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Halo and association effects: Cognitive biases in teacher attunement to peer-nominated bullies, victims, and prosocial students

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Abstract

This study examined whether teachers' perceptions of students' behavior (referring to *halo effects*) and the behavior of teacher-perceived friends (referring to *association effects*) influenced teachers' ability to recognize students identified as bullies, victims, and prosocial by their peers. Data came from 1,458 children ($M_{\text{age}} = 10.5$, 47.5% girls) and 56 teachers ($M_{\text{age}} = 40.8$, 66.1% females). Perceived likeability was associated with decreased odds and teachers' perceptions of popularity and externalizing behavior were associated with increased odds for teacher attunement to bullying. Perceived likeability and affiliation were associated with decreased odds for teacher attunement to victimized students. Teachers' perceptions of externalizing behavior were associated with decreased odds, whereas teachers' perceptions of affiliation and academic competence were associated with increased odds for attunement to prosociality. Finally, a positive association was found between teacher attunement and the average behavior of teacher-perceived friends for bullying, victimization, and prosociality.

KEYWORDS

attunement, bullying, peer nominations, teacher attunement, teachers

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1 | INTRODUCTION

Bullying at school remains a major concern for administrators, teachers, and parents, because of the risks it poses to the mental, emotional, and physical well-being of victims (Copeland, Wolke, Angold, & Costello, 2013; Pham & Adesman, 2015) and perpetrators (Kaltiala-Heino, Rimpelä, Rantanen, & Rimpelä, 2000; Nansel et al., 2001). The impact of bullying and victimization can last into adulthood (Arseneault, 2018). In addition, classmates not directly involved in bullying can feel unsafe and afraid of becoming the next victim (Rivers, Potteat, Noret, & Ashurst, 2009). Given their prominence in the classroom, teachers can play an important role in bullying prevention (Saarento, Boulton, & Salmivalli, 2015; Veenstra, Lindenberg, Huitsing, Sainio, & Salmivalli, 2014); to do so, they need to be able to recognize students' roles in bullying as perpetrators, victims, or defenders. Previous research has shown that whether or not teachers can intervene in bullying incidents in a timely manner depends on their ability to identify such incidents accurately (Craig, Bell, & Leschied, 2011). Teacher awareness of bullying and victimization is likely to have implications for the functioning of the classroom, the adjustment of victims, and the prognosis for bullying students. When teachers are not aware of bullying, it may continue unchecked, further reinforcing the perpetrators' aggression (Huesmann & Eron, 1984).

Presumably, by knowing which students are victimized, teachers can provide instrumental and emotional support to them (Boulton et al., 2013), buffer the school maladjustment of victims (Troop-Gordon & Kuntz, 2013), and protect against further victimization (Troop-Gordon & Kopp, 2011). It is also useful when teachers know which students behave in prosocial ways, as they are potential sources for defending and emotional support for victims. Thus, it is important that teachers are able to identify students' roles in bullying. However, teachers often are unaware of aggressive acts reported by their students (Ahn, Rodkin, & Gest, 2013; Marucci, Oldenburg, & Barrera, 2018) and often do not perceive students who reported being victimized as victims (Leff, Kupersmidt, Patterson, & Power, 1999; Oldenburg, Bosman, & Veenstra, 2016). In order to remedy this, an understanding of why teachers may fail to recognize students' roles in bullying is needed.

We examined the extent to which elementary school teachers in grade 5 (Dutch grade 7; $M_{\text{age}} = 10.5$, $SD = .49$) were attuned to their students, and the factors that could hinder teachers' ability to recognize peer-nominated bullies, victims, and prosocial students. Firstly, we investigated whether teachers' perceptions of the academic, social, and behavioral characteristics of their students were associated with their judgments of students' bullying, victimization, and prosociality. We hypothesized a cognitive bias affecting teacher ability to recognize students' roles in bullying. Specifically, when students demonstrate positive characteristics (e.g., high affiliation, popularity, and prosociality), teachers may be less likely to recognize their negative behavior. This phenomenon is known as the *halo effect* (Thorndike, 1920), meaning that positive qualities are more likely to be ascribed to individuals who display positive qualities in other domains. Secondly, we examined whether perceived similarity in the behavior of those students who, according to the teacher, were friends of the target was related to teachers' perceptions of the target students' bullying, victimization, and prosociality. Based on the *association effect* (Steglich & Knecht, 2014), we hypothesized that the behavioral characteristics that a teacher attributes to a target student's perceived friends (i.e., bullying, victimization, and prosociality) would influence the teacher's ability to recognize the same characteristics in the target student.

1.1 | Teacher attunement

The ability of teachers to recognize a wide range of social positions and roles in the classroom has been referred to as *teacher attunement* (Ahn & Rodkin, 2014; Hamm, Farmer, Dadisman, Gravelle, & Murray, 2011). Teacher attunement has been operationalized as the extent to which teachers' reports overlap with the reports of their students. Although peer reports are not ground truth, the assessment provided by all students in a class is considered the most accurate account of classroom social dynamics (Gest, 2006). For sociometric constructs, such as popularity

and likeability, the consensual dimension makes peer reports the preferred option when assessing these characteristics. Moreover, self-reported information might not always be the most reliable source where behavioral or individual characteristics are concerned. For instance, victimized students might misinterpret bullies' intentions, adjust their recollections of victimization to suppress negative emotions (Gross, 1998), or underreport their problems because of social desirability. Longitudinal research has shown the impact of teacher attunement on students' peer experiences, classroom environment, and classroom behaviors, including aggression and victimization. For example, in classrooms in which the teacher knew who was victimized there was less victimization (Serdiouk, Rodkin, Madill, Logis, & Gest, 2013). Teacher attunement to victimization also contributed to a positive environment in which students had a greater sense of school belonging (Gest, Madill, Zadzora, Miller, & Rodkin, 2014) and peer acceptance (Madill, Gest, & Rodkin, 2014). Finally, students were more likely to intervene in bullying in classrooms where teachers were more attuned to victimization (Norwalk, Hamm, Farmer, & Barnes, 2015), and less inclined to reward aggression with status when teachers were attuned to status and aggression (Ahn & Rodkin, 2014).

These findings underscore the importance of attunement in enabling teachers to attend to the peer dynamics of the classroom effectively. Uncovering teachers' biases in their perceptions of bullies, victims, and prosocial children should enhance teachers' ability to recognize problematic social dynamics in the classroom and maximize the chances that they take an active stance and intervene successfully in bullying processes.

1.2 | Halo effects

Teachers' perceptions of students' academic, behavioral, and social characteristics may hinder their attunement to students' roles in bullying. For instance, when students demonstrate positive characteristics (e.g., high affiliation, popularity), teachers may be less likely to recognize their aggressive behavior (Dawes et al., 2017). This phenomenon is known as the *halo effect* (Thorndike, 1920), defined as "the influence of a global evaluation on evaluations of individual attributes of a person" (Nisbett & Wilson, 1977, p. 250). The halo effect implies that positive qualities are more likely to be attributed to attractive individuals, whereas behaviors incongruent with those qualities are overlooked or judged more mildly (Dion, 1972; Rosen & Underwood, 2010). The halo effect refers to behaviors with positive connotations, such as viewing attractive persons as more successful and popular. When judgment has a negative connotation, such as perceiving unattractive persons to possess undesirable characteristics, it is referred to as the *reverse halo effect* (or *horn effect*).

Based on the assumptions of the halo effect and empirical research on aggressive youth, we expected that a cognitive bias would affect teachers' ability to recognize students' roles in bullying. Specifically, bullying would be more likely to go undetected when it was done by students to whom teachers ascribed positive qualities. Furthermore, teachers might fail to recognize victims when they were perceived as socially competent. Finally, teachers might underestimate the prosocial behavior of students perceived as engaging in negative conduct.

1.2.1 | Academic achievement

High academic competence typically indicates that students earn high grades and engage in academic behavior (Wentzel, 1993). Academically competent students also are more likely to be engaged behaviorally and have positive peer interactions (Green, Forehand, Beck, & Vosk, 1980; Wentzel, 1993). Hence, teachers may assume that academically competent students are prosocial and unlikely to engage in disruptive conduct such as bullying. Thus, we expected that teachers would be less able to recognize bullies when these bullies were perceived as more academically competent, and that teachers would be better able to recognize prosocial behavior in students with higher academic competence.

