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Social Consequences of Academic Teaming in Middle School: The Influence of Shared Course-Taking on Peer Victimization

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Abstract

This study examined the influence of academic teaming (i.e., sharing academic classes with the same classmates) on the relationship between social preference and peer victimization among 6th grade students in middle school. Approximately 1,000 participants were drawn from 5 middle schools that varied in their practice of academic teaming. A novel methodology for measuring academic teaming at the *individual* level was employed, in which students received their own teaming score based on the unique set of classmates with whom they shared academic courses in their class schedule. Using both peer- and self-reports of victimization, the results of two path models indicated that students with low social preference in highly teamed classroom environments were more victimized than low preference students who experienced less teaming throughout the school day. This effect was exaggerated in higher performing classrooms. Implications for the practice of academic teaming were discussed.

Keywords

academic teaming; ability grouping; middle school; social preference; peer victimization

The early middle school years are rife with social and academic challenges as children make the move from elementary to secondary education. Many children experience decreases in school liking and engagement as they navigate the new middle school environment (Burchinal, Roberts, Zeisel, & Rowley, 2008)—an environment in which peer aggression is at its peak (Eslea et al., 2003; Seals & Young, 2003). Victims of such aggression are at heightened risk of academic difficulties (Erath, Flanagan, & Bierman, 2008; Juvonen, Wang, & Espinoza, 2010; Nakamoto & Schwartz, 2010; Schwartz, Gorman, Dodge, Pettit, & Bates, 2008); and may also suffer from a wide range of internalizing (depression, loneliness, low self-esteem) and externalizing (aggression, delinquency, poor self-regulation) symptoms (Hanish & Guerra, 2002; Hodges et al., 1997; Schwartz et al., 2008).

In middle school, when fitting in and being accepted by peers are top social priorities (see Fournier, 2009), having low social preference among peers (i.e., being more disliked than liked) may increase the risk of peer victimization. Although low social preference may not always be associated with peer victimization, having low social preference among peers *and* being the victim of peer aggression consistently leads to the most negative adjustment outcomes (Hodges, Malone, & Perry, 1997; Sandstrom & Cillessen, 2003). It is important, therefore, to understand the conditions under which low social preference among peers *does* contribute to peer victimization.

Previous research has documented certain individual characteristics (e.g., low impulse control) that make some low preference children vulnerable to peer victimization (c.f., Sandstrom & Cillessen, 2003), but no studies to date have considered the role of school context, or how instruction is organized, in the relation between low social preference and peer victimization. This is surprising given the recognition among scholars that school context may explain vulnerability to peer victimization when individual characteristics fail to do so (see Brown, 1996; Merten, 1996). For example, Kochenderfer-Ladd & Skinner (2002) posit that repeated exposure of aggressors to their targets due to placement in the same classroom and/or school may contribute to the stability of victimization across the school years. Brown (1996) likewise suggests that a restricted range of peer encounters at school (as opposed to “mixing with a wider range of grademates”) may contribute to reputation formation and fewer opportunities for change. The purpose of this study, therefore, was to examine whether the way in which students are grouped together in middle school—defined as their likelihood of taking classes with the same classmates—contributes to victimization for children with low social preference among their peers.

Interdisciplinary Teaming in Middle School

In middle school, the extent to which children share their classes with the same classmates, and therefore the likelihood of repeated contact with aggressors, is often influenced by whether or not interdisciplinary teaming is practiced in their school. Interdisciplinary teaming consists of a core set of teachers responsible for teaching the same group of students—typically a subset of same-grade students in the school population—with the intended benefits of greater collaboration among teachers and greater community among teachers and students, particularly during the transition to middle school (Thompson & Homestead, 2004). These benefits are well-documented in the literature. For example, past research demonstrates that students in interdisciplinary teams have higher scores on standardized achievement tests, are more academically engaged, and have greater feelings of school belonging (Boyer & Bishop, 2004; Flowers & Mertens, 2003; Flowers, Mertens, & Mulhall, 1999; Lee & Smith, 1993; Wallace, 2007).

While the practice of interdisciplinary teaming is widespread—estimated to be in use in nearly 80% of all U.S. middle schools (McEwin, Dickinson, & Jenkins, 2003)—little is known about the role of interdisciplinary teaming in children’s relationships with and treatment by their peers. Although students change classrooms and teachers each period when they are teamed, this practice may restrict their exposure to the general student body at their school because their classmates are always comprised of members of their team. Social preference may therefore be determined largely by the reputations formed within their team. Popular or well-liked students may enjoy taking classes with many of the same classmates who regard them as high status members of the peer group, but peer-rejected or disliked students may suffer the consequences of being repeatedly exposed to classmates with whom they have negative social relationships. In other words, interdisciplinary teaming may be socially beneficial for high preference children, but detrimental for children with low social preference, who must endure a poor reputation throughout the majority of the school day.

