Preadolescents’ Internal Attributions for Negative Peer Experiences: Links to Child and Classroom Peer Victimization and Friendship

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Abstract

In addition to children’s own peer relations, contextual norms for peer relations in classrooms and schools can influence how they perceive their peer interactions, and in some cases, might do so in opposite ways. The current study examined the relations of preadolescents’ internal attributions for negative peer experiences with their own peer victimization and reciprocal friendship, as well as their classrooms’ norms for peer victimization and reciprocal friendship. A racially diverse sample of 532 boys and girls from 37 fourth- and fifth-grade classrooms completed self-report measures of two internal attributions (characterological and behavioral) and peer nominations for peer victimization and reciprocal friendship. Multilevel multivariate regression was used to test a series of two-level models. Child peer victimization was positively associated with characterological attributions, and classroom peer victimization was negatively related to these attributions. Child reciprocal friendship was negatively associated with characterological and behavioral attributions, and classroom reciprocal friendship was positively related to characterological attributions. Results reveal distinct relations of children’s own peer victimization and reciprocal friendship with their internal peer attributions. The findings also highlight the contextualized nature of children’s internal peer attributions and provide additional support for the emerging notion of inverse or paradoxical effects of class/school-level variables on children’s social cognition. Implications are briefly discussed for both school-based intervention and psychotherapy.

Keywords Attributions · Peer victimization · Friendship · Classroom norms

Children can attribute their peer interactions to various causes, and studies indicate that certain types of attributions are linked to current and future maladjustment, particularly internal attributions for negative experiences with peers (Graham et al. 2009; Schacter and Juvonen 2017). To understand the development of these attributions, researchers have explored how youth’s peer relations are linked to the ways they explain their peer interactions (Crick and Ladd 1993; Graham et al. 2009). Researchers have also begun to examine how social contexts, such as classrooms and schools, might shape children’s attributions for their peer experiences (Graham 2005; Schacter and Juvonen 2015). The current study investigated whether preadolescents’ internal attributions for negative peer events are linked to their peer victimization and reciprocal friendship at both the child and classroom levels.

Attributional Framework

An attribution is an inference about why a particular outcome occurs. There is a rich history of theory on attributions and their various causal dimensions (Heider, 1958; Weiner 1986). The current study focuses on children’s internal attributions for their own negative experiences with peers. Internal attributions refer to explanations in which individuals ascribe outcomes to aspects of themselves (e.g., ability, personal qualities, effort, or mood). Over the past two decades, Graham, Juvonen, and colleagues (e.g., Graham and Juvonen 1998; Schacter and Juvonen 2017; Schacter et al. 2015) have explored the connections between children’s peer relations and their endorsement of internal attributions in the form of characterological and behavioral explanations. According to Janoff-Bulman (1979), characterological attributions reflect internal, stable, and uncontrollable causes, whereas...
behavioral attributions reflect internal, unstable, and controllable causes.

Specifically, Graham and Juvonen (1998) applied Janoff-Bulman’s (1979) distinction to study children’s endorsement of characterological and behavioral attributions for mistreatment by peers. For instance, a child could attribute being ignored by a peer to being an unlikeable person (characterological) or to not being funny enough that day (behavioral). Graham and Juvonen (1998) posited that characterological attributions for such events elicit shame and surrender to peers’ actions, whereas behavioral attributions prompt guilt and motivation to rectify the situation with peers. Thus, characterological attributions for such events are thought to be more maladaptive than behavioral ones, particularly in terms of risk for internalizing difficulties (Graham 2005; Janoff-Bulman 1979). Though both types of attributions are linked to internalizing symptoms (Anderson et al. 1994), children’s characterological attributions for negative peer experiences appear more strongly associated with internalizing difficulties, such as anxiety, loneliness, and low self-worth (Graham and Juvonen 1998). To understand how children develop these attributions, we assessed whether their peer relations are linked to characterological and behavioral explanations for negative peer events.

Children’s Internal Attributions and Peer Relations

Children’s history of peer interactions is proposed to play a major role in shaping their attributions for later encounters with peers. According to Crick and Dodge’s (1994) reformulated social information processing (RSIP) model, children record their past interpersonal experiences in a theoretical database that guides how they interpret and act in future social exchanges. Several studies observed variation in the attributions of children of different social or sociometric statuses in their peer groups (e.g., Ames et al. 1977; Crick and Ladd 1993). These researchers speculated that unique peer experiences are tied to distinct social standings which contributes to different patterns of peer attributions. For this study, we examined the relations of children’s internal attributions with two important experiences in their day-to-day peer relations, peer victimization and reciprocal friendship.

Peer victimization refers to the experience of being the target of aggression from peers (e.g., teasing, pushing, excluding, gossiping, stealing) and is associated with a broad array of challenges, including social, emotional, physical, and academic difficulties (Gini and Pozzoli 2009; Kumpulainen 2008; Nakamoto and Schwartz 2010). In the context of Crick and Dodge’s (1994) RSIP model, peer victimization likely provides children with feedback indicating that they are disliked, unappreciated, or unwanted by peers. If peer victimization recurs over time, these data could gradually give rise to maladaptive attributional patterns, particularly in the form of characterological self-blame (e.g., I’m just the kind of person that other kids pick on), which in turn, could contribute to internalizing problems (Graham 2005; Graham and Juvonen 1998).

