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Peer Victimization and Academic Achievement in a Multiethnic Sample: The Role of Perceived Academic Self-Efficacy

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This study examines the link between perceived peer victimization and academic adjustment in an ethnically diverse sample of 1,895 Grade 6 students nested within 108 school classes. It was hypothesized that students' academic self-efficacy mediates the (negative) link between victimization experiences and academic achievement outcomes. Multilevel analyses were used to test this hypothesis and to explore whether there are differences between ethnic minority and majority group children. Results indicated that peer victimization was negatively associated with both relative class-based, and absolute test-based measures of academic achievement. These associations were similar across different school classes. As expected, the link between victimization and achievement was mediated by perceived academic self-efficacy, suggesting that victimized students did less well academically because they considered themselves to be less competent. The lower perceived self-efficacy of victimized children could be partly attributed to lower global self-esteem and depressed affect. Results were largely similar for ethnic minority and majority group children.

Keywords: peer victimization, academic achievement, perceived academic self-efficacy, ethnic minority students

Peer victimization is a considerable problem for a substantial number of children (Juvonen, Nishina, & Graham, 2000). The term *peer victimization* refers to the individual experience of aggressive or negative behaviors by others, including name calling or active exclusion (Hawker & Boulton, 2000; Lopez & DuBois, 2005). There is a bulk of evidence suggesting that victimization experiences can have negative consequences for children's psychosocial functioning. Hawker and Boulton (2000) summarized this evidence in a meta-analysis of cross-sectional studies covering almost 20 years of research. Peer victimization had significant negative effects on all adjustment variables examined in the analysis, including depression, loneliness, global self-esteem, social self-concept, general anxiety, and social anxiety. Although these effects were moderate in size ($r = .19-.45$), the range of affected outcomes attests to the seriousness of the phenomenon (Hawker & Boulton, 2000).

More recently, researchers have focused on the links between peer victimization and academic adjustment, and, in particular, children's achievement outcomes. Studies relying on cross-sectional data have shown that victimized children receive lower grades than their more accepted classmates (Buhs & Ladd, 2001; Graham, Bellmore, & Mize, 2006; Lopez & DuBois, 2005; Schwartz, Farver, Chang, & Lee-Shin, 2002). Further, longitudinal research suggests that these lower achievement outcomes are consequences rather than causes of victimization. It has been shown, for instance, that changes in self-perceived victimization (together

with self-worth and loneliness) are uniquely predictive of GPA (Juvonen et al., 2000), that victimization predicts decreased levels of academic achievement (Buhs, Ladd, & Herald, 2006), and also that academic functioning does not predict changes in peer victimization (Schwartz, Gorman, Nakamoto, & Toblin, 2005). Notwithstanding these research findings, the mechanisms by which victimization affects academic achievement are not fully clear.

Empirical attempts to explain the academic consequences of peer victimization have focused on the role of psychological adjustment. Several studies have shown that maladjustment mediates the negative effects of peer victimization on children's scholastic functioning, including their academic outcomes (Austin & Joseph, 1996; Graham et al., 2006; Juvonen et al., 2000; Lopez & DuBois, 2005; Schwartz et al., 2005). Most of these studies have relied on global or composite measures of emotional well-being, such as depression, loneliness, or anxiety. The findings are consistent with motivational models stating that motivated academic behavior requires a state of emotional well-being (Boekaerts, 1993) or secure relatedness (Connell & Wellborn, 1991; Ryan & Deci, 2000a, 2000b). Clearly, children who are victimized in school do not experience this state, which puts them at risk for unfavorable academic outcomes.

Theoretically, emotional well-being is not the only prerequisite for academic achievement. Both motivational and self-concept theorists posit that self-perceived efficacy is essential as well. Perceptions of efficacy refer to the confidence in one's ability to organize and execute a given course of action or accomplish a task. Proponents of process models of motivation argue that self-directed behaviors and, hence, positive achievement outcomes are dependent on feelings of personal efficacy, in addition to relatedness and autonomy (Connell & Wellborn, 1991; Ryan & Deci, 2000a, 2000b; Skinner, Wellborn, & Connell, 1990). Furthermore,

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it has been concluded that students' academic self-concepts, which include their perceptions of academic efficacy, have reciprocal relations with academic achievement outcomes. Not only are these self-perceptions grounded in actual accomplishments, they also have motivating properties leading to better achievement outcomes (Guay, Larose, & Boivin, 2004; Marsh, Trautwein, Lüdtke, Koller, & Baumert, 2005; Trautwein, Lüdtke, Koller, & Baumert, 2006; Valentine, DuBois, & Cooper, 2004).

There are indications that peer victimization can have a negative impact on children's academic self-efficacy. For instance, negative correlations have been reported between peer victimization experiences and perceived academic competence (Austin & Joseph, 1996; Verkuyten & Thijs, 2002). In addition, Flook, Repetti, and Ullman (2005) found that children's perceived academic self-efficacy was negatively affected by experiences with peer rejection, which is considerably related to peer victimization and has similar correlates (Lopez & DuBois, 2005).¹ A possible reason for these findings is that victimized (or rejected) children receive negative messages about themselves, which negatively affect their overall self-evaluations (Graham & Juvonen, 1998; Hawker & Boulton, 2000), and which may extend to their self-efficacy in the academic domain (Flook et al., 2005).

Given its (anticipated) relations with peer victimization and academic achievement, it is reasonable to expect that academic self-efficacy mediates the link between victimization and achievement. Two of the aforementioned studies provide indirect support for this hypothesis. First, Lopez and DuBois (2005) obtained empirical support for a model in which negative (social and global) self-evaluations mediated the links between peer victimization and peer rejection, on the one hand, and academic as well as behavioral and emotional problems, on the other hand. Although the self-evaluations in that study pertained to the social and global domains rather than to the academic domain, the results indicate that victimization diminishes feelings of efficacy. Second, Flook et al. (2005) examined how peer rejection was related to children's academic performance. It appeared that both perceived academic self-efficacy and internalizing symptoms were independent mediators of this relationship. This indicates that peer rejection and possibly also peer victimization put children at risk for low academic outcomes, not only because it diminishes their sense of emotional well-being but also because it diminishes their sense of academic competence (Flook et al., 2005).