Academic Teaming: A Special Case of Interdisciplinary Teaming

In middle schools in which interdisciplinary teaming is practiced, exposure to the same classmates throughout the school day may be influenced by the type and *amount* of interdisciplinary teaming that occurs. For example, in schools with a small number of teams relative to the size of the grade level population, children may not have the same set of classmates each period even though their classmates always come from the same pool (team) of students. On the other hand, in schools where there is a large number of teams relative to the size of the grade level population (i.e., each team comprises only one classroom of students), interdisciplinary teaming would result in the same classmates traveling together from course to course for all of their academic classes—a special case of interdisciplinary teaming referred to here as *academic* teaming.

Unfortunately, the teaming literature does not differentiate between interdisciplinary teaming in general and the more specific case of academic teaming. In fact, one major limitation of previous research is that interdisciplinary teaming has been measured as a school-level dichotomous indicator (practiced/not practiced), making it virtually impossible to investigate individual outcomes associated with the *extent* of teaming that occurs. So while teaming may appear to have a positive effect on middle school adjustment for children overall, it is unclear whether there might be negative outcomes associated with the practice of teaming for some children, particularly those with low social preference among their peers.

Academic Teaming and Peer Victimization

Empirical research on social reputations indicates that peer status is less stable across changing peer settings than in settings in which peers remain the same (Bukowski & Newcomb, 1984; Coie & Kupersmidt, 1983). When considering the role of academic teaming in peer victimization, this research suggests that the relation between low social preference and victimization might be stronger when academic teaming is practiced and weaker when it is not. To illustrate, for low preference children in middle school, changing classes *and* classmates each period of the school day may help reduce their visibility among peers and their likelihood of being victimized since each class would be comprised of a different set of classmates and social norms. In other words, children with low social preference who share the *fewest* number of classes with the same peers may have the *most* opportunities to avoid victimization. On the contrary, if the middle school structure is such that children take classes primarily with the same set of classmates, even when they change classrooms, social status hierarchies may be more salient to the peer group, increasing the probability that children with low social preference would also experience peer victimization.

Ability grouping

In many schools, interdisciplinary teams are comprised of students with similar academic profiles, and students share all their classes with classmates performing at the same academic level (Ansalone, 2001, 2006; Dauber, Alexander, & Entwisle, 1996; Eccles, Midgley, & Wigfield, 1993; Oakes, 1981). Thus, in practice, teaming may be synonymous

with ability grouping or academic tracking. In order to isolate the true effect of teaming, independent of ability grouping, it is therefore necessary to also consider the role of classroom academic performance (e.g., achievement level among classmates) in the relation between academic teaming, social preference, and peer victimization. The existing literature can help us understand how this unique set of individual and classroom characteristics may interact. For example, it is well documented that children who are performing well academically are more likely to be popular among (i.e. liked or accepted by) their peers (DeRosier, Kupersmidt, & Patterson, 1994; Guay, Boivin, & Hodges, 1999; Meijs, Cillessen, Scholte, Segers, & Spijkerman, 2010). As such, higher performing classrooms may be comprised of a greater concentration of children with high social preference. It reasons that children with low social preference in such a context would be more likely to “stick out,” thus increasing their risk for victimization; and this risk may be compounded if, due to academic teaming, these low preference children remain with the same high preference classmates throughout their academic schedule.

The Present Study

While the academic benefits of interdisciplinary teaming in middle school are well understood, the social consequences associated with this common educational practice have been relatively unexplored. Certain types of interdisciplinary teaming, such as academic teaming, might increase the visibility of children’s reputations in the peer group. For high preference children, this visibility could result in social benefits, but for low preference children, academic teaming could make them more vulnerable to peer maltreatment, such as being victimized. The primary objective of this study, therefore, was to investigate the influence of academic teaming on the relation between social preference and the likelihood of victimization among peers. Because academic teaming is often practiced in conjunction with ability grouping, the next objective of this study was to examine whether classroom academic performance plays a role in the influence of academic teaming on this relation.

To achieve these objectives, some other limitations of the interdisciplinary teaming literature were addressed. Rather than rely on a school-level dichotomous indicator of teaming (practiced/not practiced), an individualized and continuous measure of teaming was developed for this study in order to account for the extent to which students share their classes with the same classmates across the academic subjects in their course schedule. Unlike much of the previous research that lacked a developmental analysis, this study was conducted with a large sample of 6th grade students to capture the social effects of academic teaming during the transition year into middle school, when reputations and social hierarchies are being formed. To allow adequate time for these social processes to develop, the influence of academic teaming on the relation between social preference and peer victimization was examined in the spring of 6th grade (controlling for social preference and victimization in the fall). It was hypothesized that low social preference would be associated with greater victimization, especially for students who experienced greater academic teaming, thus being repeatedly exposed to the same classmates throughout the course of the school day.