Several studies indicate that children who experience more peer victimization are more likely to endorse characterological and behavioral attributions for negative peer exchanges (Graham and Juvonen 1998; Schacter and Juvonen, 2015; Schacter et al. 2015). Graham and Juvonen (1998) found that preadolescents’ self-reported peer victimization was concurrently associated with their endorsement of characterological and behavioral attributions for vignettes of negative treatment by peers; however, this relation was stronger in magnitude for characterological attributions. In a short-term prospective study, Schacter and Juvonen (2015) assessed sixth-grade children’s internal attributions and self-perceived peer victimization from the fall to spring of one school year. Fall peer victimization positively predicted spring characterological and behavioral attributions for vignettes of peer mistreatment. Fall characterological and behavioral attributions also both positively predicted spring peer victimization. However, characterological attributions were again more strongly associated with peer victimization than were behavioral attributions.

As a counterpoint to peer victimization, we also examined the relations of children’s internal attributions with their reciprocal friendships, which refer to dyadic relationships in which both individuals consider the other a friend (Newcomb and Bagwell 1995). Friendships are theorized to serve various important developmental functions during childhood (Hartup and Stevens 1997) and appear to operate as both a resource and protective factor for children’s psychosocial adjustment (e.g., Hodges et al. 1999; Kochel et al. 2015; Newcomb and Bagwell 1995; Parker and Asher 1993). Applied to Crick and Dodge’s (1994) RSIP model, children’s reciprocal friendships could offer data conveying that others like, appreciate, and want to spend time with them. Thus, reciprocal friendship may be associated with a decreased likelihood of making internal attributions, especially characterological ones, for negative interactions with peers.

We were unable to locate any previous studies investigating relations between reciprocal friendship and attributions; however, we found one study exploring the association of friendship quality with attributions. Specifically, Chen and Graham (2012) investigated the relations of twelfth-grade adolescents’ characterological attributions (for vignettes of negative treatment by peers) with the perceived quality of their best friendships. They found that girls (but not boys) were more likely to endorse characterological attributions for peer mistreatment when the quality of their best friendship was negative. Accordingly, friendship quality could play a key role...
in shaping attributions for negative experiences with peers, and this effect may differ across gender. Though this past study focused on a different aspect of friendship (i.e., friendship quality versus reciprocal friendship), the findings offer general support for potential connections between friendship experiences and peer attributions. The results also led us to include gender in all major analyses. However, because gender is not a central focus of this study, we refrained from making specific hypotheses regarding its relations with internal peer attributions.

Though not all reciprocal friendships are positive in nature (Crick and Nelson 2002) and friendships often fade (Hartl et al. 2015), we conjectured that the experience of reciprocal friendship is still likely to provide greater opportunity for positive social activity and experiences than having no or very few friends (Hodges et al. 1999; Kochel et al. 2015; Newcomb and Bagwell 1995), which would foster more adaptive patterns of attributions, including a decreased tendency to internalize negative experiences with peers. Accordingly, we predicted that reciprocal friendship would display the opposite pattern of relations hypothesized for peer victimization. That is, reciprocal friendship would negatively relate to internal attributions for negative peer experiences, especially characterological ones.

**Children’s Internal Attributions and Classroom Norms**

In addition to children’s individual-level peer relations, it is important to consider the potential influence of the broader social contexts in which they are embedded. Relatively recently, classrooms and schools have been conceptualized as unique socioecologies that shape not only the prevalence of various social behaviors or experiences, but also their value or meaning (Chang 2004). For instance, certain social experiences may have less impact on psychosocial adjustment when they are more normative in that context. As an example, the relations of peer victimization with social and emotional difficulties appears weaker in schools and classrooms where victimization is more common (Huitsing et al. 2010; Sentse et al. 2007). Several theorists have speculated that class and school norms affect psychosocial adjustment via their influence on attributions (Graham 2005; Huitsing et al. 2010; Schacter and Juvonen 2015). Thus, this study examined whether class-level peer victimization and reciprocal friendship are associated with children’s internal peer attributions beyond the relations of child-level peer victimization and reciprocal friendship.

Per Graham (2005), social contexts can influence how children think and feel about themselves, including the attributions they make to explain their personal experiences. According to Schacter and Juvonen (2015), the subjective experience of being mistreated by peers is shaped by the extent to which others in that same context are also mistreated. More specifically, when children encounter mistreatment in a context where this behavior is less normative, they may be more likely to make characterological attributions to explain their experience (e.g., *There is just something about me that makes me an easy target.*). In contrast, when children endure mistreatment in a context where this behavior is more normative, they could be less likely to blame themselves, yet if they do, they might be more likely to ascribe the situation to behavioral factors (e.g., *I didn’t do a good job avoiding the mean kids today*).

In terms of research, Schacter and Juvonen (2015) examined the relations of sixth-graders’ internal attributions for peer mistreatment, along with child- and school-level peer victimization, across the academic year. School-level peer victimization did not directly predict characterological or behavioral attributions; however, it did have moderating effects. In schools where peer victimization was less prevalent, child peer victimization predicted increases in characterological attributions. Conversely, in schools where peer victimization was more prevalent, child peer victimization predicted increases in behavioral attributions. In contrast with Schacter and Juvonen’s (2015) research, we examined classroom (rather than school) norms for peer victimization using a slightly younger sample of children. Moreover, we assessed peer victimization via peer nominations rather than self-report. Given these differences, it is important to re-examine whether classroom norms for peer victimization are directly associated with children’s internal attributions while also exploring whether these norms interact with children’s own experiences of peer victimization to predict their internal attributions.

