

“It must be me” or “It could be them?”: The Impact of the Social Network Position of Bullies
and Victims on Victims' Adjustment¹

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Abstract

This study examined whether the association between victimization and psychological adjustment (depression and self-esteem) is moderated by the classroom network position of bullies and victims. Multivariate multilevel regression analysis was used on a large sample representative for grades three to five in Finland ($N = 7192$ children from 376 classrooms). Consistent with the person-group (dis)similarity model and attributional mechanisms, it was found that victims were better adjusted in classrooms when others shared their plight and when they could attribute the blame to bullies. The results indicate that victimization consequences might be partly generated by person-environment interactions.

Keywords: Adjustment; Attributions; Bullying; Degree Centralization; Victimization.

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Bullying in classrooms takes place in a social context where group processes have an important role. For example, group norms can affect the evaluation of bullying behavior (Henry et al., 2000; Salmivalli & Voeten, 2004). Furthermore, it has been indicated that children’s (sub)group membership plays an important role in their involvement in bullying (DeRosier, Cillessen, Coie, & Dodge, 1994; Espelage, Holt, & Henkel, 2003; O’Connell, Pepler, & Craig, 1999). To date, few studies have addressed how bullies and victims are involved in bullying and victimization in classrooms. For example, do bullies harass many or few classmates, and does this have consequences for victims? In this study, we derive hypotheses from the theories on social misfits (Wright, Giammarino, & Parad, 1986) and attributional mechanisms (Graham & Juvonen, 2001; Weiner, 1986), examining the consequences of the classroom’s social context on victims’ psychological adjustment. More specifically, we examine whether the position and involvement of bullies and victims in bullying networks moderates the association of victimization with depression and self-esteem.

Background

The person-group (dis)similarity model as postulated by Wright, Giammarino, and Parad (1986) implies that the evaluation of children’s behavior depends on the group in which they are embedded. In their study on disruptive boys in a summer camp Wright and colleagues showed that aggressive children were rejected in groups with anti-aggressive norms whereas this negative evaluation was not found in groups with pro-aggressive norms.

When children’s behavior does not fit with the group norms and they behave non-normatively, they can be labeled as “social misfits”. The proposition that social misfits are evaluated negatively has been tested for aggression among boys in experimental play groups

(Boivin, Dodge, & Coie, 1995; DeRosier et al., 1994), among students in classrooms (Chang, 2004; Stormshak et al., 1999; Jonkmann, Trautwein, & Lüdtke, 2009), and for social incongruity in race and socioeconomic status (Jackson, Barth, Powell, & Lochmann, 2006; Rhodes, Roffman, Reddy, & Fredriksen, 2004). More important for the present study, it has been shown that the social misfit model can be applied to bullying and victimization (Bellmore, Witkow, Graham, & Juvonen, 2004; Dijkstra, Lindenberg, & Veenstra, 2008; Sentse, Scholte, Salmivalli, & Voeten, 2007).

Sentse et al. (2007) showed that bullying among early adolescents was less negatively evaluated in classrooms where bullying was the norm. When bullying was highly normative in classrooms, it was even positively related to peer preference. Moreover, victims were low on peer preference but this association decreased with the level of victimization in the classroom. Bullies and victims were thus regarded as social misfits in classrooms with few bullies or few victims, respectively.

Being a social misfit may, besides negative evaluations by peers, lead to internalizing problems when children feel that they deviate from the group (Juvonen & Gross, 2005). This can be explained by attributional processes (Graham & Juvonen, 1998; 2001). Victims make causal attributions, asking themselves: “*Why am I victimized?*” In the numerous answers to this question (Graham & Juvonen, 2001; Weiner, 1986), at least three dimensions might play a role: stability (the cause of victimization is stable or varying over time), controllability (whether the cause of victimization can be changed by the victim), and locus (the cause of victimization is internal or external to the victim). These dimensions are thought to be related to victims’ psychological adjustment (Weiner, 1986). The locus is of special interest for the present study: The more victims attribute the cause for victimization to be internal (blaming themselves for victimization), the more they are expected to be psychologically maladjusted (Bellmore et al., 2004; Graham, Bellmore, Nishina, & Juvonen, 2009). On the contrary,

perceiving the causes of victimization as external might temper its negative influences on victims' psychological adjustment.