Method

Participants

Participants were drawn from a larger sample of 5,076 sixth graders across 2 cohorts of students participating in the UCLA Middle School Diversity Project (MSDP), a longitudinal study of middle school adjustment in ethnically diverse schools from Northern and Southern California. Students were enrolled in one of 20 schools that varied in ethnic composition. To reduce confounds of ethnic diversity with socioeconomic status (SES), schools at the extremes of the SES continuum were avoided; only schools within a 20–80% range of free and/or reduced price meal (FRPM) eligibility were recruited for the study. At the time of this study, school records were available for 19 of the 20 schools.

As is typical for 6th grade students in California middle schools, all students were enrolled in a different subject with a different teacher each period and rotated classrooms throughout the school day. However, the extent to which students' *classmates* differed or stayed the same from course to course varied by school. In many California middle schools, for example, the same group of classmates travels together from course to course, a practice referred to here as *academic teaming*. Using students' class schedules and the index of academic teaming described in detail below, participants were selected if they attended a school with significant within-school variability in academic teaming (i.e., some variation in classmates from course to course). Regardless of the extent of teaming practiced, however, students in these schools kept the same class schedule from fall to spring semester such that the classmates with whom they shared their courses remained the same throughout the academic year.

In order to examine whether high or low teaming affects the relation between social preference and victimization, a subset of schools from the large sample was selected in which there was sufficient variance in the practice of teaming. Only 5 of the 19 schools for which class schedules were available met this criterion (i.e., the proportion of classmates that remained the same across all academic subjects ranged, on average, from .21 to .65). These 5 schools did not differ significantly from the overall sample in terms of FRPM eligibility or overall Academic Performance Index (API) scores as reported by the California Department of Education (see Appendix). None of these schools housed special programs or magnet (e.g., gifted/highly gifted, science) centers. For 2 of the 5 schools that had substantial within-school variance in teaming scores, there was a significant correlation between academic teaming and classroom academic performance ($r = .67$ and $-.40$, respectively), suggesting that some schools may use teaming as a mechanism for ability grouping or academic tracking (e.g., grouping together remedial or honors students). The high ($M = .92$) average teaming scores for the remaining 14 schools in the larger sample demonstrate the prevalence of this middle school practice (see Appendix).

The analytic sample for the current study comprised 1,044 students (51.3% female) from the 5 selected schools. The ethnic composition of the sample (based on student self-report) is as follows: 30.6% Latino/Mexican, 22.6% Asian (East/Southeast/South), 12.5% White, 11.9% African-American, 3.0% Filipino/Pacific Islander, 14.2% Multiethnic/Biracial, and 5.2% Other.

Procedure

Beginning in the fall of 2009, students with signed parental consent completed a questionnaire during a single period in one of their 6th grade classes. Students recorded their answers independently as they followed instructions being read aloud by a graduate research assistant who reminded them of the confidentiality of their responses. A second researcher circulated around the classroom to help students as needed. This procedure was repeated (approximately five months later) in the spring semester of 6th grade. At both waves of data collection, students were given an honorarium of \$5 for completing the questionnaire.

Measures

Social preference—Social preference among peers was determined by peer nomination. In both the fall and spring of 6th grade, students were presented with a roster containing the names of all students in their grade level at their school, arranged by name (alphabetically by first name) and gender. Given the rotating structure of courses in California middle schools and the opportunity for interaction with many other grademates throughout the school day, grade-level rosters were determined to be more appropriate than classroom-level rosters, which would have been limited to one set of peers to whom students were exposed in a given school day. Using the roster, students were instructed to record the names of their classmates in response to the questions, “Which 6th grade students from your list would you like to hang out with at school?” and “Which 6th grade students from your list do you not like to hang out with at school?” Students were allowed to record as many names as they desired but were instructed not to nominate themselves.

The conditional phrase “would you like to hang out with” was intentionally used as a measure of peer acceptance since it could include both who students associated with already *and* who they would like to hang out with if given the opportunity. Other peer acceptance measures commonly used in the literature (e.g., “who do you like the most at school?”) also capture both established and desired associations with peers (c.f., Lease & Axelrod, 2001; MacDonald & Cohen, 1995).

Similar to the procedure used by Coie et al. (1982), “not like” nominations received by each student were subtracted from “like” nominations received. Thus, social preference scores of 0 represented students who were equally liked and disliked, positive social preference scores (scores greater than 0) represented students who were liked more than they were disliked, and negative social preference scores (scores less than 0) represented students who were disliked more than they were liked.

Social impact—Social impact is often measured in conjunction with social preference in order to differentiate individuals with similar social preference scores who may be more or less known to members of peer group (Coie et al., 1982). For example, an individual who received 5 “like” nominations and 5 “not like” nominations may be more well-known to peers than an individual who received 1 “like” nomination and 1 “not like” nomination, even though both individuals would be given a social preference score of 0. In other words, social impact is useful in detecting the strength of one’s reputation (positive or negative). In order

to control for the influence of reputation strength on peer victimization, social impact in the spring was calculated for each participant and used as a covariate in all analyses.