1.2.2 | Social status

In preadolescence, popularity becomes increasingly important (LaFontana & Cillessen, 2010), and its association with social preference weakens (Cillessen & Mayeux, 2004). As popularity is a scarce resource, preadolescents behave strategically in order to achieve prominence among their peers. Antisocial behaviors become more valued in later grades of elementary education, as they signal maturity and autonomy (Moffitt, 1993). Accordingly, preadolescents tend to become more attracted to antisocial peers (Bukowski, Sippola, & Newcomb, 2000), including peers who bully. Previous findings have shown that teachers base their ideas of social status on different criteria than peers do (Andrade et al., 2005; Coie, Dodge, & Kupersmidt, 1990), and they are more likely to associate social status with prosocial qualities rather than bullying or victimization. Firstly, popular children's bullying and aggression often take place out of teachers' sight, on the playground or in the hallways (Coie et al., 1990). Students perceived as popular also are viewed as socially skilled by the teacher (Rodkin, Farmer, Pearl, & Van Acker, 2000), who may enjoy a harmonious relationship with them. Additionally, an effective way to become popular is to use bistrategic control strategies that combine prosocial with coercive or aggressive behaviors (Hawley, 2003; LaFontana & Cillessen, 2010; Reijntjes et al., 2018). Thus, teachers have more opportunities to be aware of the positive behaviors in which bullies engage in the classroom. Accordingly, teachers may have a less-than-accurate evaluation of the disruptive behavior of popular students. Secondly, victimization often is related to a lack of social skills and a lower social position among peers (Juvonen, 2013; Mayeux & Cillessen, 2008; Scholte et al., 2009). Thus, a teacher may underestimate the severity of the victimization when their perception of the target student is not consistent with the stereotype of victims (e.g., when the victimization concerns a student whom the teacher perceives as having high status). Therefore, we expected that when teachers ascribed high status to students, they would be less attuned to their bullying and victimization, and more attuned to their prosocial behavior. Several ways to measure social status within the peer group have been employed in the literature. A well-known measure is likeability, which reflects the extent to which children are liked by their classmates, assessed using sociometric nominations or ratings (e.g., Dodge, 1983; Dubow, 1988; Newcomb & Bukowski, 1983). Another common measure is perceived popularity, which reflects the prestige attributed by the group. Finally, numerous studies in recent years analyzed status systems in school settings by defining status as centrality in the friendship network, for example, having many friends (e.g., An & McConnell, 2015; McFarland, Moody, Diehl, Smith, & Reuben, 2014; Smith & Faris, 2015). Previous studies (e.g., Berger & Dijkstra, 2013; Snijders, Fujimoto, & Valente, 2017) have suggested that dynamics of friendship, sociometric status, and popularity are interdependent, but, at the same time, are guided by different processes, and they do not necessarily overlap. Therefore, in the current study we looked at the three forms of status separately and tested whether they differently influenced the extent to which teachers were attuned. We expected that the three different measures would influence teachers' judgments in the same direction, although they might vary in the strength of their influence.

1.2.3 | Externalizing behavior

The extent to which teachers perceive that their students exhibit externalizing behavior also could be related to teachers' awareness of their students' characteristics. Although bullying is an aggressive act, bullies and aggressive or conduct-disordered children are not a homogenous group. Bullying has been defined as strategic behavior (Olweus, 1993). Some bullies are socially skilled and do not use visible aggression. Thus, teachers could be less aware of bullying by students who are not simultaneously aggressive. Moreover, teachers may underestimate the prosocial behavior of students whom they perceive as engaging in negative conduct. Furthermore, victimization is often associated with internalizing behavior (Hawker & Boulton, 2000). If teachers are primed to perceive students as bullies because of their externalizing behavior, they may not see these students as victims. Therefore,

we expected that students' externalizing behavior would be associated positively with teachers' ability to recognize their bullying behavior, but related negatively to teachers' ability to recognize their prosocial behavior and victimization.

1.3 | Association effects

Teachers' perceptions of a target student's bullying, victimization, and prosociality also could be related to how they perceive students whom they see as friends of the target student. For instance, when a teacher thinks that a student is part of a group of friends without behavioral problems, this teacher may form a positive judgment of the student's behavior, irrespective of whether the student is actually part of such a group. This bias has been referred to as *assimilation-by-association* (Steglich & Knecht, 2014). Research has shown that teacher-perceived friendships lead to an overestimation of similarity among the students perceived as friends. This bias in teacher judgment has been reported for students' externalizing behavior problems and academic orientation (Gest, 2006), academic expectations (Pittinsky, 2008), and study efforts (Steglich & Knecht, 2014). We expected a similar effect in teacher perceptions of bullying, victimization, and prosocial behavior. Based on these empirical findings, we hypothesized that the characteristics a teacher attributed to a target's perceived friends would influence their ability to recognize the same characteristics in the target student. Specifically, the behavior of a student could be underestimated when teachers did not think that the behavior occurred among the target student's friends. Thus, for each dimension we investigated (bullying, victimization, and prosociality), we expected a positive association between teacher attunement and the average behavior of the student's perceived friends.

1.4 | Current study

The goal of this study was to examine elementary school teachers' attunement to their students and the factors that could hinder it. We investigated whether teachers' perceptions of students' academic, social, and behavioral characteristics were associated with their attunement to peer-nominated bullies, victims, and prosocial students. Specifically, we expected that teacher attunement to peer-nominated bullies would be related negatively to students' teacher-reported academic competence (Hypothesis 1a) and social status (Hypothesis 1b), but related positively to students' teacher-reported externalizing behavior (Hypothesis 1c). Secondly, we expected that teacher attunement to peer-nominated victims would be related negatively to students' teacher-reported academic competence (Hypothesis 2a), social status (Hypothesis 2b), and externalizing behavior (Hypothesis 2c). Third, we expected that teacher attunement to peer-nominated prosocial students would be associated positively with students' teacher-reported academic competence (Hypothesis 3a) and social status (Hypothesis 3b), but negatively with externalizing behavior (Hypothesis 3c).

Finally, for each of the three dimensions, we examined whether perceived similarity in the behavior of teacher-perceived friends was related to teacher attunement. We expected a positive association between the average behavior of teacher-perceived friends and teacher attunement to the same behavior (Hypothesis 4).

2 | METHOD

2.1 | Sample and procedure

The original sample size consisted of 1,560 students in 59 classrooms. We excluded three classrooms because the teacher-reported information was missing, and 22 students who had no parental consent. To test our hypotheses,

we used data from 1,458 Dutch fifth-grade elementary school students ($M_{\text{age}} = 10.5$, $SD = .49$, 47.5% girls) and 56 teachers. Data were collected in three waves during 2012/2013 (fall, winter, and spring), as part of a larger study on classroom climate in elementary education in The Netherlands (Hendrickx, Mainhard, Boor-Klip, Cillessen, & Brekelmans, 2016). Only students for whom informed parental consent was provided participated. The data used in the present study were collected during the first wave, starting 1 month into the new school year.

According to the classification of Statistics The Netherlands (2012), 82.7% of the participants were Dutch (both parents born in The Netherlands), 6.9% were Western immigrants (at least one parent born in another Western country), and 10.4% were non-Western immigrants (at least one parent born in a non-Western country). Mean class size was 26.0 students ($SD = 4.3$, range 18 to 42). In most classrooms, the composition of the group was mostly the same as the year before, with only a few students having joined or left, which is common in The Netherlands.

In The Netherlands, teachers generally change classroom every year. Students have either a single teacher, or two teachers who each work part-time. Where classes had two teachers, the teacher who spent the most time in the classroom participated in our study. Teachers were 40.8 years old on average (range 24.5 to 62.4, $SD = 12.2$); their mean experience was 14.8 years (range 1 to 39, $SD = 11.1$); 37 teachers were female (66.1%).