We were not able to locate any studies that investigated classroom levels of reciprocal friendship and children’s peer attributions. Nevertheless, based on Schacter and Juvonen’s (2015) theorizing on contextual norms for peer victimization, we speculate that classroom reciprocal friendship could function in an opposing manner to classroom peer victimization. That is, being victimized in a classroom where a reciprocal friendship is more normative, could give rise to characterological attributions for peer mistreatment, whereas being victimized in a classroom where a reciprocal friendship is less normative, could minimize the likelihood of making internal attributions or increase the likelihood of pointing to behavioral factors.

As noted earlier, one study documented relations between adolescents’ friendship quality and peer attributions (Chen and Graham 2012). For our study, we purposefully chose to focus on reciprocal friendship, rather than other aspects of friendship (e.g., perceived friendship or friendship quality) based on our goal to examine the relations of children’s attributions with their peer relations at both the child and classroom levels. In terms of friendship, our objective was to capture class norms for patterns of actual friendships, rather than
class norms for children’s perceptions of their friendships. We conjecture that children’s reciprocal friendships are more observable to others in their classes than their perceptions of their friendships. Thus, class reciprocal friendship may be more likely than class perceptions of friendship to influence children’s attributions for their own peer experiences.

**Current Study**

For this study, we selected a preadolescent sample for several reasons. First, many of the studies reviewed earlier on school and classroom norms were conducted with older children or adolescents (e.g., Chen and Graham 2012; Schacter and Juvonen 2015). This study is aimed to assess whether classroom norms could also influence peer attributions in younger children. Second, children’s self-perceptions become more realistic and grounded in social comparison around this period of development (Harter 1998), which is important in that our assessment of reciprocal friendship was partly based on children’s appraisals of their current friendships. Third, peer victimization (Perry et al. 2001) and friendship (Berndt et al. 1986; Berndt and Hoyle 1985) both appear increasingly stable around this time. For these reasons, our focus on preadolescence is both appropriate and a novel aspect of this research.

Based on the theory and research reviewed earlier, we hypothesized that child peer victimization would positively relate to characterological and behavioral attributions for negative peer experiences, but that it would evidence a stronger positive connection to characterological attributions. In addition, we expected classroom peer victimization to negatively relate to characterological attributions and positively relate to behavioral attributions. In contrast, we predicted that child reciprocal friendship would negatively relate to both internal attributions, but that it would demonstrate a stronger negative association with characterological attributions. Conversely, we expected classroom reciprocal friendship to positively relate to characterological attributions and negatively relate to behavioral attributions. Given Schacter and Juvonen’s findings (Schacter and Juvonen 2015), we also explored whether classroom levels of peer victimization and reciprocal friendship would moderate the relations of child peer victimization and reciprocal friendship, respectively, with both internal attributions for negative peer events.

**Method**

**Participants**

Participants were recruited from 37 fourth- and fifth-grade classrooms across four public schools in one Mid-Atlantic school district in the United States. Parental consent forms were distributed to 901 children, and 581 children (64%) returned their forms with parental permission. During the data collection, 19 children declined to participate and 7 were absent. Consequently, data were collected for 555 boys and girls. Notably, children were given the option to skip items and entire measures that they did not wish to complete. Overall, 23 children skipped data for at least one full measure used in this study; they were removed from the dataset, leaving a final sample of 532 children (243 boys and 289 girls) with 248 in fourth-grade and 284 in fifth-grade. Consenting parents were asked to complete a brief demographic questionnaire attached to the consent form. Parents reported an average age of 10 years for the final sample of children, as well as the following racial/ethnic groups: 37% White, 32% Black, 15% Hispanic, 7% mixed race, and 2% Asian. Parents declined to report race/ethnicity for nearly 7% of the children.

**Procedure**

All aspects of the current study were approved by the Institutional Review Board at the University of Delaware. A graduate research assistant administered child assent forms and paper-and-pencil measures to all consented and assenting children in each classroom. Two to five undergraduate research assistants either circulated within the classrooms to answer children’s questions or read measures aloud to small groups of children identified by their teachers as having reading difficulties. The overall packet of measures took one hour to complete. For this study, children completed a self-report scale of internal attributions for negative peer experiences and unlimited peer nominations for peer victimization and reciprocal friendship. A class participation rate of at least 40% is needed to collect accurate unlimited peer nomination data (Terry 1999). The average classroom participation rate in this study was 61% (range of 40 to 88%). Regardless of participation in this study, all students were compensated with brief classroom parties.

**Measures**

**Attributions for Negative Peer Experiences** To assess children’s internal attributions for negative peer events, the authors designed a measure based on Hoza et al.’s (1990) Peer Social Attribution Questionnaire (PSAQ). The original measure presents eight vignettes of peer interactions, four with positive outcomes and four with negative outcomes. For each vignette, children are asked to rate eight explanations aimed to reflect internal and external causes that can be divided in terms of stability (Hoza et al. 1990). We restricted our focus in this study to just negative peer events and only internal attributions.