The Present Study

In this study we examined the social misfit model for victimization combined with the theory of attributional processes. We tested the moderating effects of the social structure of bullying and victimization networks on the association of victimization with two psychological adjustment variables related to peer victimization: depression and self-esteem (Hawker & Boulton, 2000; Salmivalli, Kaukiainen, Kaistaniemi, & Lagerspetz, 1999). We expected that children whose situation deviated from the classroom norm (social misfits) reacted to their deviating position by psychological maladjustment in the form of depressive symptoms and lower self-esteem. The social misfit position was construed from a social network perspective, by investigating the network position of bullies and victims in the classroom. We considered the classroom as an important social context because our data were collected in Finnish elementary classrooms, where children are normally together with the same classmates for at least the first six years of their basic education. This peer group is essential and salient for children, and probably highly significant for their adjustment.

To assess the structure of bullying and victimization networks, we used classroom measures of centralization. The concept of centralization is long-standing and well known in social network analysis (e.g., Freeman, 1979; Wasserman & Faust, 1994). In this study, when we use the term centralization we refer to *degree* centralization, which is regarded here as the prominence or importance of actors in the network. On the individual level, actors who are (degree) central are involved in many ties, and thus visible/salient to the other actors in the network. On the group level, classroom centralization is considered to indicate how differentiated actors are in their network positions. The higher the centralization of the classroom, the more likely it is that only a few actors are central. Such central social network

structures of classrooms have been found to be typical for bullying and victimization networks (Vermande, Van den Oord, Goudena, & Rispens, 2000). When classrooms have a high centralization of victimization, it means that some students are victimized whereas the majority of the students in the classroom is not victimized. Such victims are prominent and visible and therefore we label them at the individual level as *specific* victims. A high classroom centralization of bullying, in turn, indicates that some students are bullying (many) classmates whereas the majority of the students does not bully. In such heterogeneous classrooms with high centralization of bullying, students who bully can be typified at the individual level as *specific* bullies.

We expected victimization to be related to psychological maladjustment (*hypothesis 1*), as has been found in previous studies. Furthermore, consistent with the person-group (dis)similarity model, we expected that victims were better adjusted in classrooms with high levels of victimization and bullying (*hypothesis 2a and 2b*, respectively). When local norms favor disruptive and abusive behaviors, victims deviate less from what is normative in the classroom. In addition, we expected that the network position of victims and their bullies further influence victims' adjustment. More specifically, we investigated the dispersal of bullying and victimization in classrooms, by examining the centralization of victimization and bullying of the classroom.

First, we examined the effect of the presence of other victims in the classroom (Nishina & Juvonen, 2005). With few other victims, it is difficult to perceive victimization as a common event ("happens also to others"). Victimization as one's unique plight makes it more likely for victims to attribute the blame for victimization to the self: "It must be me". We addressed this by investigating whether the classroom centralization of victimization moderated the association between victimization and psychological adjustment. We expected that victims in classrooms with high centralization of victimization were more

psychologically maladjusted (*hypothesis 3*).

Next, we examined whether the negative consequence of victimization on psychological adjustment is tempered in classrooms with highly specific bullies as this might lead to more external attributions by victims. We addressed this by investigating whether the classroom centralization of bullying moderated the association between victimization and psychological adjustment. In classrooms with high centralization of bullying, their bullies are specific bullies who are nominated by many classmates as their tormentors. Victims can make (and share with other victims) the external attribution: “It could be them”. Thus, we hypothesized that being victimized in classrooms with high centralization of bullying leads to less psychological maladjustment (*hypothesis 4*).

Method

Participants

This study is part of a larger project evaluating the effectiveness of the *KiVa bullying intervention program* developed at the University of Turku, Finland. The data utilized in the present study are the pre-test data from the first phase of evaluation, collected in May 2007. Schools participating in this first phase ($N = 78$) represent all five provinces in the mainland Finland, involving 429 classrooms and a total of 8248 students in grades 3-5 (in May at the end of the school year mean ages are 10-12). To recruit the children from this target sample, guardians were sent information letters including a consent form. A total of 7564 students (91.7% of the target sample) received active consent to participate and 7312 students (88.7% of the target sample) from 408 classrooms in 77 schools responded to the questionnaire. Of the respondents, 50.3% were girls and most students were native Finns (i.e., Caucasian), the proportion of immigrants being 2.4%. Sociometric peer nominations were presented only in classrooms with at least seven students, and therefore all classes below this limit were not included in this study. Missing data at the individual scale level for children who actively

participated in the study was handled using imputation with the MICE method of multivariate imputation (Royston, 2004). The amount of missing data was less than 11% for all variables. Missing sociometric nominations were not imputed but regarded as absent and classroom network scores were calculated over the information obtained from children who participated in the study. As a result of the imputations, we were able to use data of 7192 primary school children from 376 classrooms in 77 schools.