After the school principal and the classroom teacher had agreed to participate, parents received information about the goals of the study and were asked for consent for their child to participate. All students for whom informed consent was granted completed the questionnaires digitally in their own classrooms. The students were seated separately, and the netbooks were flanked by partition screens to prevent distractions and to increase privacy. Standard instructions were provided in which voluntary participation was assured, and it was explained that the answers provided would be handled confidentially.

2.2 | Measures

2.2.1 | Dependent variables

Teacher attunement

Peer nominations were used to categorize bullies, victims, and prosocial students. The data were collected following recommended practices in the peer assessment literature (Cillessen & Bukowski, 2000; Veenstra, Dijkstra, Steglich, & Van Zalk, 2013). Children completed a computerized sociometric questionnaire measuring social behavior (for psychometric proprieties, see van der Berg & Cillessen, 2013). Students were asked to nominate peers who best fit a set of behavioral descriptors. Same- and cross-gender nominations were allowed, and nominations were unlimited. The students were asked to nominate at least one classmate. Apart from themselves, all participating students could nominate any classmate from a complete list. To avoid sequence effects (Poulin & Dishion, 2008), the order of classmates on the list was randomized and differed for each participant on each measurement occasion. The overall consent rate was 98.8%. Thus, consistent with previous research on nomination procedures (referring to the need for a participation rate higher than 60%, see Marks, Babcock, Cillessen, & Crick, 2013), all the classrooms were included in the analyses. Bullying was assessed by asking students which classmates bullied other children. Victimization was assessed by asking students which classmates were bullied by other children. Prosociality was assessed by asking students which classmates often helped other children. Previous research has shown that peer nominations are a reliable and age-appropriate instrument to identify bullying and victimization (e.g., Verlinden et al., 2014).

Teachers were asked to rate each participating student on the same three dimensions (bullying, victimization, and prosociality) on a 7-point Likert-type scale (1 = not at all; 7 = very much). Peer nominations are used frequently to identify bullies and victims. In order to capture the overlap between student and teacher reports, the following

steps were taken. Firstly, following the procedure outlined by Dawes et al. (2017), we dichotomized both the teacher and peer reports. For each student, a proportion score was calculated for each dimension by dividing the number of nominations the student received by the total number of participants in the classroom. These proportion scores were then standardized within the classroom, and then dichotomized. As the distributions were strongly asymmetric, especially for bullying and victimization, standard scores above the classroom mean ($z > .5$) were coded 1; all other scores were coded 0 (Pouwels, van Noorden, Lansu, & Cillessen, 2018). This yielded three categories of students nominated as bullies ($n = 256$, 13.75% girls), victims ($n = 206$, 40.45% girls), and prosocial ($n = 392$, 69.85% girls). For the teacher ratings, we chose as cutoff score for 4 or higher on the 1–7 scale for bullying and victimization. Because of the different distribution and the higher mean, the cut-off point for prosociality was set to 6 or higher. In this way, the teachers identified 250 students (33.73% girls) as bullies, 223 (40.81% girls) as victims, and 462 (61.09% girls) as prosocial. It seems reasonable to consider teachers who rate students as bullies to be attuned when those students were perceived also as bullies by a certain proportion of their peers. Therefore, students who were classified as bully/victim/prosocial by both peers and teachers were given a value of “1” to indicate that their teachers had correctly identified them. Students who were classified as bully/victim/prosocial by peers but not by teachers were given a value of “0,” to indicate that their teachers were not attuned to their behavior. Students who did not meet either criteria were excluded from analyses, as they were not the focus of our study. Through this procedure, we created a dichotomous outcome variable (0 = Not attuned, 1 = Attuned) for each dimension investigated (i.e., bullying, victimization, prosociality). In total, 131 of the 256 peer-nominated bullies were not identified as bullies by their teachers; 108 of the 206 peer-nominated victims were not identified as victims by their teachers; and 178 of the 392 peer-nominated prosocial students were not identified as prosocial by their teachers. This implies that 48.8% of the peer-nominated bullies scored one on the dependent variable teacher attunement to bullying (i.e., they were correctly identified as bullies by their teachers), 47.8% of the peer-nominated victims scored one on the dependent variable teacher attunement to victimization, and 54.6% of the peer-nominated prosocial students scored one on the dependent variable teacher attunement to prosociality.

2.2.2 | Independent variables

Teacher perceptions of student characteristics

Teachers rated students' status and externalizing behaviors (Andrade et al., 2005; Wu, Hart, Draper, & Olsen, 2001) using a 7-point Likert scale (1 = *not at all*; 7 = *very much*) on a set of items. For status, teachers rated students' popularity (“To which extent the student is popular?”), likeability (“To which extent is liked by other children?”), and affiliation (“To which extent has many friends?”). For externalizing behavior, teachers rated students' aggression (“To which extent the student is physically or verbally aggressive?”). For academic achievement, teachers rated students' grades.

Mean behavior of teacher-perceived friends

In order to measure the behavioral characteristics that teachers attributed to target students' perceived friends (i.e., bullying, victimization, prosociality), the following steps were taken. Firstly, the teacher-perceived friendships were obtained by asking teachers to report groups of students who hung out together. Teachers could name an unlimited number of groups and were allowed to report overlapping groups. Based on these teacher-reported groups, we computed teacher-perceived friendship ties for each student. For instance, if the teacher reported that students i , j , and k belonged to the same group, this implied that the teacher perceived that student i befriended students j and k ; student j befriended students i and k ; and student k befriended students i and j . Following the procedure outlined by Steglich and Knecht (2014), teacher-perceived friend characteristics were then determined by averaging teachers' ratings of bullying, victimization, and prosociality over a student's teacher-perceived friends.

2.3 | Analysis strategy

Because students were nested within classrooms, we tested our hypotheses using logistic regression models with standard errors corrected (robust) for clustering within classrooms (Huber, 1967). Models were estimated using Stata 14 (Rabe-Hesketh & Skrondal, 2012). We estimated three models, one for each dependent variable (bullying, victimization, and prosocial behavior). In each model we controlled for gender.

Teachers reported 960 (65.8%) students as having at least one friendship. When a student had no friends, according to the teacher, we could not compute the teacher's perceptions of that student's friends' characteristics. In order to maximize the accuracy of the results, while not entirely excluding these students from the analyses, we tested our hypotheses concerning the association effect by adding an interaction term between a dummy variable for teacher reports on friendship (0 = *No reported friendships*, 1 = *At least one reported friendship*) and the mean behavior of the teacher-perceived friends. This implies that the effects of the mean behavior of the perceived friends on teacher attunement to bullying, victimization, and prosociality were estimated only for students who were perceived by the teacher to be friends with at least one classmate. As we considered a teacher report of at least one friendship a necessary condition for the association effect to be meaningful, we did not include in the models the main effects of mean behavior of the teacher-perceived friends.

3 | RESULTS

3.1 | Descriptive results and correlations

Table 1 shows means and standard deviations of the study variables. Table 2 shows correlations between the study variables. These refer to the teacher ratings for the entire sample ($n = 1,458$) and reflect the relations among teachers' perceptions (not teachers' attunement). There were significant and positive correlations among academic competence, likeability, popularity, and affiliation; teachers who perceived students as better at school also saw them as more liked, popular, and having more friends. There was a significant negative correlation between aggression and all other student characteristics. Students who scored higher on aggression were seen as less academically competent, affiliated, popular, and liked.

Teachers' ratings of students' social, academic, and behavioral characteristics were differently related to the behaviors of the perceived friends. For example, students who were seen as friends of prosocial peers were also rated as less aggressive and more popular, liked, and connected. These findings suggest cross-behavioral effects between teacher judgments of the characteristics of the students and their perceived friends.

TABLE 1 Descriptive statistics for main study variables as rated by teachers

	Range	M	SD
Academic competence	1–10	7.14	1.36
Likeability	1–7	5.04	1.40
Popularity	1–7	4.38	1.58
Affiliation	1–7	4.57	1.47
Aggression	1–7	1.77	1.37
Mean bullying of friends	1–6	2.13	1.06
Mean victimization of friends	1–7	1.93	.95
Mean prosociality of friends	1–7	4.77	.98

Notes: $n = 1,458$ students; 56 teachers. For mean behavior of friends' variables $n = 960$.