We created four new vignettes for negative experiences with peers. We declined to use the PSAQ’s negative vignettes.
for several reasons. First, two of the original vignettes involved interactions with existing friends (e.g., a boy or girl you have been friends with for a long time). Given that children may make different attributions for friends, the new vignettes were written to reflect an interaction with a peer (another kid) without specifying whether this child is a friend or not. Second, we indicated a specific location in each vignette (e.g., playground, library, in line, on the bus) to help children imagine themselves experiencing the event more vividly. Third, the peers’ behavior in the original vignettes felt slightly ambiguous (e.g., you try to become someone’s friend but it doesn’t work out). Thus, in the new vignettes, we made an effort to more clearly depict the peers’ actions as intentional and rejecting or harassing in nature (e.g., another kid walks by and pushes you into the wall and laughs at you).

For each vignette, children rated four internal causal explanations on a 5-point scale (1 Not true at all to 5 Really true). Two items represent characterological explanations (ability and personal qualities) and two capture behavioral explanations (effort and mood). Previous research indicates that these two types of internal attributions appear positively correlated but also distinct (Hoza et al. 1993). Scores were computed for each type of attribution by averaging the two ratings for each vignette and then averaging across vignettes. Higher scores reflect greater endorsement of that attribution. Internal consistency was satisfactory for characterological (α = 0.86) and behavioral (α = 0.79) attributions.

**Peer Victimization** Three unlimited peer nomination items were borrowed from Ladd and Kochenderfer-Ladd’s (2002) scale to assess peer victimization (Who gets hit, kicked or pushed? Who gets teased, called names, or made fun of? Who gets picked on?). The original scale evidenced moderate temporal stability, as well as convergent and predictive validity by late elementary school (Ladd and Kochenderfer-Ladd 2002). Peer victimization scores were calculated for each child by first averaging the total number of nominations they received across the three items. Since classrooms varied in their total number of participants, it was necessary to divide children’s average scores by the total number of participants in their classrooms. Failure to adjust these average values by the total number of participants would have inflated scores in classrooms with more participants and deflated scores in classrooms with fewer participants. Classroom peer victimization was computed by averaging the child peer victimization scores for all participants in each class. Higher child and class scores indicate greater levels of peer victimization; internal consistency was satisfactory for child victimization (α = 0.84).

**Reciprocal Friendships** Children’s friendships were assessed with a single unlimited peer nomination item that asked participants to identify all classmates they consider friends (Who are your friends?). To qualify as reciprocal friendships, the peers that children nominated also had to nominate them (e.g., Newcomb and Bagwell 1995). Accordingly, children’s friendship nominations were compared to all participating classmates’ nominations to identify those that were reciprocated. A reciprocal friendship score was computed for each child by summing their total number of reciprocated friendship nominations and then dividing this sum by the total number of participants in their classroom. Again, it was necessary to adjust these scores by the total number of class participants in order to standardize scores across classrooms with different numbers of participants. Classroom friendship scores were computed by averaging the total number of reciprocal friendship scores in each class. Higher child and classroom friendship scores reflect higher numbers of reciprocal friendships. To our knowledge, it is not possible to compute internal consistency using this procedure to compute reciprocal friendship.

**Data Analysis Plan**

The current data are organized across several levels, with child observations nested in classrooms, and classrooms nested in schools. For this study, we focused on two levels. Level 1 (child) included 532 children, and Level 2 (class) included 37 classrooms. Since there were just four schools, we did not include a third level. Nested data are typically interdependent, such that data from the same unit (e.g., within a classroom) tend to correlate more strongly than data from different units (e.g., between classrooms). Failure to account for interdependence inflates risk of Type I error (Raudenbush and Bryk 2002). For our primary analyses, multilevel regression was used to minimize interdependence and also model the relations of children’s internal attributions with their peer victimization and reciprocal friendship at both the child and classroom levels. In addition, we used a multivariate approach by including characterological and behavioral attributions in the same models simultaneously. This allowed us to specify correlations between them in every model to control for the variance attributable to the other while testing their relations with child- and class-level peer victimization and reciprocal friendship. We estimated an initial two-level model to test our primary hypotheses and then two additional two-level models to explore potential moderating effects.

For our main model, we computed $R^2$ values to indicate the proportion of variance explained in each attribution at both the child and classroom levels. We also computed Pratt Index values for peer victimization and reciprocal friendship at both levels. The Pratt Index provides an estimate of the relative importance of predictors in multiple regression models, including multilevel models (see Liu et al. 2014). Larger values indicate greater relative importance and refer to the degree to which a predictor explains a criterion variable in light of other
correlated predictors in the same model. It has been suggested that predictors with Pratt Index values greater than 1/(2p) (p = number of predictors) are important within their specified models by accounting for at least half of the average total variance explained by the predictors (Thomas 1992). The Pratt Index is not an indicator of statistical significance; rather, it is an “R-square based statistic” (Liu et al. 2014). Accordingly, a predictor could be classified as important regardless of its statistical significance. These values allowed us to compare the relative importance of peer victimization and reciprocal friendship in explaining the variance of the attributions at the child and class levels. Lastly, we performed Wald tests to assess whether the relations of peer victimization/ reciprocal friendship with characterological and behavioral attributions were significantly different. These tests were needed to evaluate our hypotheses that relations would be stronger with characterological than behavioral attributions.

Results

Descriptive Statistics and Correlations

Descriptive statistics are provided in Table 1. Bivariate correlations among the child-level variables are presented in Table 2. Characterological and behavioral attributions were positively correlated but only moderately. Peer victimization correlated positively with characterological attributions, whereas reciprocal friendship correlated negatively with characterological attributions. Neither peer victimization nor reciprocal friendship correlated with behavioral attributions. Finally, peer victimization and reciprocal friendship were negatively correlated.

