Until now, teachers may have received little or no formal training in managing the social dynamics in the classroom or arrangement of classroom seats, let alone in managing social acceptance and placement of children at risk due to their special needs (Burden, 2016; Gremmen et al., 2016). With regard to students' academic functioning, in a review by Wannarka and Ruhl (2008), researchers found that seating arrangements could increase students' on-task behavior and decrease their off-task behavior. More research is needed to examine the importance of the physical structure of the classroom for children's social-emotional functioning.

The nuanced and sometimes unexpected findings of this study are illustrative of the daily challenges that teachers may face when trying to support children with special needs. What may be beneficial for children with externalizing problems may come at the expense of those sitting next to them. Although more steps need to be taken to replicate and extend current findings, this study does provide new insights in the importance of classroom seating for children with externalizing problems.

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ORCID iD

Y. H. M. van den Berg ![iD] https://orcid.org/0000-0002-9833-7722

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