Victimization—Because social preference is a reputational measure of status among peers, peer reports of victimization may be more highly correlated with social preference than self-reports of peer victimization. For this reason, both peer-reported and self-reported measures of victimization were used in this study.

Peer-reported victimization: On the same peer nomination measure as described above, students were instructed to record the names of their classmates in response to the question, “Which 6th grade students from your list get picked on by other kids (get hit or pushed around, called bad names, talked about behind their backs)?” The total number of “picked on” nominations that each student received was then tallied to create a score of peer-reported victimization in both fall and spring of 6th grade.

Self-reported victimization: At each wave of data collection, students answered 7 items about how often someone in their school had engaged in some type of aggression toward them (e.g., “hit, kicked, or pushed you,” “called you bad names”) since the beginning of the school year. Responses ranged from 1 (“never”) to 5 (“almost every day”). This new measure, created for the larger study, has been shown to relate to other indicators of social and emotional adjustment (see Lanza, Echols, & Graham, 2013). Based on high internal consistency in both the fall and spring of 6th grade ($\alpha=.86$ and $.87$, respectively), a mean of these items was computed and used as a single score of self-reported victimization.

Academic teaming—Students’ class schedules were used to measure the proportion of participants’ classmates who remained the same across all academic subjects during each semester. This proportion was calculated using an index of academic teaming that was created specifically for this study.

$$T = \frac{\sum \frac{c_x \cap c_y - 1}{c_x - 1}}{{}_n P_2}, \text{ where } x=1 \dots n, y=1 \dots, \text{ and } x \neq y$$

Using the above formula, the proportion of classmates in each academic class (C_x) who were also in another academic class (C_y) was calculated for all possible academic course combinations in each student’s class schedule. The sum of these proportions was then divided by the total number of possible academic course combinations (${}_n P_2$) to create an average proportion of students in each participant’s class schedule that remained the same throughout the academic subjects (i.e., math, science, English, social studies) in a given academic semester. The top half of the academic teaming equation represents the overlap in classmates between two given academic courses (e.g., math and social studies) totaled across all possible course combinations (i.e., math and social studies, math and science, social studies and science, etc.). The bottom half of the equation represents the number of possible academic course combinations when each course is paired with every other course. Possible scores on this Teaming index range between 0 and 1, with scores closer to 1

representing a higher proportion of students in one academic course who were also in every other academic course (i.e., complete academic teaming). For example, a score of .25 would indicate that 25% of a student's classmates remained the same across all four academic courses in his/her class schedule (low teaming), while a score of .75 would indicate that 75% of a student's classmates remained the same across all four academic courses (high teaming).

Classroom academic performance—Classroom academic performance was measured by average academic GPA among classmates according to the following procedure. First, based on students' semester grades provided in school records, grade point average (GPA) was calculated for all participants for each academic course in their class schedule. Next, average GPA across classmates in each academic course was calculated. Finally, average classmate GPA in each course was averaged across the four academic courses in each participant's class schedule. Because the average academic performance to which students are exposed in their classrooms varies for students in middle school depending on their course schedules, each participant received an average classmate GPA score, ranging from 0 to 4, using the available school records data for participants.

Academic deviation—To control for risk of victimization associated with deviation from the norm for academic performance in students' academic courses, a difference score was calculated for each participant and used as a covariate in all analyses. To calculate this difference score, average classmate GPA was subtracted from average individual GPA for academic courses. Positive deviation scores represented students who were performing better than their classmates and negative deviation scores represented students who were performing worse than their classmates.

Planned Missing Design

In the larger study from which this sample was drawn, a 3-form planned missing design was implemented in order to increase the efficiency of collecting data from such a large number of participants (see Graham, Taylor, Olchowski, & Cumsille, 2006). With this design, participants were given 1 of 3 questionnaires, each of which excluded a different set of measures, resulting in missing data on these measures for one-third of participants. Because "missingness" was planned (i.e., under the control of the researchers) and not a function of other measured or unmeasured variables, this missing data was assumed to be missing completely at random (MCAR; see Little & Rubin, 1987). In the current study, only peer-reported victimization was part of the planned missing design. There was a minimal amount (<4%) of un-planned missing data for this measure and all other measures in this study. Missing data were handled using full information maximum likelihood (FIML; described below).

Results

Descriptive statistics for all study variables are shown in Table 1. Correlations among study variables are shown in Table 2. Given the potential for reciprocal relations between social preference and victimization over time, a path (e.g., cross-lagged) model based on a

structural equation modeling framework in Mplus (Muthén & Muthén, 2012) was used in order to measure the influence of social preference in the spring of 6th grade on victimization in the spring of 6th grade while simultaneously accounting for the influence of social preference and victimization in the fall of 6th grade. Two sets of models were estimated: one for peer-reported victimization and one for self-reported victimization. In each model, FIML was utilized in order to make use of all available data from participants. FIML is considered the most appropriate estimation technique for structural equation models when missing data are MCAR (Enders & Bandalos, 2001).