Demographic Differences

Next, we explored potential demographic differences in the two criterion variables (characterological and behavioral attributions) in our primary analyses. Independent \( t \) tests were conducted to examine gender (boys = 0; girls = 1) and grade (fourth = 0; fifth = 1) differences. No significant gender or grade differences were found. Since the primary analyses involved regression, racial/ethnic differences were explored by dichotomizing this variable into two groups, the most prevalent group (White) and all others combined (Others = 0; White = 1). Independent \( t \) tests were then computed. Compared to the Other group, White children endorsed characterological attributions to a greater extent (Other \( M = 2.00; \) White \( M = 2.17 \)), \( t = -2.09, p = 0.04 \). There was no racial/ ethnic difference for behavioral attributions.

Multilevel Regression

For our primary analyses, multilevel multivariate regression was performed using Mplus 7 (Muthén and Muthén 2012). As noted earlier, we estimated an initial two-level model followed by two additional two-level models to investigate possible moderating effects. For the initial model, the two attributions were entered simultaneously as criterion variables. At Level 1, child peer victimization and reciprocal friendship were entered as uncentered predictors. Gender (boys = 0; girls = 1) and race/ethnicity (Other = 0; White = 1) were entered as Level 1 covariates of both attributions. At Level 2, classroom peer victimization and reciprocal friendship were entered as grand mean-centered predictors (i.e., grand means were subtracted from each class mean). Correlations were included between characterological and behavioral attributions at Levels 1 and 2. All intercepts were specified as random.

Prior to running this regression model, we also tested major statistical assumptions of our multilevel model (see Hox et al. 2018). First, we examined the normality of the two criterion variables (characterological and behavioral attributions). As seen in Table 1, both variables were significantly skewed (Curran et al. 1996). Accordingly, we tested the model using maximum likelihood estimation with robust standard errors (MLR), which permits estimation of parameters and standard errors that are resilient to non-normality (Huber 1981). We also inspected the bivariate correlations among the predictors (peer victimization and reciprocal friendship) at Level 1 (\( r = -0.30, p < 0.01 \)) and Level 2 (\( r = 0.04, p = 81 \)). Neither estimate indicated concerns about multicollinearity (Montgomery, 2001).

We also computed scatterplots of residuals versus predicted values for four linear regression models that mirror our initial multilevel multivariate model. We specified two child-level regression models that included one of the attributions as the criterion variable, along with gender, race-ethnicity, child peer victimization, and child reciprocal friendship as predictors. We also tested two classroom-level models, each including one attribution as the criterion, as well as class peer victimization and class reciprocal friendship as predictors. None of the scatterplots depicted clear patterns, which minimized concerns regarding heteroscedasticity (Osborne and Waters 2002). Overall, the proposed model appeared to satisfy these statistical assumptions, with the exception of normality, which we addressed with MLR (Huber 1981).

Intercepts and standardized regression coefficients for the initial model are displayed in Table 3. Within this model, the two attributions were significantly correlated at Level 1 (\( Est. = 0.31, SE = 0.03, p < 0.001 \)) but not at Level 2 (\( Est. = 0.003, SE = 0.01, p = 0.80 \)). In terms of effect size, \( R^2 \) values were computed for the intercepts of both criterion variables at Levels 1 and 2. These values reflect the proportions of variance explained by the predictors specified at each level. The
\( R^2 \) values are as follows, Level 1: characterological \((R^2 = 0.13)\) and behavioral \((R^2 = 0.01)\); Level 2: characterological \((R^2 = 0.84)\) and behavioral \((R^2 = 0.27)\).

**Peer Victimization** We hypothesized that child peer victimization would positively relate to characterological and behavioral attributions for negative peer experiences, but that it would evidence a stronger positive connection to characterological attributions. In partial support, child peer victimization positively related to characterological attributions (Pratt Index = 0.53 > 1/(2p) = 0.125) and did not relate to behavioral attributions (Pratt Index = 0.01 < 1/(2p) = 0.125). A Wald test indicated that the relation of class peer victimization with characterological attributions \((\beta = -0.92)\) was significantly different from its relation with behavioral attributions \((\beta = 0.16), F = 7.80, p < 0.01\). These results reveal that class peer victimization was an important predictor of characterological (but not behavioral) attributions and was more strongly related to characterological than behavioral attributions.

**Reciprocal Friendship** We first predicted that child reciprocal friendship would negatively relate to both internal attributions, but that it would demonstrate a stronger negative association and did not relate to behavioral attributions (Pratt Index = 0.24 < 1/(2p) = 0.25). A Wald test indicated that the relation of class peer victimization with characterological attributions \((\beta = -0.02)\) was significantly different than its relation with behavioral attributions \((\beta = 0.16), F = 7.80, p < 0.01\). These results reveal that class peer victimization was an important predictor of characterological (but not behavioral) attributions and was more strongly related to characterological than behavioral attributions.

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### Table 1 Descriptive statistics

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<th>( SD )</th>
<th>Minimum</th>
<th>Maximum</th>
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**Note.** Peer victimization and child reciprocal friendship scores were adjusted by dividing the total number of peer nominations received for each child by the total number of participants in their respective classrooms; this was necessary to standardize scores across classrooms with different numbers of participants.