The present research focused on perceived academic self-efficacy as a mediator of the (hypothesized) link between peer victimization and academic achievement. In doing so, we went beyond Flook et al.'s study (2005) in four ways. First, we operationalized students' academic achievement outcomes in two manners. Like Flook et al. (2005), we relied on class-based measures by assessing students' academic accomplishments relative to their classmates. In addition, we included a measure of academic achievement based on standardized tests scores. The use of this score allowed us to examine the impact of victimization beyond the classroom. The distinction between relative and more absolute measures might also be relevant for the mediating role of perceived academic self-efficacy. It has been argued, and found, that academic self-concept has a stronger influence on class-based relative performance than on standardized achievement outcomes (Marsh, 1987; Marsh et al., 2005).

Second, we examined the role of two covariates. Following Flook et al. (2005) who examined the role of internalizing problems, we included a measure of depressed affect to control for diminished levels of well-being associated with victimization. However, we also included a measure of global self-esteem. This allowed us to examine the specific suggestion that the hypothesized link between victimization and perceived academic self-efficacy can be explained as a generalized effect of negative global self-feelings (see Flook et al., 2005; Lopez & DuBois, 2005).

Third, we used a two-level design by examining children nested within a large number of school classes. As a result, we could investigate whether the statistical effects of victimization are similar or different across different classes. Such an examination is of theoretical interest as it can improve our understanding of the potential impact of negative peer treatment. Moreover, it has practical relevance, because it can indicate whether the classroom context should be considered in attempts to prevent or diminish the negative effects of peer victimization on academic outcomes.

The fourth feature of our study was the ethnic diversity of the sample. Like most western countries, the Netherlands hosts a variety of different ethnic groups. It is important that this variety is represented in research. Moreover, use of a multiethnic sample allows examination of whether the links among peer victimization, perceived academic self-efficacy, and achievement outcomes are similar for ethnic majority and ethnic minority group students. Relatively few studies have examined peer victimization and its various effects on children from ethnic minority groups (e.g., Hanish & Guerra, 2000; Storch, Zelman, Sweeney, Danner, & Dove, 2002; Verkuyten & Thijs, 2006). Peer victimization may have different meanings for minority versus majority students. There is evidence, for example, that minority children more often understand victimization experiences as instances of ethnic discrimination (Verkuyten & Thijs, 2000, 2006). It is important to examine these experiences as several studies have found negative effects of ethnic discrimination on children's academic achievement (Graham et al., 2006; Neblett, Philip, Cogburn, & Sellers, 2006; Wong, Eccles, & Sameroff, 2003).

The present study had two goals. First, we examined the relations among peer victimization, perceived academic self-efficacy, and (relative and absolute) academic achievement in an ethnically diverse sample of early adolescents. Our main hypothesis was that perceived academic self-efficacy mediates the (negative) link between children's victimization experiences and their academic achievement outcomes. This hypothesis was tested without and with depressed affect and global self-esteem as covariates. The inclusion of the latter allowed us to evaluate the more specific subhypothesis that peer victimization negatively affects children's academic self-efficacy through negative global self-feelings. The two hypotheses are schematically depicted in Figure 1. The second goal of the study was to explore whether these expected associations hold for both ethnic majority and minority groups.

¹ Whereas peer victimization reflects negative behaviors by individual peers, peer rejection reflects negative attitudes by the peer group (Lopez & DuBois, 2005).

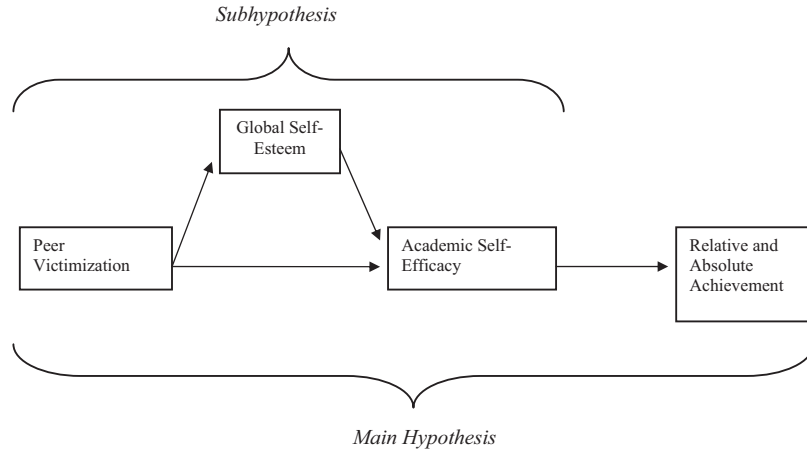


Figure 1. Scheme of hypothesized relations.

Method

Participants

Participants were 1,895 Grade 6 students from 108 classes in 81 regular primary schools in the Netherlands. Of these children, 50.6% were girls. According to their ethnic self-definition and the reported ethnicity of their parents, 844 of these children were identified as Dutch. According to the same criteria, 605 children belonged to the three largest minority groups in the Netherlands. They were identified as Turkish ($n = 299$), Moroccan ($n = 237$), or Surinamese ($n = 69$). The remaining 446 children were of mixed or different ethnicities.