TABLE 2 Bivariate correlations among teacher-rated student characteristics

	1.	2.	3.	4.	5.	6.	7.	8.
1. Academic competence	-							
2. Likeability	.21***	-						
3. Popularity	.19***	.78***	-					
4. Affiliation	.21***	.72***	.81***	-				
5. Aggression	-.16***	-.39***	-.21***	-.24***	-			
6. Mean bullying of friends	-.01**	-.02***	.04	-.02	.32***	-		
7. Mean prosociality friends	.02	.22***	.17***	.19***	-.16***	-.28***	-	
8. Mean victimization of friends	-.05	-.24***	-.20***	-.24***	.23***	.38***	-.28***	-

Notes: $n = 1,458$ students; 56 teachers. For mean behavior of friends' variables $n = 960$.

* $p < .05$; ** $p < .01$; *** $p < .001$.

3.1.1 | Multivariate analysis

Teacher attunement

Table 3 shows the findings of the logistic regressions for peer-nominated bullies, victims, and prosocial students separately. All predictors were grand-mean centered; the intercept, thus indicates the predicted outcome for a student who scored average on all independent variables. We first accounted for classroom size and teachers' gender, age, and experience. These were not related significantly to any of the outcome variables. Because coefficients were not substantially affected by including the controls, for parsimony and to minimize the degrees of freedom in the model, we presented the models without including these teacher and classroom characteristics.

The analysis controlled for students' gender. Surprisingly, we found a positive association between teacher attunement to bullying and gender ($b = 1.64, p = .02$), meaning that teachers are more aware of the bullying perpetrated by girls. There was no significant association between students' gender and teacher attunement to peer-nominated victims or prosocial students. There was a negative association between teacher attunement to prosociality and teacher-rated bullying ($b = -.58, p = .001$), and *vice versa*, between teacher attunement to bullying and teacher-rated prosociality ($b = -.18, p = .083$). A positive association between teacher attunement to bullying and teacher-rated victimization ($b = .39, p < .001$) was found. This association might be due to the fact that bullies and victims share similar risk factors and problem behaviors.

3.2 | Teacher attunement and Halo effects

Model A shows the results for teacher attunement to bullying. We did not find a negative association between attunement to peer-nominated bullies and academic competence (Hypothesis 1a). We hypothesized that there would be a negative association between teacher attunement to peer-nominated bullies and teacher-perceived status (Hypothesis 1b). Teacher attunement to peer-nominated bullies was associated negatively with teacher-rated likeability ($b = -.87, p < .001$) and positively with teacher-rated popularity ($b = .81, p = .001$). Consistent with the findings of previous research (e.g., Cillessen & Mayeux, 2004), likeability and popularity differed qualitatively: teachers seemed to be aware that likeability is negatively, and popularity positively, related to bullying. Finally, in line with Hypothesis 1c, we found a positive association between teacher attunement to bullies and teacher-rated aggression ($b = -.43, p < .001$).

Model B presents the findings for teacher attunement to victimization. As with teacher attunement to bullying, we did not find a negative association between attunement to peer-nominated victims and academic competence

TABLE 3 Logistic regression on teachers' attunement to bullying, victimization, and prosociality

	A. Bullying (n = 256)		B. Victimization (n = 206)		C. Prosociality (n = 392)	
	b	SE	b	SE	b	SE
Intercept	-1.97	.40	-1.43	.40	-1.28	.36
Gender (1 = Girls)	1.64*	.70	-.17	.31	.40	.31
Academic competence	-.11	.10	-.02	.13	.46***	.10
Likeability	-.87***	.22	-.34 ⁺	.20	.19	.22
Popularity	.81**	.23	-.21	.20	.20	.16
Affiliation	.06	.19	-.47*	.23	.31 ⁺	.16
Aggression	.43***	.11	.21	.14	-.63*	.25
At least one friend (1 = Yes)	-.12	.41	-.53	.40	-.56	.44
Mean behavior of friends	.85***	.23	.33 ⁺	.19	.42*	.21
Prosociality	-.18 ⁺	.10	.19	.15	-	-
Victimization	.39***	.11	-	-	.29	.19
Bullying	-	-	.22	.15	-.58**	.17
Pseudo R ²		.34		.25		.23

Notes: The variable *Mean behavior of friends* (according to the teacher) refers to the behavior corresponding to the dependent variable of the model. This term is an interaction effect with the dummy variable *At least one friend*. This implies that the effects of the mean behavior of perceived friends on teacher attunement to bullying, victimization, and prosociality were estimated only for students who were perceived to be friends with at least one of their classmates by the teacher.

⁺ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

(Hypothesis 2a). We expected a negative association between teacher attunement to peer-nominated victims and teacher-perceived status (*Hypothesis 2b*). Teacher-rated likeability ($b = -.34$, $p = .097$) and affiliation ($b = -.47$, $p = .041$) were associated negatively with teacher attunement to peer-nominated victims, but there was no significant association between teacher-rated popularity and attunement to victims. Contrary to our expectations, we did not find a negative association between teacher-rated aggression and attunement to victims (*Hypothesis 2c*).

Model C shows the findings for teacher attunement to prosociality. We found a positive association between teacher attunement to prosocial students and academic competence, in line with Hypothesis 3a ($b = .46$, $p < .001$). We expected a negative association between teacher attunement to prosociality and teacher-perceived status (*Hypothesis 3b*). We found only a marginal positive association between teacher attunement to prosociality and teacher-rated affiliation ($b = .31$, $p = .061$), whereas no significant association with teacher-rated likeability and popularity was found. Finally, in line with Hypothesis 1c, we found a negative association between teacher attunement to prosocial students and teacher-rated aggression ($b = -.63$, $p = .012$).

3.3 | Teacher attunement and association effects

We examined whether perceived similarity in the behavior of teacher-perceived friends was related to teacher attunement. We hypothesized a positive association between the average behavior of teacher-perceived friends and teacher attunement (*Hypothesis 4*). In line with our expectations, teacher attunement to bullies was associated positively with the average bullying among perceived friends ($b = .85$, $p < .001$). We found a positive association between teacher attunement to victimized students and the average victimization of their teacher-perceived

friends ($b = .40, p = .050$). Finally, we found a significant association between teacher attunement to prosocial students and the average prosociality among perceived friends ($b = .42, p = .043$).

4 | DISCUSSION

In this study, we examined whether elementary school teachers were attuned to their students, and the factors that could influence their awareness of their students' bullying, victimization, and prosociality. Based on the *halo effect* (Thorndike, 1920), we hypothesized that a cognitive bias would affect teachers' ability to recognize bullies, victims, and prosocial students. Consistent with previous findings (Dawes et al., 2017), teachers' perceptions of students' academic, social, and behavioral characteristics were associated with their attunement. Based on the *association effect* (Steglich & Knecht, 2014), we examined whether the academic, social, and behavioral characteristics of teacher-perceived friends of the target student were related to teacher attunement.

4.1 | Teacher attunement to bullying

In line with our expectations, students who were perceived as aggressive were more likely to be recognized as bullies by their teachers. This is consistent with the hypothesis that the common link between bullying and externalizing behavior would prime teachers to be more attuned, possibly by making the aggressive acts more salient and visible. This finding implies that it is more difficult for teachers to recognize subtle forms of bullying that are not related to visible aggression (physical or verbal), such as relational bullying.

Regarding social status, we expected it to be associated negatively with teacher attunement to bullying. Our findings were partly in line with this hypothesis, as we found different effects on teacher attunement for different measures of status, likeability, and popularity. Teacher attunement to bullying was related negatively to teacher-rated likeability, but positively to teacher-rated popularity, suggesting that teachers were aware of the difference between the two constructs and the predicted cognitive bias only affected likeability. Teachers seemed to know that aggression and antisocial behavior can be rewarded with popularity by peers, which was contrary to our expectations. We did not find an association between teacher perceptions of bullying and teacher perceptions of affiliation. Furthermore, we did not find an association between teacher attunement to bullying and academic competence.