### Table 2 Bivariate correlations

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**Note.** All correlations were computed at Level 1 (child; n = 532). *p < 0.001

### Table 3 Multilevel multivariate regression for characterological and behavioral attributions

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<th>( SE )</th>
<th>( \beta/SE )</th>
<th>( p )</th>
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<td>0.15</td>
<td>4.82</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Classroom peer victimization</td>
<td>−0.92</td>
<td>0.36</td>
<td>−2.56</td>
<td>0.01</td>
</tr>
<tr>
<td>Child reciprocal friendship</td>
<td>−1.04</td>
<td>0.21</td>
<td>−4.94</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Classroom reciprocal friendship</td>
<td>1.46</td>
<td>0.64</td>
<td>2.27</td>
<td>0.02</td>
</tr>
<tr>
<td>Intercept: Behavioral attributions</td>
<td>2.00</td>
<td>0.14</td>
<td>14.57</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Behavioral attributions on Gender</td>
<td>−0.03</td>
<td>0.05</td>
<td>−0.72</td>
<td>0.48</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td>0.01</td>
<td>0.02</td>
<td>0.44</td>
<td>0.66</td>
</tr>
<tr>
<td>Child peer victimization</td>
<td>0.01</td>
<td>0.12</td>
<td>0.07</td>
<td>0.95</td>
</tr>
<tr>
<td>Classroom peer victimization</td>
<td>0.16</td>
<td>0.25</td>
<td>0.64</td>
<td>0.52</td>
</tr>
<tr>
<td>Child reciprocal friendship</td>
<td>−0.40</td>
<td>0.19</td>
<td>−2.05</td>
<td>0.04</td>
</tr>
<tr>
<td>Classroom reciprocal friendship</td>
<td>0.58</td>
<td>0.41</td>
<td>1.41</td>
<td>0.16</td>
</tr>
</tbody>
</table>

**Note.** Estimates (\( \beta \)) are standardized; \( on \) indicates regressed on. This model included two levels: Level 1 = child (n = 532); Level 2 = classroom (n = 37).
with characterological attributions. Consistent with our hypothesis, child reciprocal friendship negatively related to characterological attributions (Pratt Index = 0.43 > 1/(2p) = 0.125) and behavioral attributions (Pratt Index = 0.92 > 1/(2p) = 0.125). The Pratt Index values revealed that child reciprocal friendship was an important predictor of both attributions. A Wald test revealed that the relation of child reciprocal friendship with characterological attributions (β = −1.04) was significantly different than its relation with behavioral attributions (β = −0.40), $F = 8.79, p < 0.01$. The findings indicate that child reciprocal friendship is an important predictor of both attributions yet is more strongly associated with characterological attributions.

Second, we expected classroom reciprocal friendship to positively relate to characterological attributions and negatively relate to behavioral attributions. Partially supporting this prediction, classroom reciprocal friendship positively related to characterological attributions (Pratt Index = 0.45 > 1/(2p) = 0.25) and did not relate to behavioral attributions (Pratt Index = 0.86 > 1/(2p) = 0.25). Pratt Index values suggest that that classroom reciprocal friendship was an important predictor of both attributions. A Wald test revealed that the relation of class reciprocal friendship with characterological attributions (β = 1.46) did not significantly differ from its relation with behavioral attributions (β = 0.58), $F = 2.46, p = 0.12$. Though class reciprocal friendship was related to characterological (but not behavioral) attributions, it was an important predictor of both. Since the magnitude of these relations did not differ, it is not possible to conclude that class reciprocal friendship was more strongly linked to one attribution.

**Gender Moderation** Based on previous research (Chen and Graham 2012), gender could moderate the relations of children’s peer experiences with their internal attributions. Therefore, we examined whether gender moderated the relations of peer victimization and reciprocal friendship with the two attributions. To accomplish this, we simply added two interactions terms to the initial model. Specifically, gender X child peer victimization and gender X child reciprocal friendship were specified as uncentered predictors of both attributions at Level 1. This allowed us to test whether the relations of the peer variables with the two attributes varied between boys and girls. All intercepts were specified as random. There were no significant interactions ($ps = 0.31$ to 0.96); thus, gender did not appear to moderate the associations of child peer victimization or child reciprocal friendship with either attribution.

**Class-Level Moderation** Given Schacter and Juvonen’s findings (Schacter and Juvonen 2015), we also assessed whether classroom peer victimization and reciprocal friendship moderated the relations of child peer victimization and reciprocal friendship, respectively, with both attributions. We did this by adding class peer victimization to the initial model as a grand mean-centered predictor of two child-level slopes (peer victimization-characterological slope and peer victimization-behavioral slope). Class reciprocal friendship was also added as a grand mean-centered predictor of two child-level slopes (reciprocal friendship-characterological slope and reciprocal friendship-behavioral slope). This allowed us to test whether the relations of the two attributions with child peer victimization/reciprocal friendships varied with their classrooms’ peer victimization/reciprocal friendships. All intercepts and slopes were specified as random. None of these cross-level effects were significant for characterological or behavioral attributions ($ps = 0.15$ to 0.70).

**Discussion**

In the current study, we investigated the extent to which preadolescents endorse characterological and behavioral attributions to explain negative experiences with peers and examined whether their endorsement of these attributions related to child- and classroom-levels of peer victimization and reciprocal friendship. To our knowledge, this is the first study to examine the relations of peer victimization and reciprocal friendship with children’s peer attributions simultaneously and to do so at the child and classroom levels. This study also stands out through our use of multilevel modeling to account for class-level nesting, as well as our effort to minimize shared method variance by assessing attributions through self-report and peer victimization and reciprocal friendship with peer nominations.