The results of the path models (described separately for peer- and self-reported victimization below) are shown in Table 3. Social preference and victimization in the fall and spring of 6th grade were modeled as observed variables. Individual path coefficients from covariates (gender, social impact, academic deviation) to observed variables are not shown but all covariates were correlated with social preference and victimization in both fall and spring. In Step 1, academic teaming was included as a moderator of the relation between social preference and victimization in the spring of 6th grade, controlling for classroom academic performance. In Step 2, classroom academic performance was included in a 3-way interaction term with academic teaming and social preference. As is standard practice when modeling higher-order interaction terms, all lower-order interaction terms (social preference $\times$ academic teaming, social preference $\times$ classroom academic performance, academic teaming $\times$ classroom academic performance) were included in Step 2. R-squared values are reported for each model in order to evaluate the proportion of variance accounted for at each step. To ensure adequate sample size to detect close model fit, a separate power analysis for each model was conducted following procedures outlined by MacCallum, Browne, and Sugawara (1996) for structural equation models (see Table 4). The power analyses confirmed sufficient sample size using even the most conservative criteria (power of .80 at $\alpha = .01$).

Peer-Reported Victimization

Social preference in the spring of 6th grade had a significant impact on peer-reported victimization in the spring of 6th grade, even after controlling for all relations between social preference and peer-reported victimization in the fall of 6th grade and between fall and spring of 6th grade. As shown in Step 1 of Table 3, the negative coefficient for this pathway indicates that as spring social preference increased, spring peer-reported victimization decreased; conversely, as spring social preference decreased, spring peer-reported victimization increased.

There was no main effect of academic teaming on peer-reported victimization in the spring. However, there was a significant interaction effect with social preference, indicating that the relation between social preference and peer-reported victimization in the spring was magnified by academic teaming. In other words, the more teaming students experienced, the greater the impact of social preference on peer-reported victimization. As shown in Figure 1, for students with high social preference, high teaming resulted in lower peer-reported victimization. For students with low social preference, however, high teaming resulted in

particularly high peer-reported victimization. Thus, as hypothesized, academic teaming appears to be a risk factor for low preference students at school.

As shown in Step 2 of Table 3, there was also a significant 3-way interaction between social preference, academic teaming, and classroom academic performance; and the higher R^2 value indicates more variance in peer-reported victimization accounted for with this model. The 3-way interaction is depicted in Figure 2. Each plotted slope shows the relation between social preference and peer-reported victimization at varying levels of academic teaming and classroom academic performance. Higher teaming resulted in greater victimization for children with low social preference in both higher and lower performing classrooms. In addition, children with low social preference had greater peer-reported victimization in higher compared to lower performing classes regardless of the amount of academic teaming they experienced. Peer-reported victimization was greatest for children with low social preference in highly teamed, high performing classrooms.

Self-Reported Victimization

Similar to the model for peer-reported victimization, social preference in the spring of 6th grade had a significant impact (though smaller in magnitude) on self-reported victimization in the spring of 6th grade, even after controlling for all relations between social preference and self-reported victimization in the fall of 6th grade and between fall and spring of 6th grade. Again, the negative coefficient for this pathway indicates that as spring social preference increased, spring self-reported victimization decreased, and conversely that as spring social preference decreased, spring self-reported victimization increased.

In Step 1 of this model there was a significant main effect of academic teaming on self-reported victimization in the spring, indicating that students who experienced greater teaming reported more victimization. As shown in Figure 3, there was also a significant interaction effect with social preference such that for students with low social preference, greater teaming resulted in particularly high self-reported victimization. Similar to the model for peer-reported victimization, the relation between social preference and self-reported victimization was weakest when teaming was low. Unlike the model for peer-reported victimization, however, the 3-way interaction between social preference, academic teaming, and classroom academic performance was not significant (see Step 2 of Table 3), indicating that the influence of academic teaming on the relation between social preference and self-reported victimization was the same regardless of the level of academic performance in children's classes.

To summarize these results, for both peer- and self-reported victimization, as social preference increased, victimization decreased. Likewise, as social preference decreased, victimization increased. Predictably because of informant overlap, this effect appeared to be stronger for peer-reported than self-reported victimization. The interaction between social preference and academic teaming was significant for both types of victimization, and the relation between low social preference and victimization was greater when teaming was high. For peer-reported victimization, the relation between low social preference and victimization was greatest when both academic teaming and classroom academic performance were high.

Discussion

In early adolescence, perhaps more so than any other time in development, status among peers contributes largely to children's social and emotional well-being and their overall adjustment in school (Wentzel, 2003). With many of these children using aggression to *gain* status (Pellegrini, 2002; Pellegrini & Long, 2002), having *low* status makes some children particularly vulnerable to peer victimization (Sandstrom & Cillessen, 2003). Certain educational practices determine the type and amount of exposure children have to others in the peer group at school, which may affect their visibility as either high or low status members, further influencing their likelihood of being victimized. In particular, academic teaming influences the extent to which classmates remain the same from class to class throughout the school day, which could make social status more or less salient to their peers. In this study, social preference was used as the measure of status among peers and the moderating role of academic teaming on the association between social preference and peer victimization for children in the 6th grade was examined.