Procedure

Students filled out Internet-based questionnaires in the schools' computer labs during regular school hours. The process was administered by the teachers who were supplied with detailed instructions concerning the procedure about two weeks prior to the data collection. In addition, the teachers were provided with a possibility to get support through phone or e-mail prior to and during the data collection. The teachers received individual passwords for all the students who had obtained parental permission to participate in the study. They distributed the passwords to the students, who used them to log in to the questionnaire. The order of questions, individual items, and scales used in this study was randomized as much as possible so that the order of presenting the questions would not have any systematic effect on the results. The students were assured that their answers would remain strictly confidential and not be revealed to teachers or parents.

The term *bullying* was defined to the students in the way formulated in the Olweus' Bully/Victim questionnaire (Olweus, 1996), which emphasizes the repetitive nature of bullying and the power imbalance between the bully and the victim. Several examples covering different forms of bullying were given. Moreover, an explanation of what is not bullying (teasing in a friendly and playful way; fighting between children of equal strength) was also provided. Teachers read the definition out loud while the students could read the same definition from their computer screens. Additionally, to remind the students of the

meaning of the term bullying, a shortened version of the definition appeared on the upper part of the computer screen while the students responded to any bullying-related question.

Dependent Variables: Self-Reported Psychological Adjustment

Depression. We used a 7-item scale, derived from the Beck Depression Inventory (Beck, Erbaugh, Ward, Mock, & Mendelsohn, 1961), to measure children's depression. Participants responded on a 5-point Likert-type scale to items such as "how do you feel your life has been running?" (0 = *happily*, 4 = *unhappily*) and "how do you see your future?" (0 = *optimistically*, 4 = *desperately*). The scores for the seven items formed a reliable scale and were averaged (Cronbach's $\alpha = .86$).

Self-esteem. We used a 10-item scale to measure children's self-esteem. Items were derived from the Rosenberg Self-Esteem Scale (Rosenberg, 1965), slightly adapted by instructing children to "report the way you feel about yourself when around peers", following Harter, Waters, and Whitesell (1998; see also Salmivalli & Isaacs, 2005; Salmivalli, Ojanen, Haanpää, & Peets, 2005). Participants responded on a 5-point Likert-type (0 = *not true at all*, 4 = *exactly true*) scale to items such as "I feel that I have a number of good qualities" and "I feel that I am a person of worth, at least on an equal plane with others". The scores for the ten items formed a reliable scale and were averaged (Cronbach's $\alpha = .81$).

Independent Variables Describing Individuals

Victimization. Self-reported involvement in victimization was measured by the Olweus (1996) Bully/Victim questionnaire. Children were presented one general item ("How often have you been bullied at school during the past couple of months?") and ten specific items concerning several forms of bullying. For the present study, we used the general item and six specific items concerning physical, verbal (2 items), relational (2 items), and material (i.e., taking or breaking other's property) bullying to measure children's self-reported victimization. We did not use items on racist, sexual, and cyber bullying, because these might

not be applicable to all children. Children answered on a five-point scale (0 = *not at all*, 2 = *two or three times a month*, 4 = *several times a week*). Altogether, the scores on these seven items formed a reliable scale and were averaged (Cronbach's $\alpha = .82$).

Sex and age. Sex was dummy coded, with boys coded as 1 and girls coded as 0. For age, students provided their date of birth. This was recoded with respect to the time of the data collection to obtain student's ages in years and months. The average age of the participants was 10.99 ($SD = 1.10$).

Independent Variables Describing Classroom Characteristics

Classroom average of victimization and bullying. For the classroom average of victimization we used peer nominations to identify which classmates children perceive as victims. We did not use dyadic nominations where bullies nominate their victims (e.g., "Who do you bully?"), because we could not rely on bullies' openness. Children are more reluctant to self-report bullying than victimization (e.g., Solberg & Olweus, 2003). Dyadic bullying nominations were only asked from self-reported bullies, and the few children who admitted to bully classmates were reluctant to nominate their targets. For the peer nominations, children were presented a roster with the names of all their classmates and were asked to nominate (unlimited) the same-sex and cross-sex classmates who were physically ("is pushed and hit"), verbally ("is called with nasty names or made fun of"), and/or relationally ("other kids spread nasty rumors about") victimized. The three items formed a reliable scale (Cronbach's $\alpha = .84$). We used the three items for peer-reported victimization and transformed them to proportion scores (dividing the received nominations by the number of nominating classmates) to account for differences in classroom sizes. These three items were averaged per child and next averaged among each classroom to indicate the classroom level of victimization.

The classroom average of bullying was calculated as the mean number of nominations by victims (the outdegree) for the question "By which classmates are you victimized?". If

children indicated on any of the eleven Olweus bully/victim items that they were victimized at least two or three times a month (the cut point of 2, Solberg & Olweus, 2003), they were first asked whether they were bullied by classmates or pupils from other classrooms. If they confirmed being bullied by classmates, they were presented with a roster with the names of all their classmates, and asked “By which classmates are you victimized?” (see also Veenstra et al., 2007). Unlimited same-sex as well as cross-sex nominations were allowed. The higher the average score for given nominations, the higher the level of bullying in a classroom.