**Peer Victimization**

Our hypotheses for child and classroom peer victimization were fully supported for characterological attributions but not for behavioral attributions. Consistent with our predictions, preadolescents who experienced higher levels of peer victimization were more likely to ascribe negative peer experiences to characterological causes. Moreover, preadolescents in classroom where peer victimization was more normative were less likely to endorse characterological factors to explain their negative peer encounters. Contrasting our hypotheses, neither child nor class peer victimization were associated with preadolescents’ behavioral attributions. In addition, our exploratory analyses revealed that the relations of child peer victimization with both attributions did not vary across gender or classroom levels of peer victimization. Collectively, these findings replicate some aspects of previous research while also advancing the literature.

The results for child peer victimization and characterological attributions are consistent with Crick and Dodge’s (1994) RSIP model. A history of aversive social experiences via peer
victimization could lead to blaming negative peer encounters on stable characteristics of oneself. These findings replicate previous work connecting peer victimization to characterological attributions (e.g., Graham and Juvonen 1998; Schacter et al. 2015; Schacter and Juvonen 2015). They also extend the literature by revealing that characterological attributions are not only linked to self-reported victimization (e.g., Schacter et al. 2015; Schacter and Juvonen 2015) but also associated with peer-reported victimization. Thus, this connection appears to be more robust than a potential byproduct of measuring peer victimization and attributions both via self-report.

Although we did not expect child peer victimization to correlate as strongly with behavioral attributions, we were surprised that it did not correlate with them at all. This finding diverges with previous research (e.g., Graham and Juvonen 1998; Schacter et al. 2015; Schacter and Juvonen 2015) and may stem from key methodological differences. First, past studies included children (sixth- and seventh-graders) older than our participants (fourth- and fifth-graders). Our data indicate that fourth- and fifth-grade children endorse behavioral attributions less than characterological ones. It is possible that younger children are less likely to consider unstable factors when explaining the causes of their experiences. Second, several past studies (Schacter et al. 2015; Schacter and Juvonen 2015) assessed peer victimization via self-report, whereas we used peer nominations. In one exception, Graham and Juvonen (1998) measured self- and peer-reported peer victimization and found that only self-reports correlated with behavioral attributions. Thus, the previously documented link between child peer victimization and behavioral attributions might reflect an artifact of shared method variance, particularly after accounting for the shared variance between characterological and behavioral attributions.

In terms of class peer victimization, this study may be the first to document a direct negative relation between class norms for peer victimization and characterological attributions for negative peer experiences. This finding converges with recent theories positing that children are less likely to internalize negative social experiences in contexts where those experiences are more normative (Graham 2005; Schacter and Juvonen 2015). However, it is important to clarify that previous research (e.g., Schacter and Juvonen 2015) detected moderating effects of class peer victimization on the relation between child peer victimization and characterological attributions. In this study, we observed a direct association between class peer victimization and characterological attributions, not a moderating effect (i.e., a cross-level interaction between child and class peer victimization). This discrepancy could stem from the fact that we focused on the classroom context while Schacter and Juvonen (2015) focused on the larger school context. It is plausible that social norms in more local contexts, such as classrooms, have more direct impact on children’s social cognition than broader ecologies, like schools. Future studies are needed to simultaneously examine class- and school-level norms to test this hypothesis.

**Reciprocal Friendship**

Our predictions for reciprocal friendship were partially supported by the results of our multilevel modeling. As expected, preadolescents with more reciprocal friends were less likely to attribute negative experiences with peers to characterological or behavioral causes. Moreover, reciprocal friendship was more strongly associated with characterological than behavioral attributions. At the classroom level, preadolescents in classes with more reciprocal friends were more likely to endorse characterological attributions for negative peer encounters. However, in contrast with our prediction, class reciprocal friendship did not relate to behavioral attributions. Moreover, our exploratory analyses indicated that the relations of child reciprocal friendship with the attributions did not vary across gender or classroom levels of reciprocal friendship. These findings are particularly meaningful insofar as this might be the first study to examine the relations of reciprocal friendship with children’s peer attributions.

The relation observed for child reciprocal friendship and characterological attributions also appears consistent with the RSIP model (Crick and Dodge 1994). Specifically, a history of friendship could give rise to various positive peer experiences that lead children away from blaming negative interactions on themselves, particularly on stable personal characteristics. Accordingly, reciprocal friendship could serve as a resource factor by providing social data that guides children to develop adaptive attributional styles. It is also possible that reciprocal friendship functions as a protective factor by buffering youth from developing a general tendency to engage in self-blame. Though additional research is needed, our results unveil friendship as another key variable to consider in examining the links between children’s peer relations and peer attributions. With that said, researchers are encouraged to explore the relations of additional aspects of friendship with children’s attributions, particularly self-perceptions of friendship, such as friendship quality (see Chen and Graham 2012).

With regard to classroom norms, the positive relation detected between class reciprocal friendship and characterological attributions is also novel and informs current theory (e.g., Graham 2005; Schacter and Juvonen 2015) by suggesting that contextual norms for positive peer experiences, in addition to peer mistreatment, could also have the potential to shape youth’s attributions for their peer experiences. Specifically, classrooms with high levels of prosocial behavior could increase children’s likelihood of blaming negative peer interactions on stable characteristics of themselves. This hypothesis is consistent with the notion that more prosocial schools and classrooms can paradoxically heighten the impact of negative
peer experiences on children’s wellbeing (Salmivalli 2010). That is, when negative peer encounters are less normative in class or at school, they might sting a bit more.