Consistent with past research, the results indicated a significant negative relation between social preference and peer victimization. Even after accounting for reciprocal relations among these variables over time, lower social preference scores were associated with greater peer victimization in the spring of 6th grade according to both peer- and self-report. Academic teaming also had a significant negative effect on peer victimization, but only self-reported victimization, suggesting that the more children shared their classes with the same classmates, the more they perceived being victimized. For both peer- and self-reported victimization, academic teaming moderated the relation between social preference and victimization, increasing the risk of victimization among low preference peers. That is, regardless of the victimization measure that was used, low preference children in highly teamed classes were more victimized than low preference children who shared fewer classmates throughout the school day.

There was an opposite effect of academic teaming on peer-reported victimization for children with high social preference. Although high preference children were at decreased risk of peer victimization overall, this was especially true for high preference children who experienced greater academic teaming. These results support the hypothesis that academic teaming may increase the social visibility of children to their peers, which may be a promotive factor for children who enjoy high social preference in the peer group but a risk factor for low preference children who rarely get the chance during the school day to escape their reputation.

The influence of academic teaming on the relation between social preference and peer victimization was further moderated by classroom academic performance such that children with low social preference were at greatest risk for victimization when they experienced higher levels of academic teaming *and* were taking classes with higher performing classmates. This effect was only observed for peer-reported victimization, suggesting that children with low social preference may not actually experience more victimization in higher performing classrooms but may stand out more as victims compared to their higher preference peers. Since higher performing classrooms may be comprised of more children

with high social preference compared to average or lower performing classrooms (see Meijs et al., 2010; Newcomb, Bukowski, & Pattee, 1993), children who deviate from the norm of high social preference may be more visible to the peer group and therefore more easily identified as victims, especially if they are taking classes with the same classmates throughout the school day. Since social reputations are often difficult to change, especially in contexts in which peers remain the same (Brown, 1996), low preference children in highly teamed, higher performing classrooms may be at risk for chronic victimization and a host of adjustment difficulties that could follow. Future research should consider the role of academic teaming on the unique social trajectories of children in higher performing classrooms who are at opposite ends of the social status hierarchy.

Strengths and Limitations

This study makes important contributions to the literature on both peer victimization and interdisciplinary teaming. By comparing the influence of social preference across both peer- and self-reported victimization, this study demonstrates that the relation between social preference and peer victimization may be evident regardless of how victimization is measured. In addition, in this study it was suggested that social visibility was the mechanism through which academic teaming influenced the relation between low social preference and peer victimization, especially in higher performing classrooms. While social visibility was not directly measured, it was assumed that repeated exposure to the same classmates through the practice of academic teaming would increase visibility among peers. This study introduces a novel methodological tool for measuring exposure in the peer group, but future research should consider other approaches to measuring social visibility (e.g., being a member of a particular “crowd”).

Most notably, this is the first study in which interdisciplinary teaming has been distinguished from academic teaming in order to measure the extent to which children shared their classes with the same classmates throughout the school day. Since measuring academic teaming at the *individual* level and as a *continuous* variable is the only way to investigate individual outcomes associated with teaming, this study provides an important first look at the negative social consequences that may result from this common educational practice. Given the heightened risk of poor adjustment in middle school for children who are victimized, the prevalence of this school practice is alarming. However, it should be noted that children may share their classes with many of the same classmates even when interdisciplinary teaming as an instructional practice is *not* being utilized. Thus, the practice of academic teaming may or may not be synonymous with the practice of interdisciplinary teaming in all schools. As such, there may not be social risk associated with interdisciplinary teaming per se but rather the risk may only reside in repeated exposure to classmates. Future research should further differentiate between the practices of interdisciplinary and academic teaming and consider other individual and social risk factors that may make children more or less likely to benefit from teaming in all its various forms.

Future Directions

This study sets the stage for other important research on peer victimization and the measurement of classroom context in middle and high school education. In the present

study, the overlap in peer- and self-reported victimization was not accounted for (i.e., self-reported victimization was not included as a covariate in the model for peer-reported victimization and vice versa). However, it may be that children with high victimization scores on one measure were not necessarily the same children with high victimization scores on the other measure. If there are indeed different subgroups of victims in middle school, as suggested by Sandstrom & Cillessen (2003), it is possible that the same feature of the classroom context might affect members of these subgroups in *different* ways. For example, children who perceive victimization but are not identified as victims by their peers may suffer from a victim mentality that is neither explained nor influenced by their classroom context, whereas children who are identified as victims by their peers and themselves report being victimized may be particularly vulnerable when their classmates stay the same from course to course throughout the school day. Although this “comorbidity” effect was not examined in the present study, future research might consider whether using these multiple informants has implications for assessing the risks associated with peer- vs. self-perceived victimization in certain classroom contexts.