4.2 | Teacher attunement to victimization

Teachers were unlikely to recognize victims when they perceived them as likeable and having many friends. We did not find an association between teacher attunement to victimization and academic competence or externalizing behavior. These findings suggest that teachers' perceptions of students' social status play an important role in teachers' perceptions of victimization in the classroom. As victimization often is associated with peer rejection (Mayeux & Cillessen, 2008; Salmivalli & Isaacs, 2005) and exclusion (Salmivalli, Kaukiainen, & Lagerspetz, 2000; Scholte et al., 2009), teachers may underestimate the victimization of students whom they perceive as likeable. Taken together, these results reveal which episodes of bullying are more likely to be undetected due to cognitive biases, such as the halo effect. Accordingly, anti-bullying interventions should aim at training teachers especially to recognize subtle and physically nonaggressive forms of bullying, perpetrated by likeable children and/or targeting likeable victims. Furthermore, teachers' misperceptions of victimization could be due also to a lack of attunement to rejection and friendship of victimized students, suggesting that supporting teachers to become more

accurate in their understanding of classroom social dynamics might enable them to recognize and tackle bullying and victimization more effectively.

4.3 | Teacher attunement to prosociality

Teachers tended to underestimate the prosocial behavior of students who were perceived as bullies, aggressive, and not academically competent. This bias might be caused by the criteria teachers use when they form judgments about students' behavioral characteristics. Previous research has shown that teachers use context-dependent criteria when they evaluate students' prosocial behavior (Veenstra et al., 2008). A smooth-running teaching process is an important goal for the teacher. When students are academically competent, teachers may assume that those students possess prosocial qualities as well. This also implies that teachers may underestimate the prosocial attitude of students with bad grades, even though they may be equally willing to offer help or emotional support to classmates who are victimized or excluded by peers. We found only a marginal positive association between teacher attunement to prosociality and teacher-rated affiliation, meaning that social status might be less related to the extent to which teachers can recognize prosociality based on students' social standing compared with individual characteristics, such as academic achievement and aggression.

4.4 | Teacher attunement and the role of friends

Based on the *association effect* (Steglich & Knecht, 2014), we hypothesized that teachers' perceptions of students' bullying, victimization, and prosociality would be associated with their evaluations of the behavior of students that they viewed as friends of the target students. We investigated whether the characteristics that teachers attributed to target students' perceived friends influenced their ability to recognize the same characteristics in the target students. Specifically, we hypothesized that the actual behavior of students would be underestimated when, in the teachers' view, students considered to be friends of the target students did not engage in the same behavior. Our findings were in line with this hypothesis, as we found a positive association between teacher attunement and the mean behavior of teacher-perceived friends for bullying, victimization, and prosociality. Furthermore, we found that the association effect was particularly strong for bullying. This result is consistent with findings from other studies that have indicated that friends tend to be more homogeneous in bullying (Duffy & Nesdale, 2009; Salmivalli, Huttunen, & Lagerspetz, 1997). This implies that the association bias may be weaker when teachers form judgments about students' victimization and prosociality, and thus less closely related to the extent to which teachers can recognize victimization and prosociality based on friendship patterns. These findings suggest that teachers' perceptions of friendship relationships among students have implications for their abilities to recognize, address, and manage social dynamics. Due to a tendency to reduce cognitive dissonance, or because their jobs are so demanding, teachers may simplify the evaluation process, using behaviors perceived as prevalent within cliques or friendship clusters as proxies to assess individual behavior.

4.5 | Implications

Teacher attunement to bullying and victimization is likely to have implications for the functioning of the classroom, the adjustment of victims, and the prognosis for bullying students. When teachers are unaware of bullying, it may continue unchecked, further reinforcing the perpetrators' aggression (Huesmann & Eron, 1984); there is less victimization in classrooms in which the teacher knows who is victimized (Serdiouk et al., 2015). Presumably, by knowing which students are victimized, teachers can provide instrumental and emotional support

to them (Boulton et al., 2013), buffer the school maladjustment of victims (Troop-Gordon & Kuntz, 2013), and protect against further victimization (Troop-Gordon & Kopp, 2011). It is also useful when teachers know which students behave in prosocial ways, as they are potential sources for defending and emotional support for victims. Accordingly, when teachers are more attuned, students tend to have a more positive view of the school environment (Hamm et al., 2011) and are less inclined to reward aggression with status (Ahn & Rodkin, 2014). Thus, it is important to understand how teacher attunement can be stimulated in order to design effective school policies.

We found that teachers might formulate their evaluations about bullying, victimization, and prosociality based on other criteria than the actual behavior of the students. These criteria might be derived from cognitive assumptions (e.g., halo effect) as well as previous experience of what is more likely (a statistical association between bullying, victimization, and prosociality and different individual characteristics). Nevertheless, both these mechanisms can be seen as cognitive structures which can lead to biases in teachers' perceptions and hinder their ability to recognize the actual behavior of students. Policy and school administrators should stimulate teachers to become more attentive to profiles of students who are misperceived as bullies, victims, or prosocial. We found that teachers' perceptions of students' status and affiliations play a major role in shaping their evaluations of students' bullying, victimization, and prosociality. Because this can be problematic for students, teachers' awareness of such biases should be stimulated in order to minimize their effects. Further research is necessary, but teachers' accurate understanding of classroom social dynamics would increase their ability to correctly identify bullies, victims, and prosocial students. This is particularly true for victimization. When teachers know which students are isolated or rejected, they are more likely to recognize their potential victimization. Furthermore, previous research has shown that training teachers' perceptions of the friendship network increases their correspondence with the students' perceptions of the network (Farmer, Hall, Petrin, Hamm, & Dadisman, 2010). Comparable interventions can be recommended for the association bias. Given the behavioral similarities often reported among friends (Steglich & Knecht, 2014), improving teachers' perceptions of friendship dynamics would not reduce the association bias directly, but it would possibly mitigate its consequences by redirecting it to the actual (and not exclusively to the teacher-perceived) friends. In line with theoretical suggestions (Farmer, McAuliffe Lines, & Hamm, 2011; Rodkin & Hodges, 2003) and empirical findings (Hamm et al., 2011), promoting teachers' knowledge of classroom social dynamics and affiliations would help prevent bullying and create positive learning environments in schools. Teachers who do not feel responsible for the socio-emotional development of their students are likely to pay less attention to the social dynamics in the classroom. Consequently, they are more likely to overlook friendships, status dynamics, and the occurrence of negative interaction patterns, such as bullying and victimization. Accordingly, teacher training can improve by focusing not only on teaching and the cognitive development of students, but also on the students' socio-emotional development.

4.6 | Limitations and directions for future research

This study had some limitations. Firstly, we used single items for teacher and peer reports of bullying and victimization. Bullying is differentiated from other types of peer aggression by four characteristics: *repetition*, *intensity*, *power imbalance*, and *goal-directedness* (Olweus, 1993; Volk, Dane, & Marini, 2014). Our items did not specifically address each of these characteristics. Even when a complete definition of bullying is provided, students may fall back on their own assumptions of what bullying is and refer to experiences of general peer aggression when filling in a questionnaire (Furlong, Sharkey, Felix, Tanigawa, & Green, 2010). Similarly, teachers often find it challenging to distinguish bullying from other less problematic behaviors (Mishna, Scarcello, Pepler, & Wiener, 2005). This may partly explain the discrepancy between teacher and peer reports of bullying and victimization. Furthermore, we could not distinguish between physical, verbal, and relational bullying. Our data do not shed light on whether teacher attunement varies for different forms of bullying and victimization, although our results do suggest that bullying is easier to identify when it is associated with aggressive behavior. Relational bullying has been referred

to as harm through manipulation of a relationship (Young, Boye, & Nelson, 2006). As a result, victims experience social exclusion, rejection, and isolation from the group. Previous research has shown that school personnel tend to rate relational bullying as less serious than physical or verbal bullying (Jacobsen & Bauman, 2007) and, as a result, teachers are less likely to intervene in relational bullying incidents. Additionally, relational bullying is often less visible, and thus more difficult for teachers to detect compared with physical and verbal bullying (Duy, 2013). Furthermore, the behavioral correlates associated with relational bullying might differ from those associated with other types of bullying. For instance, popular and more socially competent students might bully relationally, whereas rejected and disorganized students might bully physically. Therefore, an avenue for further research is to examine factors related to teachers' misjudgment of different forms of bullying and victimization.