Procedures

All students were tested in the second half of Grade 6 (the spring, i.e., when they already had participated in a standardized achievement test; see next section). Each of them completed a questionnaire under supervision and simultaneously within their classrooms. In the introduction to this questionnaire, students were asked to answer questions about school and themselves, and their anonymity was guaranteed. Almost all students were able to complete the questions within 40 min. The measures of interest to the present study were included in the following fixed order: peer victimization, global self-esteem, academic self-efficacy, depressed affect, relative achievement, and absolute achievement.

There were no missing variables for 95% of the cases. For the remaining children, 2%–9% of the values were missing ($Mdn = 2\%$). We imputed these scores using the expectation maximization algorithm. This procedure is adequate when values are missing at random (Bernaards & Sijsma, 1999).

Measures

Peer victimization. Perceptions of peer victimization were assessed with four items, which referred to the frequencies of being teased or called names and the frequencies of being excluded in the school and neighborhood. These items were developed by the authors from Dutch research on early adolescents' own understanding of peer victimization (Verkuyten, Kinket, & van der

Wielen, 1997). In previous studies, these items were found to be negatively related to children's global self-esteem (Verkuyten & Thijs, 2001) and depressed affect (Verkuyten, 2003), supporting their concurrent validity. The items were scored on a scale ranging from 1 (*no, never*) to 5 (*yes, very often*). Principal components analysis (PCA) on the items revealed one component that explained 54% of the variance. Cronbach's alpha (for internal consistency) was .72.

Academic self-efficacy. Perceived academic self-efficacy was assessed with four items adapted from the scholastic competence scale of Harter's (1988) Self-Perception Profile for Adolescents (SPPA). The SPPA is an established self-concept measure containing eight subscales for domain-specific self-evaluations for which adequate internal consistencies (Cronbach's alpha's $> .73$) and strong factorial validity have been reported (Harter, 1988). Harter (1988) did not report external validity findings for the SPPA (see also Byrne, 1996). However, studies using adaptations of this measure have reported moderate relations between the scholastic competence scale and students' academic grades ($r > .34$; Soenens & Vansteenkiste, 2005; Wichstrøm, 1995).

In the SPPA, respondents are required to choose one statement from a pair of two opposite statements and then to express their level of agreement with their choice. However in the present research, as in other studies (Soenens & Vansteenkiste, 2005; Wichstrøm, 1995), children were presented with single statements rather than paired statements. We chose this format because in previous studies, we found that many children had difficulties with the paired format. Agreement with the items was rated on a scale ranging from 1 (*no, certainly not*) to 4 (*yes, certainly*). For example, children were asked whether they often forget what they learn and whether they are able to learn very well. Cronbach's alpha was .62 for this scale. The items loaded on one component that explained 47% of the variance.

Relative achievement. Elementary school children in the Netherlands receive their grades from their teachers. As in other countries, these grades are based (in part) on students' achievements relative to those of their classmates. We collected information on perceived relative academic position within the classroom by means of three Willig Scales (see Burns, 1979). The Willig Scale

is a self-anchoring, 11-step rating scale that has been used in previous studies among ethnic majority and minority early adolescents in the Netherlands (Verkuyten, Thijs, & Canatan, 2001). The top of the scale (10) marks the best performing student in one's class (i.e., the student receiving the highest grades in class), and the lowest step (0) marks the worst performing student. Children were asked to use this scale to rate their general performance, their achievement in language learning, and their achievement in mathematics. These three ratings loaded on one component accounting for 69% of the variance, and they yielded a Cronbach's alpha of .75. Students' mean score on this relative achievement measure was 6.72 ($SD = 1.60$). Its distribution was slightly skewed to the left ($-.424, p < .001$) but it had no significant kurtosis. Supporting its concurrent validity, previous studies found that this measure was positively related to academic motivation, academic competence, and school satisfaction (Verkuyten & Thijs, 2002; Verkuyten et al., 2001).

Absolute achievement. To obtain a more absolute measure of their academic achievement, we used students' self-reports of their official secondary school advice. In the Netherlands, students receive their secondary education advice from their teachers in the final grade (Grade 6) of primary school. Teachers take several considerations into account when giving this advice. However, the advice is predominantly based on students' scores on a standard national school achievement test (CITO test) and is highly correlated with these scores ($r > .85$; Driessen & Doesborgh, 2005; Kapinga, 2002). Thus, the educational advice is a valid measure of students' academic achievement.

The secondary Dutch education system has five levels: a) initial professional education, b) general and vocational education, c) senior general secondary education, d) university preparatory education atheneum, and e) university preparatory education gymnasium (high-level grammar school). Teachers' advice to children involves one type of education or the combination of two bordering levels of education. Our absolute achievement measure was a 7-point scale including each level and the combinations of b and c, and c and d.² The distribution of this scale had no significant kurtosis. However, it was slightly skewed to the right ($.918, p < .001$). The mean score on this measure was 2.73 ($SD = 1.74$), and the median was 2.³

Depressed affect. Three items that inquired about sadness, nervousness, and fear were used to measure students' depressed affect. Cronbach's alpha was .62. The items were taken from the Profile of Mood States (McNair, Lorr, & Droppleman, 1971) on the bases of their face validity. We used the same 4-point response format (from 1, *no, certainly not* to 4, *yes, certainly*) used for the Academic Self-Efficacy Scale. PCA on these three items yielded one component that explained 58% of the variance.

Global self-esteem. Global self-esteem was assessed with items from the well-known 10-item Rosenberg (1965) Self-Esteem Scale. Early adolescents have been found to have difficulties in responding to negatively worded self-esteem items (Marsh, 1986). Therefore, we used the five positively worded items of the Rosenberg scale. In addition, each item had the same four-point response format as the perceived academic self-efficacy measure. Cronbach's alpha for these five items was .75. The items loaded on one component that explained 52% of the variance. In support of the concurrent validity of the scale, previous Dutch research has shown that this abbreviated measure is negatively related to de-

pressed affect (Verkuyten, 2003) and positively to self-concept stability (Verkuyten, 1995) and ethnic self-regard (Verkuyten & Thijs, 2004).