In this study, students’ class schedules were used to create individualized measures of classroom characteristics (e.g., classroom academic performance). This appears to be a promising new approach to measuring classroom context for students in middle and secondary education settings that has some noteworthy advantages. First, this method makes it possible to detect differences in the influence of classroom context at various levels of measurement: between classrooms and schools, between students depending on their course schedules, and even between courses taken by the same student. Next, this method may remove the need for multilevel modeling if nearly all the variance in classroom context resides between students (within schools) and not between classrooms or schools. When multilevel modeling *is* necessary, classroom context measured at the individual level may substantially increase the number of level-2 units (e.g., if classroom characteristics across courses are nested within individuals nested within schools). Most importantly, by using this method, the individual experiences of children in middle and high school can be understood in ways never before examined. Instead of relying on measures of context specific to one classroom or school, this method makes it possible to investigate context across classrooms specific to each child. In other words, the entire school day as experienced by individual children as they travel from class to class can now be observed. While the primary contribution of this study is the substantive understanding of the role of academic teaming in schoolchildren’s social adjustment in school, it is the hope that this novel approach to measuring classroom context will also make a significant methodological contribution to the literature.

Implications for Practice

Although interdisciplinary teaming may lead to some positive outcomes such as greater feelings of belonging in school, *academic* teaming may come with certain social *costs* that outweigh these benefits. During a time when status among peers is critical to overall adjustment and the risk of being victimized is so high, researchers and practitioners would do well to consider the extent to which this practice should be used, particularly for vulnerable children in the peer group. For example, a less restrictive teaming structure (e.g.,

large enough teams that students are not required to share all their academic courses with the same classmates) might provide the academic benefits of this practice while avoiding the social costs.

A relatively simple intervention strategy for reducing victimization among children with low social preference in the peer group would involve scheduling their courses in a way that would provide them with maximum exposure to a diverse set of peers. Because school counselors are often responsible for course scheduling, one important topic for future research is the role school counselors play in addressing the academic *and* social needs of their students through course scheduling practices.

When a teaming structure is imposed by the school or district, it might also be important to consider how teachers in their individual classrooms might organize instruction in order to minimize the negative impact of this practice on students with low social preference among their peers. For example, are students further clustered together (e.g., in the case of small group instruction) with a particular set of classmates or do they have the opportunity to interact with a variety of students in class? Is seating by student choice or do teachers implement seating charts? As both these factors could influence the extent of exposure of low preference students to the same classmates, these are important topics for future research.

Students' social and academic lives are interrelated and are closely tied to their overall adjustment in school; it is therefore important to consider both the academic *and* social ramifications of any instructional practice. Until now, only the academic benefits of teaming have been considered. However, because interdisciplinary teaming, in general, and academic teaming, in particular, have a direct impact on the type and extent of social contact that children experience, the practice of teaming may be especially relevant to children's social adjustment in school. It is the hope that the findings reported here will stimulate other research on the benefits and risks associated with the practice of teaming for children in middle school, and that the methodology utilized here will make it possible to examine whether such outcomes apply to all, or just some, children in the classroom.

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Appendix

School Characteristics of MSDP Schools

School	FRPM	API	Academic Teaming
1	0.42	807	0.21
2	0.31	832	0.31
3	0.80	850	0.39
4	0.68	704	0.43
5	0.54	708	0.65
6	0.56	825	0.92
7	0.29	846	0.93
8	0.72	650	0.93
9	0.29	836	0.94
10	0.67	810	0.94
11	0.68	658	0.95
12	0.50	755	0.95
13	0.57	757	0.95

School	FRPM	API	Academic Teaming
14	0.77	806	0.96
15	0.38	838	0.96
16	0.21	889	0.97
17	0.72	681	0.99
18	0.45	831	0.99
19	0.43	839	1.00

Note. FRPM = free and reduced-price meal eligibility. API = Academic Performance Index. Academic teaming scores based on average academic teaming experienced by participants in the same school. Schools 1–5 were used in the analyses reported in this study.

Figure 1.

The moderating role of academic teaming on the relation between social preference and peer-reported victimization in middle school. Low teaming = 25% shared classmates, moderate teaming = 50% shared classmates, high teaming = 75% shared classmates. SD = standard deviation.

Figure 2.

The moderating role of academic teaming and classroom academic performance on the relation between social preference and peer-reported victimization in middle school. Low teaming = 25% shared classmates, high teaming = 75% shared classmates. Low classroom academic performance = 1 SD below mean, high classroom academic performance = 1 SD above mean. SD = standard deviation.

Figure 3.

The moderating role of academic teaming on the relation between social preference and self-reported victimization in middle school. Low teaming = 25% shared classmates, moderate teaming = 50% shared classmates, high teaming = 75% shared classmates. SD = standard deviation.