Another limitation concerns the construction of the variable related to teacher-perceived friends' characteristics. The teacher-perceived networks were obtained by asking teachers to report groups of students who hang out together. The teacher reports of some students' affiliations were missing. Given the nature of the measure for teacher reports of friendship, it was impossible to distinguish whether these reports were missing because the teachers perceived that these students did not have any friends or because the teachers were simply uncertain about these students' affiliations.

Our analyses focused on teachers' ability to recognize peer-nominated bullies, victims, and prosocial students. We did not consider students who were identified as bullies, victims, or prosocial by their teachers, but not by their peers. Further research could examine which factors lead to teachers' overestimation of students' problematic behavior.

We chose to dichotomize peer nomination scores because a higher number of nominations indicates greater agreement among peers, but not necessarily higher levels of the target behavior. Dichotomizing peer nominations allowed us to identify a group of students who were reported to be bullies/victims/prosocial by at least a certain portion of peers and see whether teachers saw these students as bullies/victims/prosocial as well. Of course it is possible that children selected following this procedure have higher levels of the target behavior. However, our data did not allow us to take into account the behavioral variance and test whether a match between teacher and student scores was more likely for higher levels of the target behavior. Although peer reports are widely used to identify bullies, victims, and prosocial children, this procedure is not impervious to measurement errors (cf. Oldenburg et al., 2016), and some caution is warranted when peer nominations are used as a continuous measurement of the target behavior. When students have a high indegree on bullying nominations, it means that several of their classmates see them as a bully. Their behavior may be more evident, but not necessarily more severe or frequent compared with the behavior of someone who has a lower indegree. When information about the reputational aspects of the peer-reported behavior is meaningful per se, this limitation plays only a marginal role. However, future research specifically focusing on the frequency or intensity of certain behavioral characteristics could adopt different procedures to handle peer nomination data. For instance, in order to integrate reports from multiple informants with information about the actual frequency of the behavior of interest, a possible solution is to collect peer-reported behavioral descriptors as ranks.

Finally, in order to select the three subsamples, we had to choose cut-off points to define the categories of peer-nominated bullies, victims, and prosocial students. There is no straightforward way to choose cut-off points for peer nominations based on the standardized value. Although this choice is arbitrary, our findings were consistent with those of previous research and almost all predictors in the models had statistically significant effects, generally in line with our predictions, strengthening our belief that the classification procedure used was valid.

5 | CONCLUSION

Our findings suggest that teachers' perceptions of students' social status, behaviors, and academic achievement influence their evaluations of students' bullying, victimization, and prosociality. We found that teachers'

perceptions of students' status and affiliation affect their ability to identify bullies, victims, and prosocial students. Further research should address how teachers can use knowledge of classroom social dynamics to improve their ability to recognize bullies, victims, and potential defenders.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the fourth author upon reasonable request.

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REFERENCES

- Ahn, H. J., & Rodkin, P. C. (2014). Classroom-level predictors of the social status of aggression: Friendship centralization, friendship density, teacher-student attunement, and gender. *Journal of Educational Psychology, 106*, 1144–1155. <https://doi.org/10.1037/a0036091>
- Ahn, H., Rodkin, P. C., & Gest, S. (2013). Teacher-student agreement on 'Bullies and kids they pick on' in elementary school classrooms: Gender and grade differences. *Theory into Practice, 52*(4), 257–263. <https://doi.org/10.1080/00405841.2013.829728>
- An, W., & McConnell, W. R. (2015). The origins of asymmetric ties in friendship networks: From status differential to self-perceived centrality. *Network Science, 3*(2), 269–292. <https://doi.org/10.1017/nws.2015.12>
- Andrade, B. F., Waschbusch, D. A., King, S., Thurston, C., McNutt, L., Terrio, B., & Northern Partners in Action for Children and Youth. (2005). Teacher-classified peer social status: Preliminary validation and associations with behavior ratings. *Journal of Psychoeducational Assessment, 23*, 279–290. <https://doi.org/10.1177/073428290502300306>
- Arseneault, L. (2018). Annual Research Review: The persistent and pervasive impact of being bullied in childhood and adolescence: Implications for policy and practice. *Journal of Child Psychology and Psychiatry, 59*, 405–421. <https://doi.org/10.1111/jcpp.12841>
- Berger, C., & Dijkstra, J. (2013). Competition, envy, or snobism? How popularity and friendships shape antipathy networks of adolescents. *Journal of Research on Adolescence, 23*(3), 586–595. <https://doi.org/10.1111/jora.12048>
- Boulton, M. J., Murphy, D., Lloyd, J., Besling, S., Coote, J., Lewis, J., ... Walsh, L. (2013). Helping counts: Predicting children's intentions to disclose being bullied to teachers from prior social support experiences. *British Educational Research Journal, 39*, 209–221. <https://doi.org/10.1080/01411926.2011.627420>
- Bukowski, W. M., Sippola, L. K., & Newcomb, A. F. (2000). Variations in patterns of attraction to same- and other-sex peers during early adolescence. *Developmental Psychology, 36*, 147–154. <https://doi.org/10.1037/0012-1649.36.2.147>
- Cillessen, A. H. N., & Bukowski, W. M. (2000). Conceptualizing and measuring peer acceptance and rejection. *New Directions for Child and Adolescent Development, 88*, 3–10. <https://doi.org/10.1002/cd.23220008803>
- Cillessen, A. H. N., & Mayeux, L. (2004). From censure to reinforcement: Developmental changes in the association between aggression and social status. *Child Development, 75*, 147–163. <https://doi.org/10.1111/j.1467-8624.2004.00660.x>
- Coie, J. D., Dodge, K. A., & Kupersmidt, J. B. (1990). Peer group behavior and social status. In S. R. Asher & J. D. Coie (Eds.), *Peer rejection in childhood* (pp. 17–59). Cambridge, UK: Cambridge University Press.
- Copeland, W. E., Wolke, D., Angold, A., & Costello, E. J. (2013). Adult psychiatric outcomes of bullying and being bullied by peers in childhood and adolescence. *JAMA Psychiatry, 70*, 419–426. <https://doi.org/10.1001/jamapsychiatry.2013.504>
- Craig, K., Bell, D., & Leschied, A. (2011). Pre-service teachers' knowledge and attitudes regarding school-based bullying. *Canadian Journal of Education, 34*(2), 21–33.
- Dawes, M., Chen, C., Zumbunn, S. K., Mehtaji, M., Farmer, T. W., & Hamm, J. V. (2017). Teacher attunement to peer-nominated aggressors. *Aggressive Behavior, 43*(3), 263–272. <https://doi.org/10.1002/ab.21686>
- Dion, K. K. (1972). Physical attractiveness and evaluation of children's transgressions. *Journal of Personality and Social Psychology, 24*, 207–213. <https://doi.org/10.1037/h0033372>
- Dodge, K. A. (1983). Behavioral antecedents of peer social status. *Child Development, 54*, 1386–1399. <https://doi.org/10.2307/1129802>