Although classroom average of victimization and bullying are overlapping constructs, we computed two separate classroom average scores (one for victimization and one for bullying), in order to relate them to classroom variances of victimization and bullying nominations (i.e., centralization measures, see below). We wanted to examine the effects of classroom centralization of victimization and bullying while controlling for the classroom average of the same construct. These averages and variances should be constructed from the same peer/dyadic nominations.

Classroom centralization of victimization and bullying. To calculate the classroom centralization of victimization and bullying, we used the normalized degree variance (Snijders, 1981; applied by, e.g., Van den Oord & Van Rossem, 2002). The degree variance is a measure for the heterogeneity of actors and was used in the present study to reflect one aspect of the classroom social networks of victimization and bullying that contributes to the visibility of students. We used the indegree variances of the peer nominations for victimization and the aggregated dyadic victimization nominations to measure the classroom centralization of victimization and bullying, respectively. This variance was normalized to have a zero mean and unit variance under a stochastic null model of a random network with the observed number of children and nominations. In this way, the normalized centralization could be tested as a null hypothesis, by assuming that the model has a standard normal

distribution, such that values above 1.96 differ considerably from the centralization expected in a classroom with nominations randomly distributed (Snijders, 1981). The larger the value obtained, the larger the differences in degrees and thus, the more central the classroom is for victimization and bullying.

To illustrate the meaning of central victimization and bullying classrooms, we provide sample networks of bullying nominations in two classrooms. Figures 1a and 1b show the bullying nominations for two classrooms. The density of the bullying nominations in both classrooms is quite high—their densities are in the upper ten percent of the distribution of classroom densities (7.6% and 8.4%, respectively). Given the number of students and nominations, the first classroom has a classroom centralization of bullying that is close to the centralization expected by chance (*normalized centralization* = 1.04), whereas in the second classroom the classroom centralization of bullying is much larger than expected by chance (*normalized centralization* = 10.65). Although there is bullying in the classroom of Figure 1a, there are few children in this classroom identified as specific bullies, that is, nominated by many classmates for bullying. For the classroom of Figure 1b, there are three specific bullies (two children are nominated by seven classmates; one child is nominated by six classmates). Therefore, this classroom scores high on classroom centralization of bullying.

Results

Analytical Strategy

To answer the questions of this study, we performed multivariate multilevel regression analysis using MLwiN 2.02 (Rasbash et al., 2000). The data used in this study were nested: individuals in classrooms (cf. Snijders & Bosker, 1999), violating the assumption of independent observations. Multilevel analysis takes into account the nested structure of the data and enables us to test the specific questions about the individual within the classroom context. We purposively ignored the possible third level of observations, the school, as there

was little variation at the school level for psychological adjustment (0.9% for depression and 0.8% for self-esteem).

In the analyses, depression and self-esteem were the dependent variables at the individual level. For depression and self-esteem the variation at the classroom level was 4.6% and 4.9%, respectively (intraclass correlations .046 and .049). Because these adjustment variables are strongly correlated, $r(7192) = -.55, p < .001$, we adopted a multivariate approach where both outcome variables (level 1) are nested within students (level 2) within classrooms (level 3). Some advantages of a multivariate approach (Snijders & Bosker, 1999) are that it can be examined to what extent correlations between the dependent variables depend on the individual or the group level, that tests of specific effects for outcome variables are more powerful (as seen in smaller standard errors), and that it can be tested whether the effect of a predictor on depression is larger than it is on self-esteem.

We tested a model where the effects of individual victimization on depression and self-esteem were estimated while controlling for sex and age. We included also the effects of classroom average and centralization of victimization and bullying, respectively, and their interactions with individual victimization. These cross-level interactions were specified by multiplying individual victimization with classroom effects. In all models, we used random intercepts and a random slope for individual victimization, with the other effects fixed. Deviance differences of the models can be used for testing model components. They have approximately a chi-square distribution with the number of degrees of freedom equal to the added parameters of the model. To facilitate the interpretation of the results of the multilevel regression analyses and to obtain standard errors of the same magnitude, all variables (except sex) were centered by z -standardization ($M = 0, SD = 1$) across the whole sample before entering them into the multilevel model (cf. Aiken & West, 1991).