Data Analysis

Participants were sampled through their classes rather than individually. As children attending the same class tend to be alike in some respects, data for individual participants were probably not independent. When dependent data are analyzed with conventional statistical tests, standard errors are underestimated, and results may be spuriously significant (Snijders & Bosker, 1999). This can be prevented with multilevel analyses. Multilevel analysis can correct for dependencies between observations for individual subjects (e.g., pupils) nested within the same units (e.g., classes). Moreover, it can be used to analyze variable numbers of subjects per unit (Snijders & Bosker, 1999). In this study, we conducted multilevel analyses with MLwiN Version 2.0 (Rasbash, Browne, Healy, Cameron, & Charlton, 2004) using the iterative generalized least squares algorithm. Two levels were specified: Level 1 pertaining to individual differences within classes and Level 2 pertaining to differences between classes.⁴

The measures of relative and absolute achievement were strongly related (see Table 1). To examine whether both measures were similarly affected by the independent variables, we analyzed them simultaneously in multivariate multilevel models. For this purpose, both measures were standardized, and an additional level was specified. This level, Level 0, was included to define the multivariate structure (Goldstein, 1995; Snijders & Bosker, 1999). All other variables were examined with univariate multilevel models.

The multivariate multilevel model is an extension of the univariate model. A univariate two-level regression model with one fixed Level 1 predictor x can be expressed by $y_{ij} = \beta_0 + \beta_1 x_{ij} + e_{ij} + u_j$, with $\text{var}(e_{ij}) = \sigma_e^2$ and $\text{var}(u_j) = \sigma_u^2$. In this equation, the subscripts i and j denote units at Level 1 (e.g., students) and Level 2 (e.g., classes), respectively; β_0 is the intercept and β_1 is the slope; and e_{ij} and u_j are the residuals for each level. The two-variate variant of the univariate model is represented by $y_{hij} = \beta_{01} z_{1hij} + \beta_{02} z_{2hij} + \beta_{11} z_{1hij} x_i + \beta_{12} z_{2hij} x_i + e_{1ij} z_{1hij} + e_{2ij} z_{2hij} + u_{1j} z_{1hij} + u_{2j} z_{2hij}$, with $\text{var}(e_{1ij}) = \sigma_{e1}^2$, $\text{var}(e_{2ij}) = \sigma_{e2}^2$, $\text{cov}(e_{1ij}, e_{2ij}) = \sigma_{e1e2}$, $\text{var}(u_{1j}) = \sigma_{u1}^2$, $\text{var}(u_{2j}) = \sigma_{u2}^2$, and $\text{cov}(u_{1j}, u_{2j}) = \sigma_{u1u2}$. Here, the additional level (Level 0) is indicated by the subscript h . In

² Within this scaling, the lowest two levels and the highest two levels are relatively close to each other, and many children are given advice that combines Levels 2 and 3, or Levels 3 and 4. For these reasons, it was decided to include these combinations as separate scale-points.

³ Because both achievement measures were skewed, we looked for outliers. There were no extreme scores on the absolute measure. However, for five cases, relative achievement scores were more than 3.29 standard deviations (maximum $SD, 4.21$) below the sample mean corresponding to $p < .001$ (Tabachnick & Fidell, 1996). These cases were retained in the analyses because analyses without them yielded virtually the same results, and sample size was large.

⁴ The data had a three-level structure with students nested in classes nested in schools. However, three-level models could not be examined because class and school levels were heavily confounded as 60 schools (74%) were represented by only one class each. Most Dutch primary schools have only one class for each grade.

Table 1
Intercorrelations, Means, and Variance Components of All Variables

Variable	1	2	3	4	5	6	M	Variance		
								Level 1	Level 2	Total
1. Peer victimization	—						1.98	.466	.019**	.485
2. Academic self-efficacy	-.25**	—					2.98	.263	.007*	.270
3. Relative achievement	-.16**	.53**	—				0.00	.977	.023*	1.00
4. Absolute achievement	-.10**	.43**	.58**	—			0.00	.912	.090**	1.00
5. Depressed affect	.36**	-.35**	-.17**	-.09**	—		2.05	.315	.013**	.328
6. Global self-esteem	-.22**	.32**	.25**	.07**	-.18**	—	3.07	.292	.022**	.314

Note. Both relative and absolute achievement measures were standardized.

* $p < .01$. ** $p < .001$.

addition, $z_{1ij} = 1$ and 0 for the first and the second dependent variables, respectively, and $z_{2ij} = 1 - z_{1ij}$ (see Goldstein, 1995).

For both achievement measures, regression analyses proceeded in two steps. First, the statistical effect of each independent variable was constrained to be similar for both relative and absolute achievement (e.g., $\beta_{11}z_{1hij}x_i = \beta_{12}z_{2hij}x_i$). Second, if it significantly improved the fit of the model ($p < .05$), this constraint was released, and different effects were estimated for both achievement variables. Unless otherwise indicated, the effects on relative and absolute achievement were different in all analyses.

Results

Preliminary Analyses

Before examining the (unique) statistical effects of peer victimization and the mediating role of perceived academic self-efficacy, we estimated the intercorrelations and the variance distributions of all variables. Correlations are shown in the left part of Table 1. As expected, peer victimization was positively related to depressed affect and negatively related to all other variables. These correlations ranged from small to moderate (Cohen, 1988). The relations between the remaining variables were moderate to large, except for the correlations of depressed affect with both achievement variables and global self-esteem and the correlation of global self-esteem with absolute achievement. The right part of Table 1 contains the means and variance components of all variables. The latter were obtained by means of the so-called intercept-only regression model. This model provides an estimate of the intraclass correlation coefficient (ρ), which represents the proportion of variance at Level 2 (the class level) for each dependent variable (Snijders & Bosker, 1999). All variables had significant variance at Level 2, indicating systematic differences between classes on these measures. For peer victimization, academic self-efficacy, depressed affect, and relative achievement, these differences constituted a relatively small portion of their total variance: 3.9%, 2.6%, 4.0%, and 2.3%, respectively. For global self-esteem and absolute achievement, the proportion of Level 2 variance was considerably higher. It appeared that 7.0% and 9.0%, respectively, of the individual differences on these variables could be attributed to differences between classes.