However, it is important to reiterate that classroom reciprocal friendship did not relate to preadolescents’ behavioral attributions for negative experiences with peers. Combined with the null finding for class peer victimization, the null relation for reciprocal friendship might indicate that behavioral attributions are simply less sensitive to the influences of classroom social norms. It is also possible that the vignette-based approach to assessing attributions used in this study did not provide enough information for children to adequately judge the role of more fleeting personal characteristics (e.g., mood or effort) within hypothetical peer interactions. Additionally, our behavioral attribution items might have failed to capture the actual behavioral causes that children are likely to endorse for negative peer interactions. Thus, in future studies, researchers could consider alternative methodologies to assessing children’s attributions, such as Anderson et al.’s (1994) method of asking individuals to generate their own attributions and then rate their own responses along different causal dimensions.

**Limitations**

Several limitations of this study warrant discussion. First, the sample was limited to fourth- and fifth-graders; thus, the findings should not be generalized outside of this period of development. Additionally, 59% of children (532 of 901) from the initial recruitment pool were included in our final sample. It is possible that the children who were excluded (e.g., those who lacked parental consent, declined to assent, were absent, or skipped entire measures) differ from the children who were retained in ways that could have impacted our findings. Moreover, this study included just 37 classrooms and may have lacked the power to detect relations among the classroom level variables, particularly potential moderating effects of the classroom variables.

Additionally, like many studies reviewed earlier (e.g., Graham and Juvonen 1998; Schacter et al. 2015; Schacter and Juvonen 2015), we restricted our focus to internal attributions. In future research, it would be informative to consider children’s external attributions and their connections to peer relations. We also encourage researchers to assess attributions for negative and positive experiences with peers, as well as attributions for events that children personally experience and those that others experience, which would allow researchers to test whether children display a fundamental attribution bias. Notably, we made significant revisions to the vignettes accompanying the PSAQ (Hoza et al. 1990), which we used to measure attributions. We did not pilot these new vignettes prior to conducting this study. Though the current findings largely supported our hypotheses, additional research is needed to evaluate these vignettes.

It is also important to acknowledge that all data were concurrent in this study; thus, it is not possible to draw conclusions about sequential relations among variables. Our regression models were designed in ways that implied peer victimization and reciprocal friendship contribute to attributions; however, attributions could just as plausibly influence children’s peer relations. In fact, Schacter and colleagues (2009) observed bidirectional relations between youth’s peer victimization and characterological self-blame over the course of the first year of middle school. With prospective data, we would expect to find similar cyclical associations between children’s internal attributions and their peer victimization/reciprocal friendship.

**Implications**

Despite these limitations, the current findings could have implications for intervention, particularly for youth who have few or no friends or those who suffer recurrent peer victimization. School-wide socioemotional programs can help children form and maintain friendships, which may reduce their likelihood of developing attributional patterns linked to maladjustment. Such programs might also be helpful in preventing peer victimization, which could minimize vulnerability to maladaptive attributional styles. Accordingly, such school-based programs could alter children’s peer experiences in ways that provide them with the social feedback associated with more adaptive patterns of attributions. Nonetheless, research is needed to test this hypothesis that school-based programming could influence children’s attributions through its impact on their peer relations.

Of note, some youth may need more individualized support to shift their attributional thinking in adaptive directions. That is, some children may display deeply entrenched attributional patterns that have become decreasingly sensitive to external feedback. For instance, helping children improve their peer relations may not yield attributional change for youth who have suffered chronic bullying or prolonged friendlessness. These children may require psychotherapy to guide them toward assessing and evaluating their peer experiences in a more balanced manner. This work could be integrated into existing empirically supported cognitive-behavioral therapies (CBT; David-Ferdon and Kaslow 2008). In the context of CBT, children could learn to monitor, assess, and test their attributions for peer interactions. In line with this recommendation, the attribution retraining program known as Brain Power (Hudley and Graham 1993) was found to help reduce hostile attribution biases associated with aggression (Hudley et al. 1998). Accordingly, similar cognitive-based approaches could also shift children’s attributions away from self-blame.
Lastly, the classroom-level findings suggest that some children may be more vulnerable to maladaptive patterns of social cognition in highly prosocial classrooms. These results align with an emerging body of research revealing that prosocial classrooms and schools can paradoxically amplify the socioemotional impact of negative peer experiences (e.g., Huitsing et al. 2010; Schacter and Juvonen 2015; Sentse et al. 2007). That is, students who struggle with peers might actually need greater social and emotional support in classrooms and schools that are more, rather than less, prosocial. While further replication is needed, school officials should consider the possibility that prosocial school communities could leave certain students even more susceptible to maladjustment; thus, it might be critical for such schools to proactively identify and support these potentially vulnerable students. If these paradoxical effects are replicated, it may be necessary to supplement effective school-based socioemotional programs with targeted supports for those individual students who continue to struggle in their peer relations.

Compliance with Ethical Standards

Funding There are no external funding sources to report for this study.

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval This study was approved by the Institutional Review Board at the University of Delaware. This study was conducted in accordance with the ethical guidelines of the American Psychological Association.

Informed Consent All participating children received parental permission and provided their own assent to take part in this study.

References