Descriptive Statistics and Correlations

Descriptive analyses (Table 1) showed that boys reported somewhat more victimization than girls, $t(7002) = 3.94, p < .01$, whereas girls were somewhat more depressed than boys, $t(7182) = 5.10, p < .01$. No sex differences were found for self-esteem or age. Furthermore, victimization correlated with both depression ($r = .36$) and self-esteem ($r = -.32$) at the individual level. Depression and self-esteem were strongly correlated ($r = -.55$). In the multivariate empty model the random classroom and student effects of depression and self-esteem were correlated ($-.72$ and $-.53$, respectively). At the classroom level, the classroom average of victimization was correlated with the classroom average of bullying ($r = .53$). Furthermore, the classroom average of victimization was uncorrelated with the classroom centralization of victimization, whereas the classroom average of bullying correlated with the classroom centralization of bullying ($r = .47$). The latter correlation is an indication that an increased level of classroom bullying reflect increased bullying by a few specific bullies.

Depression and Self-Esteem Regressed on Victimization

Results of depression and self-esteem regressed on victimization are given in Table 2. For depression, it was found that boys and younger children were less depressed than girls and older children. Victimization was on average (over all classrooms) strongly related to depression ($b = 0.378$). Moreover, this association varied over classrooms given its significant random slope. The 95% confidence interval for the random slope (before entering the classroom variables and their interactions) ranged from -0.05 to 0.81 , indicating that victimization mostly related positively to depression, but this effect was in some classrooms absent or even slightly reversed. Results for self-esteem were comparable. Boys had higher self-esteem than girls, and victimization was over all classrooms related to lower self-esteem ($b = -0.338$). As for depression, the association between victimization and self-esteem varied over classrooms, but never lost its negative association (95% confidence interval: -0.63 to -0.04). Victimization was stronger related to depression than to self-esteem, $\chi^2(1, N = 7192) =$

7.43, $p < .01$. We next tested the association between victimization and depression as well as self-esteem in different contexts by including classroom-level effects of victimization and bullying and their interaction with individual victimization.

Classroom Context of Victimization and Bullying

The classroom average of victimization was positively related to depression, and negatively to self-esteem ($bs = 0.041$ and -0.033 , respectively). The classroom average of victimization also moderated the relation between victimization and self-esteem, such that victims had higher self-esteem in classrooms with high levels of victimization ($b = 0.026$). Moreover, the main effect of the classroom centralization of victimization was positively related to depression and negatively related to self-esteem ($bs = 0.040$ and -0.030 , respectively): Children were on average more depressed and had lower self-esteem in classrooms with specific victims. In addition, for depression, individual victimization interacted significantly with the classroom centralization of victimization ($b = 0.034$). This means that victims were on average more depressed when they were in classrooms with high centralization of victimization; they were specific victims. Although this effect was in the same direction for self-esteem (victims tended to have lower self-esteem when they were specific victims), it did not reach significance.

The classroom average of bullying related positively to depression and negatively to self-esteem ($bs = 0.052$ and -0.062 , respectively). The classroom average of bullying further tended to moderate the relation between victimization and depression and self-esteem, such that victims were less depressed and had higher self-esteem in classrooms with high levels of bullying. Although these interaction effects were in the expected direction, they failed to reach significance. The classroom centralization of bullying was significantly related to depression ($b = -.038$) and self-esteem ($b = .038$): Children were overall less depressed and had higher self-esteem in classrooms with specific bullies. Moreover, the cross-level

interactions suggested that the association between victimization and depression was weaker in classrooms with high centralization of bullying, and, in a similar way, that victimization related less strongly to a negative self-esteem in classrooms with a high centralization of bullying. However, either of the two effects did not reach significance.

An indication for the explained variance of the full model as compared with the empty model can be calculated by taking the proportional reduction of the prediction error. The explained variance was at the individual level 18.5% for depression and 13.2% for self-esteem. With an average classroom size of 20.9 students, the models accounted for 37.6% and 32.9% of the classroom-variances in depression and self-esteem, respectively. Adding the classroom variables and their interactions with individual victimization resulted in a 95% confidence interval of the random slope of victimization on depression of -0.04 to 0.79, and a 95% confidence interval of the slope of victimization on self-esteem of -0.62 to -0.05. These quite large intervals suggests the existence of other factors that account for the remaining classroom-variability of the complex relation of victimization with depression and self-esteem.

Discussion

The starting point for this study was the finding that bullying occurs in a social context and that individual outcomes might depend on the interaction between the individual and the social context. We argued that the position of bullies and victims in the classroom would be related to victims' adjustment. We tested this by examining the moderating effects of the classroom social network position of bullies and victims on the association between victimization and psychological adjustment. The results suggest that victims' adjustment is indeed formed in interaction with the classroom context.