Statistical Effects of Victimization on Academic Functioning

The correlations in Table 1 indicate significant links between peer victimization, on the one hand, and perceived academic self-efficacy and relative and absolute achievement, on the other. However, the two-level structure of our data is not reflected in these correlations. To properly examine whether students' victimization experiences affect within- and between-class differences in the academic variables, we performed multilevel regression models for self-efficacy and both achievement variables. In these models, victimization was included as a single predictor. Its effects were estimated in two steps. First, the effect of victimization was fixed across all classes (Level 2). Second, the regression slopes for victimization were allowed to vary randomly across Level 2. The second step did not result in significant model improvement ($p > .10$) indicating similar effects across all classes. Hence, only the fixed effects of victimization were inspected. These effects are shown in Table 2 (Models 1 and 2).⁵

Consistent with the correlations in Table 1, the analyses revealed that victimization had negative effects on all three academic variables, explaining 6.3% of the variance in perceived academic self-efficacy and 2.7% and 0.8% of the variance in relative and absolute achievement, respectively. Table 2 also shows deviance statistics, which can be used to compare the fit of nested models. Differences between these statistics follow a chi-square distribution, and degrees of freedom are given by the differences in numbers of parameters (Snijders & Bosker, 1999). As shown in Table 2, Models 1 and 2 were significant improvements on the intercept-only models for academic self-efficacy and for relative and absolute achievement.

Given the negative effects of peer victimization and the significant correlations between perceived academic self-efficacy and both relative and absolute achievement (Table 1), it was appropri-

⁵ Gender was not included in any of the reported multilevel analyses. Additional analyses, not reported here, indicated significant gender differences for academic self-efficacy, relative achievement, global self-esteem, and depressed affect, with higher means for boys on the first three measures ($p < .01$) and lower scores on depressed affect. However, gender did not interact with victimization, self-efficacy, self-esteem, or depressed affect in the prediction of achievement, nor did its inclusion substantially alter the statistical effects of these predictors.

Table 2
Multilevel Effects of Peer Victimization on Academic Self-Efficacy, Relative Achievement, and Absolute Achievement

Predictor	Model 1	Model 2		Model 3	
	Academic self-efficacy	Achievement		Achievement	
		Relative	Absolute	Relative	Absolute
Constant	3.347	0.499	0.249	-2.831	-2.563
Peer victimization	-0.186**	-0.243**	-0.138**	-0.058†	0.018
Academic self-efficacy	—	—	—	0.995**	0.841**
Variance					
Level 1	.247	.945	.900	.699	.725
Level 2	.006	.028	.091	.024	.090
Total (% variance explained)	.253 (6.3)	.973 (2.7)	.992 (0.8)	.723 (27.7)	.815 (18.5)
Deviance	2763.562	9693.010		9060.759	
χ^2	121.893***	55.121*** ^b		632.251*** ^b	
Reference model	Intercept-only	Intercept-only		2	

^a Degree of freedom = 1. ^b Degrees of freedom = 2.

** $p < .001$. † $p < .05$.

ate to examine whether self-efficacy mediated the statistical effects of victimization on the achievement measures (see Baron & Kenny, 1986).

The critical test for mediation is that the influence of the predictor on the dependent variable is substantially reduced when the mediator is added as an additional predictor. To conduct this test and to evaluate our main hypothesis (see Figure 1), we regressed both achievement measures on victimization and academic self-efficacy. The result is displayed in the right part of Table 2 (Model 3). Perceived academic self-efficacy had a positive effect on both relative and absolute achievement. This effect was stronger for the first than for the latter measure ($p < .01$) but accounted for more than 17.8% of unique variance in both cases. When the influence of perceived self-efficacy was partialled out, the effects of victimization were considerably reduced. Further

analyses revealed that victimization could only explain an additional 0.2% of the variance in relative achievement compared with 2.7% when perceived self-efficacy was not included (Table 2). In addition, the effect on absolute achievement was no longer significant, implying complete mediation.

Analyses with Covariates

To investigate whether the aforementioned results were upheld independent of depressed affect and global self-esteem, we added these covariates as predictors to the regression equations in Table 2. First, academic self-efficacy and the achievement variables were regressed on both peer victimization and the covariates. Results are shown under Models 4 and 5 in Table 3. Depressed affect had negative unique effects on self-efficacy and relative achievement,

Table 3
Multilevel Effects of Peer Victimization Controlled for Covariates

Predictor	Model 4	Model 5		Model 6	
	Academic self-efficacy	Achievement		Achievement	
		Relative	Absolute	Relative	Absolute
Constant	2.926	-0.507	0.014	-3.262	-2.739
Peer victimization	-0.073**	-0.120**	-0.096*	-0.052	-0.030
Depressed affect (Covariate 1)	-0.247**	-0.193**	-0.075	0.041	0.158**
Global self-esteem (Covariate 2)	0.229**	0.375**	0.100†	0.159**	-0.117*
Academic self-efficacy	—	—	—	0.943**	0.943**
Variance					
Level 1	.211	.893	.897	.695	.715
Level 2	.004	.022	.091	.020	.091
Total (% variance explained)	.215 (20.4)	.915 (8.5)	.988 (1.2)	.715 (28.5)	.806 (19.4)
Deviance	2466.951	9558.870		8993.166	
χ^2	296.611***	134.140*** ^b		565.704*** ^a	
Reference model	1	2		3	

^a Degrees of freedom = 2. ^b Degrees of freedom = 4.