- Dubow, E. F. (1988). Aggressive behavior and peer social status of elementary school children. *Aggressive Behavior*, 14(5), 315–324. [https://doi.org/10.1002/1098-2337\(1988\)14:5<315::AID-AB2480140503>3.0.CO;2-C](https://doi.org/10.1002/1098-2337(1988)14:5<315::AID-AB2480140503>3.0.CO;2-C)
- Duffy, A. L., & Nesdale, D. (2009). Peer groups, social identity, and children's bullying behavior. *Social Development*, 18(1), 121–139. <https://doi.org/10.1111/j.1467-9507.2008.00484.x>
- Duy, B. (2013). Teachers' attitudes toward different types of bullying and victimization in Turkey. *Psychology in the Schools*, 50(10), 987–1002. <https://doi.org/10.1002/pits.21729>
- Farmer, T. W., Hall, C. M., Petrin, R., Hamm, J. V., & Dadisman, K. (2010). Evaluating the impact of a multicomponent intervention model on teachers' awareness of social networks at the beginning of middle school in rural communities. *School Psychology Quarterly*, 25, 94–106. <https://doi.org/10.1037/a0020147>
- Farmer, T. W., McAuliffe Lines, M., & Hamm, J. V. (2011). Revealing the invisible hand: The role of teachers in children's peer experiences. *Journal of Applied Developmental Psychology*, 32(5), 247–256. <https://doi.org/10.1016/j.appdev.2011.04.006>
- Furlong, M. J., Sharkey, J. D., Felix, E. D., Tanigawa, D., & Green, J. G. (2010). Bullying assessment: A call for increased precision of self-reported procedures. In S. R. Jimerson, S. M. Swearer, & D. L. Espelage (Eds.), *Handbook of bullying in schools: An international perspective* (pp. 329–345). Routledge.
- Gest, S. D. (2006). Teacher reports of children's friendships and social groups: Agreement with peer reports and implications for studying peer similarity. *Social Development*, 15, 248–259. <https://doi.org/10.1046/j.1467-9507.2006.00339.x>
- Gest, S. D., Madill, R. A., Zadzora, K. M., Miller, A. M., & Rodkin, P. C. (2014). Teacher management of elementary classroom social dynamics: Associations with changes in student adjustment. *Journal of Emotional and Behavioral Disorders*, 22(2), 107–118. <https://doi.org/10.1177/1063426613512677>
- Green, K. D., Forehand, R., Beck, S. J., & Vosk, B. (1980). An assessment of the relationships among measures of children's social competence and children's academic achievement. *Child Development*, 51, 1149–1156. <https://doi.org/10.2307/1129556>
- Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, 2(3), 271–299. <https://doi.org/10.1037/1089-2680.2.3.271>
- Hamm, J. V., Farmer, T. W., Dadisman, K., Gravelle, M., & Murray, A. R. (2011). Teachers' attunement to students' peer group affiliations as a source of improved student experience of the school social-affective context following the middle school transition. *Journal of Applied Developmental Psychology*, 32, 267–277. <https://doi.org/10.1016/j.appdev.2010.06.003>
- Hawker, D. S. J., & Boulton, M. J. (2000). Twenty years of research on peer victimization and psychosocial maladjustment: A meta-analytic review of cross-sectional studies. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 41, 441–455. <https://doi.org/10.1111/1469-7610.00629>
- Hawley, P. H. (2003). Prosocial and coercive configurations of resource control in early adolescence: A case for the well-adapted machiavellian. *Merrill-Palmer Quarterly*, 49(3), 279–309. <https://doi.org/10.1353/mpq.2003.0013>
- Hendrickx, M. M. H. G., Mainhard, M. T., Boor-Klip, H. J., Cillessen, A. H. N., & Brekelmans, M. (2016). Social dynamics in the classroom: Teacher support and conflict and the peer ecology. *Teaching and Teacher Education*, 53, 30–40. <https://doi.org/10.1016/j.tate.2015.10.004>
- Huber, P. J. (1967). The behavior of maximum likelihood estimates under nonstandard conditions. In *Proceedings of the Fifth Berkeley Symposium on mathematical statistics and probability* (Vol. 1, pp. 221–233). Berkeley, CA: University of California Press.
- Huesmann, L. R., & Eron, L. D. (1984). Cognitive processes and the persistence of aggressive behavior. *Aggressive Behavior*, 10, 243–251. [https://doi.org/10.1002/1098-2337\(1984\)10:3<243::AID-AB2480100308>3.0.CO;2-6](https://doi.org/10.1002/1098-2337(1984)10:3<243::AID-AB2480100308>3.0.CO;2-6)
- Jacobsen, K. E., & Bauman, S. (2007). Bullying in schools: School counselors' responses to three types of bullying incidents. *Professional School Counseling*, 11(1), 1–9. <https://doi.org/10.5330/PSC.n.2010-11.1>
- Juvonen, J. (2013). Peer rejection among children and adolescents: Antecedents, reactions, and maladaptive pathways. In C. N. DeWall (Ed.), *Oxford library of psychology. The Oxford handbook of social exclusion* (pp. 101–110). New York, NY: Oxford University Press.
- Kaltiala-Heino, R., Rimpelä, R., Rantanen, P., & Rimpelä, A. (2000). Bullying at school: An indicator of adolescents at risk for mental disorders. *Journal of Adolescence*, 23(6), 661–674. <https://doi.org/10.1006/jado.2000.0351>
- LaFontana, K. M., & Cillessen, A. H. N. (2010). Developmental changes in the priority of perceived status in childhood and adolescence. *Social Development*, 19(1), 130–147. <https://doi.org/10.1111/j.1467-9507.2008.00522.x>
- Leff, S., Kupersmidt, J. B., Patterson, C., & Power, T. (1999). Factors influencing teacher identification of peer bullies and victims. *School Psychology Review*, 28(3), 505–517.
- Madill, R. A., Gest, S. D., & Rodkin, P. C. (2014). Students' perceptions of relatedness in the classroom: The roles of emotionally supportive teacher-child interactions, children's aggressive-disruptive behaviors, and peer social preference. *School Psychology Review*, 43(1), 86–105.
- Marks, P. E. L., Babcock, B., Cillessen, A. H. N., & Crick, N. R. (2013). The effects of participation rate on the internal reliability of peer nomination measures. *Social Development*, 22(3), 609–622. <https://doi.org/10.1111/j.1467-9507.2012.00661.x>