We found that, in line with previous studies (see Hawker & Boulton, 2000), victims were more depressed and had lower self-esteem than non-victimized children. However, we

also found that this association varied across classrooms and was stronger in classrooms that were high on centralization of victimization. Victims were more depressed in classrooms with specific victims. Classrooms with high centralization of victimization are characterized by few victims who are perceived as victims by many classmates. These victims have a social misfit status in the classroom. Specific victims are perceived as victims and may be victimized by many classmates, and it is difficult for them to attribute the blame to external factors. Thus, they might perceive the reason for their victimization as internal, which is related to maladjustment (Graham & Juvonen, 1998; 2001; Weiner, 1986).

For victimization, we also found support for the person-group (dis)similarity model (e.g., Sentse et al., 2007; Wright et al., 1986), in that victims were better adjusted in classrooms with high levels of victimization. In those circumstances, victims perceive that there are peers with whom they can share their plight. It has been found by using daily reports that students who are negatively treated by peers show less negative self-perceptions when they witness *at the same day* that others are also victimized (Nishina & Juvonen, 2005). In those cases peer maltreatment is perceived as something common which lessens its personal nature. This might be the reason why being a specific victim heightens the risk for internalizing problems. The interaction of individual victimization with classroom centralization of victimization adds to our understanding of victims' adjustment, over and above previous findings that individual victimization in interaction with the classroom average level of victimization influences victims' adjustment.

Although we had no a priori predictions about the consequences of the classroom centralization of victimization for the adjustment of non-victims, we found that the classroom centralization of victimization was associated with individual depression and self-esteem. This main effect suggests that all children were on average more depressed and had lower self-esteem in classrooms where some classmates were perceived as victims by many peers.

Children can feel stressed, anxious, and uncomfortable when they are in classrooms with clearly visible victims. It might be that peers feel guilty because, despite their anti-bullying attitudes (e.g., Boulton, Trueman, & Flemington, 2002; Rigby, 2005), children rarely intervene or defend their victimized peers (Salmivalli, Lagerspetz, Björkqvist, Österman, & Kaukiainen, 1996; Salmivalli, Lappalainen, & Lagerspetz, 1998; Salmivalli & Voeten, 2004). Observing victimization might elicit the need to intervene on behalf of the victim but, as a consequence of lacking strategies to intervene or being concerned to be the next victim, children often do nothing to protect classmates. This might influence their self-esteem as well as their level of depression.

When investigating the effects of being victimized in a classroom with specific bullies, we found that victims were relatively better adjusted when the bullies in the classroom were clearly visible, and harassing many classmates. Victimized children can attribute the blame partly to their bullies as they see that they have a disruptive nature and are tormenting many classmates. Blaming an external cause alleviates the distress that is related to victimization. However, these moderating effects of the classroom centralization of bullying were in the same direction as the moderating effects of the classroom average of bullying. This indicates that the classroom centralization of bullying refers to the same person-group misfit processes as the classroom average of bullying. Moreover, this also suggests that a high level of bullying in a classroom coincides with a high centralization of bullying. In other words, it is likely that increased levels of bullying in classrooms can be related to increased levels of bullying by a few individuals, rather than moderate levels of bullying by many children per se.

We also found a main effect of the classroom centralization of bullying on depression and self-esteem, which indicated that all children are somewhat less depressed and have somewhat higher self-esteem when bullying is carried out by few individuals. The main

effect of the classroom centralization of bullying was, however, for both depression and self-esteem somewhat smaller than the main effect of the classroom average of bullying. This suggests that increased classroom levels of bullying increase children's maladjustment, but witnessing or experiencing bullying has less severe consequences when it comes from few bullies, making it possible for children to put the blame on those individuals.

The overall main effects of the classroom average and centralization of victimization and bullying were small in comparison with the relatively large individual effect of victimization on depression and self-esteem. This can also be seen in the unexplained part of the random slope of victimization that suggests that other factors (on the individual as well as classroom level) account for the differences in the consequences of victimization across classrooms. The moderating effects of the classroom context on the association of victimization with the two adjustment variables were also found to be small when compared with the main effect of individual victimization. This suggests that the presence of other victims in the classroom or being able to make the external attribution takes off the sharp edges of the negative consequences of victimization, though being victimized in those relatively favorable contexts still harms children's adjustment significantly.

Limitations and Strengths

This study had some limitations. First, the data used were cross-sectional, so it was not possible to make causal conclusions. While it sounds plausible that victimization leads to psychological maladjustment, it may be possible to argue for a reverse pattern: poor adjustment leads to victimization. Even the moderating effect of the classroom position of victims could be applied to this reverse pattern, such that children who are psychologically vulnerable and do not fit in the peer group are more at risk to become specific victims (cf. Juvonen & Gross, 2005). This could be seen as a reinforcing process, where poor adjustment, lack of fit with the group, rejection, and victimization are all enhancing each other, such that

it is hard for victimized students to recur to the larger peer group once they deviated from what is considered to be appropriate.