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

and global self-esteem had positive unique effects on all variables. More important, the effects of victimization were still significant, but they appeared to be smaller compared with those of Models 1 and 2 (Table 2). This seemed to support our subhypothesis that the negative link between peer victimization and self-efficacy could be partly attributed to negative overall self-feelings (see Figure 1).

The Sobel test for mediation was used to examine the indirect effects of peer victimization. An indirect effect of a variable x on a variable y through a variable z can be expressed as ab , with a being the effect of x on z and b being the effect of z on y . The Sobel test provides a z statistic for this indirect effect by dividing it by its estimated standard error $(b^2s_a^2 + a^2s_b^2)^{1/2}$; see Baron & Kenny, 1986; MacKinnon, Warsi, & Dwyer, 1995). The Sobel test revealed significant indirect effects through global self-esteem and also depressed affect (respectively, $z = 7.34$, and $z = -9.89$, $p < .001$). Hence, these variables accounted for part of the relationship between peer victimization and academic self-efficacy.

Next, relative and absolute achievement were regressed on peer victimization, depressed affect and global self-esteem, and academic self-efficacy. Results are displayed under Model 6 (Table 3). Depressed affect had no effect on relative achievement but had a positive (rather than a negative) effect on absolute achievement. Global self-esteem was positively related to relative achievement but had a negative effect on absolute achievement. More important, however, perceived self-efficacy was still a strong significant predictor of both achievement measures (with similar effects on relative and absolute achievement). Thus, it appeared that our previous mediation findings (in Model 3, Table 2) could not be reduced to effects of depressed affect or global self-esteem.

Ethnic Differences

We examined whether these results applied to ethnic minority (Turkish-Dutch, Moroccan-Dutch, and Surinamese-Dutch) and majority (Dutch) students. In doing so, three dummy variables were created: TUR, MOR, and SUR. These variables were coded, respectively, as 1 for the Turkish-Dutch and 0 for the other children, 1 for the Moroccan-Dutch and 0 for the other children, and 1 for the Surinamese-Dutch and 0 for the other children. When included together, these dummies represented the difference between each of the three minority groups and the group of Dutch children.

Prior to examining the statistical effects of victimization for the different ethnic groups, we examined whether minority and majority students reported similar levels of peer victimization and academic self-efficacy. To this aim, we regressed these variables on the three dummy variables. For peer victimization, 1.5 % of the variance could be attributed to students' ethnic group. Compared with the Dutch students, Turkish and Moroccan students reported fewer instances of peer victimization (respectively, $b = -.104$, $p < .05$, and $b = -.267$, $p < .001$). The difference between Surinamese and Dutch students was not significant. For perceived academic self-efficacy, there were no significant differences between the Dutch and the other students.

Next, we examined whether the links between victimization, and perceived academic self-efficacy and both achievement measures differed for minority versus majority students. These variables were regressed on the three dummy variables, on peer victimization, and on the three interactions between the former and

the latter. Inspection of the resulting models revealed that none of the interactions was significant, which indicates that victimization works similarly for the Turkish, Moroccan, and Surinamese as compared with the Dutch students: $b = -.178$, $p < .001$, for academic self-efficacy, and $b = -.186$ (similar) for both achievement variables, $p < .001$.

Subsequently, we examined whether for both the minority and the majority students, perceived self-efficacy mediated the relationship between victimization and relative and absolute achievement. Both achievement measures were regressed on the three dummy variables, victimization, academic self-efficacy, and the interactions between the dummy variables and academic self-efficacy. The result is shown under Model 7 in Table 4. Perceived academic self-efficacy and its interactions with the dummy variables were significant predictors of academic achievement. Their effects differed for the relative versus the absolute measure ($p < .01$). Self-efficacy had stronger effects on the relative achievement of the Dutch versus the Turkish and Moroccan students, and the absolute achievement of the Dutch versus all minority children. However, further inspection of the data revealed that the effects of self-efficacy were positive for all ethnic groups: for relative achievement, $b_{\text{Turks}} = .776$, $b_{\text{Moroccans}} = .695$, $b_{\text{Surinamese}} = .834$, and $b_{\text{Dutch}} = 1.200$, $p < .001$, and for absolute achievement, $b_{\text{Turks}} = .509$, $b_{\text{Moroccans}} = .709$, $b_{\text{Surinamese}} = .479$, and $b_{\text{Dutch}} = .995$, $p < .05$.⁶ When these effects of perceived self-efficacy were partialled out, the effect of victimization was no longer significant. Thus, although academic self-efficacy had different effects of minority versus majority children, it mediated the effects of victimization for all of them.

Finally, we examined whether the effects of victimization as well as the mediation findings were upheld independent of depressed affect and global self-esteem. First, we regressed academic self-efficacy and the achievement variables on the covariates, the dummy variables, and peer victimization. As in the total sample, the effects of peer victimization were significant but also weaker: $b = -.070$, $p < .001$, for perceived academic self-efficacy, and $b = -.186$, $p < .01$, for both achievement variables. Next, we added depressed affect and global self-esteem to the mediation model (Table 4). As shown under Model 8, the results for self-efficacy and its interactions with the dummy variables were unaffected by the inclusion of these covariates.

Discussion

This study examined the associations between peer victimization and academic achievement in a large sample of early adolescents. The research had a cross-sectional design, and, hence, our findings do not allow causal conclusions. However, our analysis and interpretation of the direction of effects is consistent with theoretical expectations and with longitudinal findings of victimization being a cause rather than a consequence of low achievement outcomes (Buhs et al., 2006; Juvonen et al., 2000; Schwartz et al., 2005).

⁶ The effects for the Dutch children can be directly inferred from Models 7 and 8. The statistical effects for the minority children can be obtained by adding the regression coefficient for each minority group to the coefficient for the Dutch children.