- Marucci, E., Oldenburg, B., & Barrera, D. (2018). Do teachers know their students? Examining teacher attunement in secondary schools. *School Psychology International*, 39(4), 416–432. <https://doi.org/10.1177/0143034318786536>
- Mayeux, L., & Cillessen, A. H. N. (2008). It's not just being popular, it's knowing it, too: The role of self-perceptions of status in the associations between peer status and aggression. *Social Development*, 17(4), 871–888. <https://doi.org/10.1111/j.1467-9507.2008.00474.x>
- McFarland, D. A., Moody, J., Diehl, D., Smith, J. A., & Reuben, J. T. (2014). Network ecology and adolescent social structure. *American Sociological Review*, 79(6), 1088–1121. <https://doi.org/10.1177/0003122414554001>
- Mishna, F., Scarcello, I., Pepler, D., & Wiener, J. (2005). Teachers' understanding of bullying. *Canadian Journal of Education*, 28(4), 718–738. <https://doi.org/10.2307/4126452>
- Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review*, 100(4), 674–701. <https://doi.org/10.1037/0033-295X.100.4.674>
- Nansel, T. R., Overpeck, M., Pilla, R. S., Ruan, W. J., Simons-Morton, B., & Scheidt, P. (2001). Bullying behaviors among US youth: Prevalence and association with psychosocial adjustment. *JAMA*, 285(16), 2094–2100. <https://doi.org/10.1001/jama.285.16.2094>
- Newcomb, A. F., & Bukowski, W. M. (1983). Social impact and social preference as determinants of children's peer group status. *Developmental Psychology*, 19, 856–867. <https://doi.org/10.1037/0012-1649.19.6.856>
- Nisbett, R. E., & Wilson, T. D. (1977). The halo effect: Evidence for unconscious alteration of judgments. *Journal of Personality and Social Psychology*, 35, 250–250. <https://doi.org/10.1037/0022-3514.35.4.250>
- Norwalk, K. E., Hamm, J. V., Farmer, T. W., & Barnes, K. (2015). Improving the school context of early adolescence through teacher attunement to victimization: Effects on school belonging. *Journal of Early Adolescence*, 36(7), 989–1009. <https://doi.org/10.1177/0272431615590230>
- Oldenburg, B., Bosman, R., & Veenstra, R. (2016). Are elementary school teachers prepared to tackle bullying? A pilot study. *School Psychology International*, 37(1), 64–72. <https://doi.org/10.1177/0143034315623324>
- Olweus, D. (1993). *Bullying at school: What we know and what we can do*. Malden, MA: Blackwell Publishing.
- Pham, T., & Adesman, A. (2015). Teen victimization. *Current Opinion in Pediatrics*, 27(6), 748–756. <https://doi.org/10.1097/MOP.0000000000000290>
- Pittinsky, M. L. (2008). *Smart by (perceived) association: Cognitive social networks and teacher academic judgments* (Order No. 3305257). Available from ProQuest Dissertations & Theses A&I. (304620575). Retrieved from <http://server.proxy-ub.rug.nl/login?url=https://search-proquest-com.proxy-ub.rug.nl/docview/304620575?accountid=11219>
- Poulin, F., & Dishion, T. J. (2008). Methodological issues in the use of peer sociometric nominations with middle school youth. *Social Development*, 17(4), 908–921. <https://doi.org/10.1111/j.1467-9507.2008.00473.x>
- Pouwels, J. L., van Noorden, T. H. J., Lansu, T. A. M., & Cillessen, A. H. N. (2018). The participant roles of bullying in different grades: Prevalence and social status profiles. *Social Development*, 27, 732–747. <https://doi.org/10.1111/sode.12294>
- Rabe-Hesketh, S., & Skrondal, A. (2012). *Multilevel and longitudinal modeling using Stata*. College Station, TX: Stata Press.
- Reijntjes, A., Vermande, M., Olthof, T., Goossens, F. A., Vink, G., Aleva, L., & van der Meulen, M. (2018). Differences between resource control types revisited: A short term longitudinal study. *Social Development*, 27(1), 187–200. <https://doi.org/10.1111/sode.12257>
- Rivers, I., Poteat, V. P., Noret, N., & Ashurst, N. (2009). Observing bullying at school: The mental health implications of witness status. *School Psychology Quarterly*, 24(4), 211–223. <https://doi.org/10.1037/a0018164>
- Rodkin, P. C., Farmer, T. W., Pearl, R., & Van Acker, R. (2000). Heterogeneity of popular boys: Antisocial and prosocial configurations. *Developmental Psychology*, 36, 14–24. <https://doi.org/10.1037/0012-1649.36.1.14>
- Rodkin, P. C., & Hodges, E. V. E. (2003). Bullies and victims in the peer ecology: Four questions for psychologists and school professionals. *School Psychology Review*, 32(3), 384–400.
- Rosen, L. H., & Underwood, M. K. (2010). Facial attractiveness as a moderator of the association between social and physical aggression and popularity in adolescents. *Journal of School Psychology*, 48, 313–333. <https://doi.org/10.1016/j.jsp.2010.03.001>
- Saarento, S., Boulton, A. J., & Salmivalli, C. (2015). Reducing bullying and victimization: Student- and classroom-level mechanisms of change. *Journal of Abnormal Child Psychology*, 43(1), 61–76. <https://doi.org/10.1007/s10802-013-9841-x>
- Salmivalli, C., Huttunen, A., & Lagerspetz, K. (1997). Peer networks and bullying in schools. *Scandinavian Journal of Psychology*, 38(4), 305–312. <https://doi.org/10.1111/1467-9450.00040>
- Salmivalli, C., & Isaacs, J. (2005). Prospective relations among victimization, rejection, friendlessness, and children's self- and peer-perceptions. *Child Development*, 76, 1161–1171. <https://doi.org/10.1111/j.1467-8624.2005.00841.x>
- Salmivalli, C., Kaukiainen, A., & Lagerspetz, K. (2000). Aggression and sociometric status among peers: Do gender and type of aggression matter? *Scandinavian Journal of Psychology*, 41(1), 17–24. <https://doi.org/10.1111/1467-9450.00166>
- Scholte, R. H. J., Overbeek, G., ten Brink, G., Rommes, E., de Kemp, R. A. T., Goossens, L., & Engels, R. C. M. E. (2009). The significance of reciprocal and unilateral friendships for peer victimization in adolescence. *Journal of Youth and Adolescence*, 38, 89–100. <https://doi.org/10.1007/s10964-008-9287-6>

- Serdiouk, M., Rodkin, P., Madill, R., Logis, H., & Gest, S. (2013). Rejection and victimization among elementary school children: The buffering role of classroom-level predictors. *Journal of Abnormal Child Psychology*, 43(1), 5–17. <https://doi.org/10.1007/s10802-013-9826-9>
- Smith, J. A., & Faris, R. (2015). Movement without mobility: Adolescent status hierarchies and the contextual limits of cumulative advantage. *Social Networks*, 40, 139–153. <https://doi.org/10.1016/j.socnet.2014.10.004>
- Snijders, T., Fujimoto, K., & Valente, T. (2017). Popularity breeds contempt: The evolution of reputational dislike relations and friendships in high school. *Social Networks*, 48, 100–109. <https://doi.org/10.1016/j.socnet.2016.07.006>
- Statistics Netherlands. (2012). *Jaarrapport integratie 2012* [Annual report integration 2012]. The Hague: Centraal Bureau voor de Statistiek.
- Steglich, C., & Knecht, A. (2014). Studious by association? Effects of teachers' attunement to students' peer relations. *Zeitschrift für Erziehungswissenschaft*, 17(S5), 153–170. <https://doi.org/10.1007/s11618-014-0556-8>
- Thorndike, E. L. (1920). A constant error in psychological ratings. *Journal of Applied Psychology*, 4, 5–29. <https://doi.org/10.1037/h0071663>
- Troop-Gordon, W., & Kopp, J. (2011). Teacher-child relationship quality and children's peer victimization and aggressive behavior in late childhood. *Social Development*, 20(3), 536–561. <https://doi.org/10.1111/j.1467-9507.2011.00604.x>
- Troop-Gordon, W., & Kuntz, K. J. (2013). The unique and interactive contributions of peer victimization and teacher-child relationships to children's school adjustment. *Journal of Abnormal Child Psychology*, 41(8), 1191–1202. <https://doi.org/10.1007/s10802-013-9776-2>
- van den Berg, Y. H. M., & Cillessen, A. H. N. (2013). Computerized sociometric and peer assessment: An empirical and practical evaluation. *International Journal of Behavioral Development*, 37, 68–76. <https://doi.org/10.1177/0165025412463508>
- Veenstra, R., Dijkstra, J. K., Steglich, C., & Van Zalk, M. H. W. (2013). Network-behavior dynamics. *Journal of Research on Adolescence*, 23, 399–412. <https://doi.org/10.1111/jora.12070>
- Veenstra, R., Lindenberg, S., Huitsing, G., Sainio, M., & Salmivalli, C. (2014). The role of teachers in bullying: The relation between antibullying attitudes, efficacy, and efforts to reduce bullying. *Journal of Educational Psychology*, 106(4), 1135–1143. <https://doi.org/10.1037/a0036110>
- Veenstra, R., Lindenberg, S., Oldehinkel, A. J., De Winter, A. F., Verhulst, F. C., & Ormel, J. (2008). Prosocial and antisocial behavior in preadolescence: Teachers' and parents' perceptions of the behavior of girls and boys. *International Journal of Behavioral Development*, 32(3), 243–251. <https://doi.org/10.1177/0165025408089274>
- Verlinden, M., Veenstra, R., Ringoot, A. P., Jansen, P. W., Raat, H., Hofman, A., ... Tiemeier, H. (2014). Detecting bullying in early elementary school with a computerized peer-nomination instrument. *Psychological Assessment*, 26(2), 628–641. <https://doi.org/10.1037/a0035571>
- Volk, A. A., Dane, A. V., & Marini, Z. A. (2014). What is bullying? A theoretical redefinition. *Developmental Review*, 34, 327–343. <https://doi.org/10.1016/j.dr.2014.09.001>
- Wentzel, K. R. (1993). Does being good make the grade? Social behavior and academic competence in middle school. *Journal of Educational Psychology*, 85, 357–364. <https://doi.org/10.1037/0022-0663.85.2.357>
- Wu, X., Hart, C. H., Draper, T., & Olsen, J. A. (2001). Peer and teacher sociometrics for preschool children: Cross-informant concordance, temporal stability, and reliability. *Merrill-Palmer Quarterly*, 47, 416–443. <https://doi.org/10.1353/mpq.2001.0018>
- Young, E. L., Boye, A. E., & Nelson, D. A. (2006). Relational aggression: Understanding, identifying, and responding in schools. *Psychology in the Schools*, 43(3), 297–312. <https://doi.org/10.1002/pits.20148>

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