Table 1

Descriptive Statistics for Study Variables

	Min	Max	M	SD
Social Preference Fall 6 th Grade	−19.00	20.00	2.50	3.35
Social Preference Spring 6 th Grade	−18.00	9.00	0.37	2.54
Social Impact Fall 6 th Grade	0.00	26.00	4.49	3.70
Social Impact Spring 6 th Grade	0.00	20.00	2.80	2.65
Peer-Reported Victimization Fall 6 th Grade	0.00	9.00	0.40	0.89
Peer-Reported Victimization Spring 6 th Grade	0.00	20.00	0.59	1.65
Self-Reported Victimization Fall 6 th Grade	1.00	5.00	1.60	0.66
Self-Reported Victimization Spring 6 th Grade	1.00	4.86	1.78	0.74
Academic Teaming Spring 6 th Grade	0.05	0.99	0.36	0.22
Classroom Academic Performance Spring 6 th Grade	1.72	3.76	2.86	0.38
Academic Deviation Spring 6 th Grade	−2.79	2.19	0.08	0.79

Note. *Min* = Minimum. *Max* = Maximum. *M* = Mean. *SD* = Standard Deviation.

Table 2

Correlation among Study Variables

	Fall Social Pref.	Spring Social Pref.	Fall Peer-Reported Vic.	Spring Peer-Reported Vic.	Fall Self-Reported Vic.	Spring Self-Reported Vic.	Academic Teaming	Classroom Academic Performance	Academic Deviation	Social Impact
Fall Social Pref.	--	.546***	-.189***	-.235***	-.059	.016	-.038	.178***	.215***	.126***
Spring Social Pref.		--	-.302***	-.390***	-.098**	-.118**	-.053	.148***	.246***	-.172***
Fall Peer-Reported Vic.			--	.622***	.151***	.121**	.031	.009	-.012	.203***
Spring Peer-Reported Vic.				--	.170***	.208***	.032	.025	-.075*	.266***
Fall Self-Reported Vic.					--	.539***	.064*	-.097**	-.105**	.106**
Spring Self-Reported Vic.						--	.070	.002	-.104**	.173***
Academic Teaming							--	-.316***	.012	-.077*
Classroom Academic Performance								--	.079*	.093**
Academic Deviation									--	-.099**
Social Impact										--

Note.

* p<.05,

** p<.01,

*** p<.001. Academic teaming, classroom academic performance, academic deviation, and social impact measured only in spring.

Table 3

Results of Path Models Testing the Moderating Role of Academic Teaming and Classroom Academic Performance on the Relation Between Social Preference and Victimization

	Peer-Reported Victimization		Self-Reported Victimization	
	Step 1 Est. (S. E.)	Step 2 Est. (S. E.)	Step 1 Est. (S. E.)	Step 2 Est. (S. E.)
Intercept (Spring Victimization)	.183 (.071) *	.127 (.043) **	.688 (.074) ***	.662 (.077) ***
Female	-.162 (.081) *	-.130 (.079)	-.022 (.050)	-.016 (.050)
Social Impact	.082 (.016) ***	.086 (.016) ***	.033 (.010) **	.034 (.010) ***
Academic Deviation	.019 (.052)	.009 (.051)	-.042 (.032)	-.048 (.032)
Fall Victimization	.987 (.047) ***	.946 (.046) ***	.606 (.037) ***	.613 (.037) ***
Fall Social Preference	-.027 (.015)	-.020 (.015)	.017 (.009)	.019 (.009) *
Spring Social Preference	-.136 (.020) ***	-.142 (.020) ***	-.025 (.012) *	-.026 (.013) *
Academic Teaming	.275 (.182)	.627 (.199) **	.336 (.115) **	.324 (.131) *
Classroom Academic Performance	.259 (.109) *	.214 (.116)	.208 (.068) **	.243 (.073) **
Spring Social Preference x Academic Teaming	-.240 (.084) **	-.385 (.085) ***	-.145 (.051) **	-.178 (.057) **
Spring Social Preference x Classroom Academic Performance		-.164 (.045) ***		-.038 (.029)
Academic Teaming x Classroom Academic Performance		.1.386 (.478) **		-.219 (.302)
Spring Social Preference x Academic Teaming x Classroom Academic Performance		-.661 (.196) **		-.105 (.125)
R ²	.471	.488	.379	.379

Note. Est. = Estimate. S. E. = Standard Error.

*
p<.05,

**
p<.01,

p<.001.

Table 4

N for Test of Close Fit at Power = .80 for $\alpha = .01$, .05, and .10 with Varying Degrees of Freedom

	$\alpha = .01$	$\alpha = .05$	$\alpha = .10$
Step 1 (11 <i>df</i>)	834.38	612.50	504.69
Step 2 (32 <i>df</i>)	420.31	315.63	264.06

Note. *df* = degrees of freedom. Greater degrees of freedom reduce required sample size (see MacCallum et al., 1996).