Second, the effect of the network position of bullies and victims on the association between victimization and adjustment can be partly explained by attributional mechanisms. While the results were in the expected direction, suggesting that internal self-blaming was more deleterious for victim's adjustment than making an external attribution, we did not test these attributional mechanisms directly by asking victims about their thoughts and feelings of victimization. Therefore, we can only state that we indirectly tested the attributional theory as an explanation for the different associations between victimization and adjustment across diverse social contexts. Future studies could examine whether it is really the case that victims are more likely to attribute the blame for victimization to internal or external factors when they are in classrooms with high centralization of victimization or bullying, respectively.

Third, although we wanted to capture the social network position of bullies and victims, we decided not to use the social network ties from the bullies' perspective (as done by Veenstra et al., 2007). It appeared that few self-reported bullies in our sample were willing to provide information about whom they victimized, and as a result, we had a low incidence in social network ties for the question: "Who do you bully?". The reason for this might be that bullies were allowed to nominate classmates as their victims when they indicated bullying classmates at least two or three times a month in the Olweus Bully/Victim Questionnaire. Few bullies indicated to harass their classmates with that frequency. Therefore, we used general peer nominations for the classroom measures of victimization instead of preferred social network nominations for victimization. This might lead to some underestimation of perceived victimization, because we might have captured only forms of bullying that are visible in the classroom (cf. Crick & Grotpeter, 1996). Another problem that arises with general peer nominations is that it is possible that a victim is only harassed by one bully, and

yet observed by all classmates. For the classroom centralization of bullying, however, we were able to use the social network information and identified thereby precisely whom the victims perceived as their bullies.

The findings of this study have some implications for anti-bullying interventions. It might be important to know whether a child is the only victim in the classroom, possibly targeted by many classmates, or among several victims. The results of the study also imply that the evaluation of anti-bullying interventions should take into account how interventions influence the position of bullies and victims in the classroom. Although it sounds counterintuitive, it might be that a reduction of victimization in the classroom is not beneficial for all victims. For example, if an anti-bullying intervention reduces the number of victims in a classroom from four to one, the remaining victim might be worse off because there are fewer, or perhaps no others with whom to share the plight. Therefore, besides an overall reduction of victimization, anti-bullying interventions should take into consideration the classroom dispersal of victimization. While classroom average scores for victimization could be comparable, victims in certain classrooms might be in a poorer position when involved in many victimization relations. In addition, our study implies that structural characteristics of bullying and victimization in the classroom can be important contextual factors when studying the consequences of victimization. This study reveals that, despite the strong association between victimization and maladjustment, consequences of victimization differ across classroom contexts.

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Table 1. *Descriptive Statistics and Correlations for the Study Variables*^a

Variables	Girls		Boys		Total		Correlations			
	(N = 3638)		(N = 3554)							
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	1.	2.	3.	4.
<i>Individual level variables (N = 7192)</i>										
1. Depression	0.63	0.63	0.56	0.60	0.59	0.61	-			
2. Self-esteem	2.72	0.72	2.75	0.70	2.74	0.71	-.55 *	-		
3. Victimization	0.33	0.49	0.38	0.57	0.35	0.53	.36 *	-.32 *	-	
4. Age	11.01	1.09	10.97	1.11	10.99	1.10	.07 *	.03	-.07 *	-
<i>Classroom level variables (N = 376)</i>							5.	6.	7.	8.
5. Average of victimization					0.07	0.04	-			
6. Average of bullying					0.62	0.49	.53 *	-		
7. Centralization of victimization					3.78	5.91	-.05	.07	-	
8. Centralization of bullying					1.27	2.46	.30 *	.47 *	.09	-

Note. ^aThese are the means and standard deviations before standardizing. * $p < .01$.

Table 2.