Table 4
Mediation Analyses for Relative and Absolute Achievement Among Minority and Majority Students

Predictor	Model 7		Model 8	
	Achievement		Achievement	
	Relative	Absolute	Relative	Absolute
Constant	-3.524	-2.768	-4.050	-2.837
TUR	1.325**	1.020*	1.235**	0.947*
MOR	1.571**	0.536	1.414**	0.503
SUR	1.034	1.277	0.970	1.272
Peer victimization	-0.031	-0.031	-0.050	-0.050
Academic self-efficacy	1.200**	0.995**	1.174**	1.040**
Academic self-efficacy—TUR	-0.424**	-0.486**	-0.409**	-0.463**
Academic self-efficacy—MOR	-0.505**	-0.286 [†]	-0.468**	-0.269 [†]
Academic self-efficacy—SUR	-0.366	-0.516 [†]	-0.351	-0.512 [†]
Depressed affect (Covariate 1)	—	—	0.102*	0.102*
Global self-esteem (Covariate 2)	—	—	0.146**	-0.077
Variance				
Level 1	.689	.682	.684	.676
Level 2	.025	.077	.025	.078
Total (% variance explained)	.714 (28.6)	.759 (24.1)	.709 (29.1)	.754 (24.6)
Deviance	6808.043		6773.286	

Note. TUR is a dummy variable, with Turkish = 1 and Other = 0; MOR is a dummy variable, with Moroccan = 1 and Other = 0; SUR is a dummy variable, with Surinamese = 1 and Other = 0; For both peer victimization and depressed affect, common coefficients were estimated.

* $p < .01$. ** $p < .001$. [†] $p < .05$.

As expected, students who reported more victimization experiences had less favorable achievement outcomes. This finding is in agreement with the results of other studies showing negative links between peer victimization and academic adjustment. These other studies have either relied on relative measures of achievement such as GPAs or teacher ratings (Graham et al., 2006; Juvonen et al., 2000; Lopez & DuBois, 2005; Schwartz et al., 2002) or on standardized achievement measures (Buhs & Ladd, 2001; Buhs et al., 2006). In the present study, students' relative and absolute academic achievements were simultaneously analyzed. Hence, we could examine the impact of victimization both within and beyond the classroom. Our results indicate that victimization had a stronger statistical effect on the class-based relative achievement measure as compared with the absolute measure. Thus, the impact of victimization was most pronounced for children's accomplishments relative to their classmates. Still, this influence was not confined to students' relative achievement but extended to their official secondary education advice, which can be considered a strong indicator of their absolute achievement (Driessen & Doesborgh, 2005; Kapinga, 2002). Although the links between victimization and achievement are not very strong, they are important because of the potential influence of victimization experiences on students' future academic and occupational careers.

The multilevel structure of the data allowed us to examine peer victimization and its impact within and between classes. As in previous research (Verkuyten & Thijs, 2000), there were systematic between-class differences in the level of peer victimization. However, the effects of victimization were similar across the different classes. This suggests that victimization experiences have similar meanings for children inhabiting different classrooms and

also that shared classroom factors do not affect these meanings. Of course, this is not to say that victimization cannot have different consequences for individual students. Rather, the findings indicate that any practical attempt to prevent lower achievement as a consequence of peer victimization should focus on the characteristics and needs of individual students.

In support of our main hypothesis, the negative associations between perceived victimization and achievement were mediated by perceptions of lower academic self-efficacy. In agreement with previous findings (Flook et al., 2005; Verkuyten & Thijs, 2002), this suggests that children who experience higher rates of peer victimization consider themselves to be less academically competent. This link was independent of global self-esteem and depressed affect. Consistent with our subhypothesis, self-esteem explained a significant part of the link between victimization and self-efficacy. However, this link still existed when its influence was partialled out, and thus, the low perceived academic self-efficacy among victimized students could only be partly attributed to general negative self-evaluations (cf., Flook et al., 2005; Lopez & DuBois, 2005). This raises the question of the specific process behind the association between peer victimization and academic self-efficacy. Perhaps it is not so much global self-esteem but, rather, general self-efficacy that mediates this link. General self-efficacy and global self-esteem are strongly related constructs but the latter emphasizes affective aspects of the self and the former refers to confidence in one's ability to accomplish tasks (Chen, Gully, & Eden, 2004). Another explanation is that the negative messages about themselves that children receive in peer victimizations may involve their intellectual and academic abilities (e.g.,

“stupid,” “dumb”). Future studies are needed to explore these interpretations.

Students' perceived self-efficacy was related to their academic outcomes. This finding supports the notion that perceived self-efficacy has motivating properties leading to better achievement outcomes (Connell & Wellborn, 1991; Marsh et al., 2005; Ryan & Deci, 2000a, 2000b; Skinner et al., 1990; Trautwein et al., 2006). Moreover, our results are consistent with Marsh et al.'s (2005) conclusion that perceived academic self-concept has a stronger influence on school-based performance measures than on standardized achievement outcomes.

Our finding that depressed affect did not affect the mediating role of perceived self-efficacy is consistent with the work of Flook et al. (2005) who showed that self-efficacy was a unique predictor of school outcomes independent of children's internalizing symptoms. However, contradictory to the results of these researchers, depressed affect had no unique negative statistical effects on academic achievement in the present study. Perhaps, this was due to measurement differences. Flook et al. (2005) used a broad, 26-item measure for internalizing symptoms, which did not only entail depressed affect and anxiety but also withdrawal and somatic complaints. Moreover, they relied on teacher reports, rather than self-reports, to assess these symptoms. The absence of a unique, negative link between depressed affect and achievement might seem inconsistent with models of motivation that hold that self-directed behaviors are dependent on emotional well-being (Boekaerts, 1993) or on feelings of self-efficacy, autonomy, and relatedness (Connell & Wellborn, 1991; Ryan & Deci, 2000a, 2000b; Skinner et al., 1990).⁷ Yet, it should be noted that our study was not intended to test these models and that our measure of depressed affect was probably too narrow to represent the concepts of well-being or relatedness. On the basis of the present findings, it seems reasonable to conclude that academic self-efficacy predicts students' achievement independent of their socioemotional welfare. Still, future studies are needed to further support this conclusion.

An important feature of our study was the ethnic diversity of the sample. This allowed us to examine the impact of victimization on the academic adjustment of ethnic minority (Turkish-Dutch, Moroccan-Dutch, and Surinamese-Dutch) as compared with majority (Dutch) students. Our results show that the role of victimization and the mediation by academic self-efficacy were independent of minority status. Therefore, our findings support a “one model fits all” approach to studying the academic adjustment of early adolescents in multiethnic settings. However, although there were no ethnic differences in the links among victimization, perceived self-efficacy, and academic achievement, the associations between the latter two constructs were weaker in the minority than the majority samples. We do not have a clear-cut explanation for this finding. It is possible, however, that the weaker associations among the minority students reflect the process of psychological disidentification, which has been found among negatively stereotyped minority groups (Major, Spencer, Schmader, Wolfe, & Crocker, 1998; Steele, 1997). This process involves the disengagement of self-evaluations from academic accomplishments in order to protect one's self-worth. Following the bidirectional link between academic achievement and perceived self-efficacy (see Marsh et al., 2005; Trautwein et al., 2006), one could argue that disidentification works both ways. That is to say, once minority

students detach their perceived self-efficacy from their academic outcomes, these perceptions will have less motivating properties (Marsh et al., 2005; Trautwein et al. 2006; Valentine et al., 2004). Longitudinal studies are needed to test this idea. Irrespective of the exact explanation, the findings further emphasize the usefulness of multiethnic samples in studies of the school adjustment in early adolescent students (see Hanish & Guerra, 2000; Storch et al., 2002).

To evaluate the present research, the reader should consider several qualifications. First, as noted, our design was cross-sectional, and, thus, the possibility of inverse or reciprocal effects cannot be ruled out. Future studies should use longitudinal designs to examine our hypotheses. Still, there are arguments in favor of our interpretation. As mentioned, there are longitudinal findings showing that victimization is more a cause than a consequence of academic achievements (Buhs et al., 2006; Schwartz et al., 2005). Furthermore, there are longitudinal findings showing that academic self-concept influences educational attainment level (Guay et al., 2004). Finally, a set of additional analyses, not reported here, indicated that the link between victimization and perceived self-efficacy was not mediated by students' achievement outcomes. This suggests that if victimization influenced students' academic adjustment, as argued in the present study, it affected students' perceived self-efficacy prior to their actual outcomes.

Second, the study was limited by its reliance on student reports. Whereas the self-report method was adequate for the assessment of academic self-efficacy, self-esteem, and depressed affect, it is possible that the achievement and victimization measures were affected by response bias. Future studies should obtain achievement data from teachers or school records and could assess victimization through sociometric ratings or teacher reports. However, we agree with other researchers that perceptions of victimization should be studied because of phenomenological reasons and their psychological consequences (Graham & Juvonen, 1998). In addition, there is reason to assume that students' reports of their academic achievement were valid and, hence, reliable. Previous research has found that students' self-reported grades were strongly related to their actual GPA (Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987).

Third, absolute achievement was measured with the students' official secondary educational advice. Research has found that this advice is highly correlated ($r > .85$) with scores on the national standard school achievement test (Driessen & Doesborgh, 2005; Kapinga, 2002). However, the educational advice does not always correspond fully to the score on this test. Differences between educational advice and the test score could be due to the fact that teachers take noncognitive factors into consideration, such as the pupil's motivation and the wishes of the parents and the child (Driessen & Doesborgh, 2005). However, 70% of the variation in the educational advice can be attributed to students' language, math, and reading achievements, and ethnic differences in the educational advice disappear when the effects of these achieve-

⁷ Unexpectedly, depressed affect had positive statistical effects on absolute achievement in Tables 3 and 4, and global self-esteem had a negative statistical effect on absolute achievement in Table 3. We do not have an explanation for these findings. However, these statistical effects were small, explaining 0.4%, 0.0%, and 0.5%, respectively, of unique variance.

ment scores are controlled (Driessen & Doesborgh, 2005). Hence, the secondary educational advice appears to be a valid measure of academic achievement.

Fourth, our operationalization of depressed affect was limited. This variable was assessed with three items only yielding a moderate degree of internal consistency. As noted, the unique, negative effects of this measure on students' academic achievement should be interpreted with care. Yet, we think that by including depressed affect in our design, we were able to draw firmer conclusions about the unique mediating role of perceived academic self-efficacy.

Finally, the present study did not consider other potentially important factors that bear upon students' academic achievement. For instance, controlling for students' actual cognitive abilities would have strengthened our conclusions about the mediating role of academic self-efficacy. Future research should examine how victimization affects students' academic adjustment next to, or in interaction with, characteristics such as their abilities, aspects of their home environments, their schools' (instructional) climates, and their relationships with teachers. Still, our finding that victimization had similar statistical effects across different classes and different ethnic groups suggests that its influence is rather uniform.

Despite these limitations, we think that the present study makes a contribution to the literature by examining whether peer-victimized students do less well academically due to self-perceptions of academic incompetence. The findings support the mediating role of perceived self-efficacy. It was found that this role cannot be attributed to general negative self-feelings and is similar for both ethnic minority and majority groups. Experiences of peer victimization appear to have various negative effects for children, including lower academic achievement. Children who have to deal with peer victimization tend to feel academically less competent and thereby miss an important motivation to perform and achieve.

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