Results of Multivariate Multilevel Regression Analysis of Classroom-Level Effects of Victimization and Bullying, and their Interaction with Individual Victimization on Depression and Self-Esteem (N = 7192)

	Depression		Self-esteem		Covariance	
	Par.	SE	Par.	SE		
Fixed effects						
Intercept	0.086	0.017	-0.052	0.018		
Boy	-0.146 **	0.022	0.068 **	0.022		
Age	0.069 **	0.012	0.018	0.013		
Victimization	0.378 **	0.017	-0.338 **	0.015		
CL AV Vict	0.041 **	0.016	-0.033 *	0.017		
CL AV Bul	0.052 **	0.017	-0.062 **	0.018		
CL Cent Vict	0.040 **	0.013	-0.030 *	0.014		
CL Cent Bul	-0.038 *	0.015	0.038 *	0.016		
Interaction with Vict						
CL AV Vict	-0.014	0.016	0.026 *	0.013		
CL AV Bul	-0.015	0.020	0.016	0.017		
CL Cent Vict	0.034 *	0.017	-0.016	0.014		
CL Cent Bul	-0.015	0.017	0.010	0.014		
Random Effects	<i>Variance component</i>	<i>SE</i>	<i>Variance component</i>	<i>SE</i>	<i>Variance component</i>	<i>SE</i>
CL variances						
Intercept	0.019 **	0.005	0.023 **	0.005		
Slope Vict	0.045 **	0.007	0.021 **	0.005		
Covariance (intercept, slope)	0.020 **	0.004	-0.002	0.004		
CL covariances						
Interc Dep, Interc SE					-0.014 **	0.004
Slope Vic-Dep, slope Vic-SE					-0.025 **	0.005
Interc Dep, slope Vic-SE					-0.008 **	0.004
Interc SE, slope Vic-Dep					-0.002	0.004
Individual variances	0.803 **	0.014	0.846 **	0.015		
Covariance Interc Dep-SE					-0.382 **	0.012
Deviance				36823		
Deviance difference				$\chi^2 (df = 29) = 1444$ **		

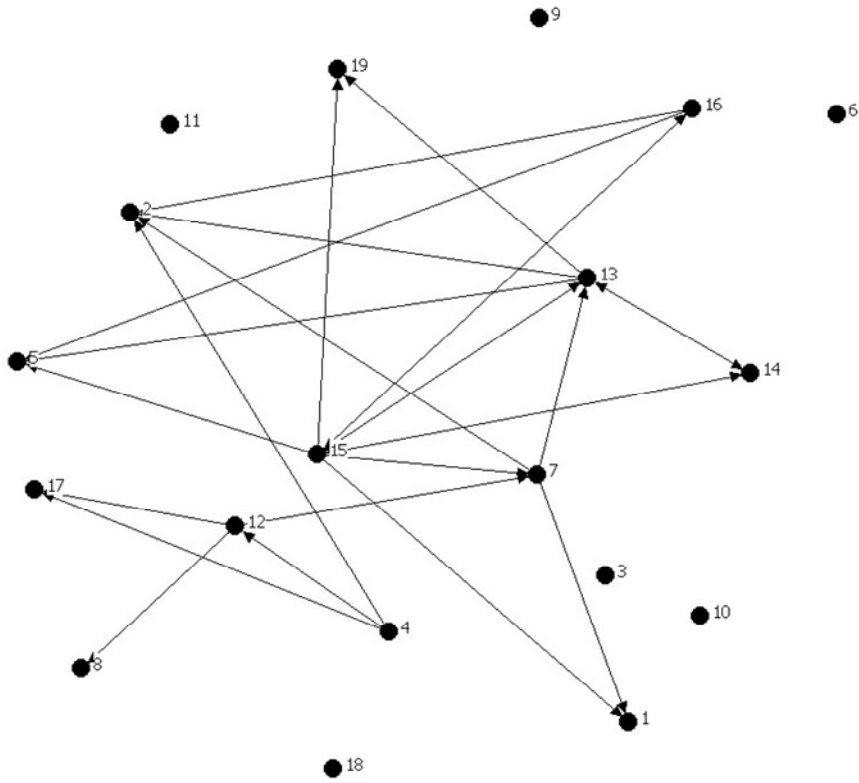
Note. Decrease in deviance is based on a comparison with the empty model, which had for depression and self-esteem classroom variances of 0.046 and 0.049 ($SE = 0.007$), individual variances of 0.963 ($SE = 0.016$) for depression and 0.950 ($SE = 0.016$) for self-esteem, and covariances of -0.034 ($SE = 0.006$) and -0.505 ($SE = 0.013$) at the classroom and individual level, respectively. All variables (except sex) were standardized. *CL* Classroom; *AV* Average; *Cent* Centralization; *Vict* Victimization; *Bul* Bullying; *Dep* Depression; *SE* Self-esteem; *Interc* Intercept; *Par* Parameter estimate.

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

Figure Captions

Figures 1a and 1b. “By which classmates are you victimized?”: Graphical presentation of bullying networks of two classrooms with (1a) a low classroom centralization of bullying with many children nominated for bullying (density: 7.6%) and (1b) a high classroom centralization of bullying where three children were nominated by many classmates for bullying and thus identified as specific bullies (density: 8.4%).

(Fig. 1a)



(Fig. 1b)

