Prosocial Conduct in Urban Middle Schools: Do Young Adolescents’ Experiences of the School Context Matter?

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy in Psychology

by

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Young adolescents spend the majority of their time in school, yet little is known about how the school context is associated with their prosocial conduct. The current study focused on 1) the extent to which individual students were teamed with their classmates and 2) their exposure to ethnically diverse peers, and examined the processes by which these aspects of the school context were associated with their prosocial conduct. Multilevel mediation models were fit to multiply imputed questionnaire data collected from a sample of 3,738 sixth grade students from 19 ethnically diverse urban middle schools in California.

A novel teaming index that captured the extent to which individual students shared academic classes with classmates was used to test the first mediation hypothesis. It was expected that students who were extensively teamed would feel a stronger sense of school belonging and perceive prosocial behaviors to be more normative among their
grade mates, which in turn were expected to be associated with more frequent prosocial conduct. Although no evidence of mediation was found, both sense of school belonging and perceptions of prosocial norms were positively and significantly associated with more frequent prosocial conduct.

The novel application of Simpson’s diversity index to assess individual students’ exposure to ethnic diversity was used to test the second mediation hypothesis. It was expected that students who had greater exposure to ethnic diversity in their classes would report a stronger sense of safety at school and have a greater proportion of cross-ethnic friendships, which in turn were expected to be associated with more frequent prosocial conduct. While the indirect effect of sense of safety was significant, the indirect effect of proportion of cross-ethnic friendships was only marginally significant.

Together, findings suggested that the ways in which students perceive and experience the school context are linked to their prosocial conduct with peers. Findings from the first mediation model suggested that seeing the same classmates in many courses may not be enough to support feelings of belonging or perceptions of prosocial norms. However, students’ sense of school belonging and perceptions of prosocial norms were related to their prosocial behavior. The findings from the second mediation model, in turn, indicated that exposure to ethnically diverse peers across classes is associated with a sense of safety that may facilitate engagement in prosocial conduct. The results also suggested that the cross-ethnic friendships afforded by ethnically diverse classrooms are associated with students’ tendency to extend kind and helpful gestures to their peers. Contributions of the novel indices used and implications of the present findings on educational research and practice are discussed.
The dissertation of Samantha Jane Almaraz Simmons White is approved.

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Introduction

From both philosophical and evolutionary perspectives, prosocial conduct has been considered pivotal to the success and survival of our species. Although kind and helpful acts that are intended to benefit others no longer function to ensure our survival in the modern world, prosocial conduct is nevertheless considered foundational to social adjustment and social success. Specifically, kind and caring behaviors communicate care and concern for another’s well-being, which can further serve to strengthen social bonds with friends and kin, and aid in navigating the social landscapes we encounter.

Despite the fact that youth spend the majority of their time at school, little is known about how students’ experiences of the school context are associated with their kind and helpful behaviors, such as being considerate of others’ feelings and standing up for peers who are teased or bullied. The overarching goal of the current study is to examine how the school and peer contexts, ones in which young adolescents spend most of their time, are associated with their prosocial conduct. Before delineating my hypotheses, I will briefly review literature focusing on prosocial conduct within the context of parent and sibling relationships. I will then provide a brief overview of prosocial conduct as it has been examined within the school context, followed by a discussion of how some features of the school and peer contexts might hinder young adolescents’ prosocial conduct (school size, negative peer culture, and class misbehavior), while other features (teaming practices, exposure to ethnic diversity) may set processes in motion that can foster prosocial conduct.

**Promoting Prosocial Conduct: The Role of Family**
The roles of parents and siblings have been a focal area in the prosocial literature. In general, findings from these studies revealed that many children learn and initiate prosocial behaviors within the context of parent and sibling relationships. For example, interactions with parents provide opportunities for children to act as “helpers” on household tasks that require guidance or supervision, such as doing the dishes, folding laundry, and doing yardwork (Eberly & Montemayor, 1998; Call, Mortimer, & Shanahan, 1995). Children also learn comforting behaviors within parent-child relationships, which typically involve verbal or physical actions that attend to parents’ feelings and emotional well-being, such as when a child voluntarily responds to her mother’s sadness with a hug (Eberly & Montemayor, 1998).

A handful of studies that examined how parents promote prosocial conduct in their children beyond the childhood years have also shown that displays of affect and parenting styles have lasting effects on their children’s prosocial conduct. Findings from one study found that, compared to children (4.5 to 8 years old) whose parents displayed less positive affect or high levels of negative affect, children whose parents displayed more positive affect tended to display more prosocial conduct eight years later when they were adolescents (Michalik et al., 2007). These findings are concordant with research that has examined the association between parents’ discipline styles and their child’s prosocial conduct. For example, Krevans and Gibbs (1996) found that adolescents of parents who used inductive discipline styles (e.g., pointing out the consequences of their behavior) displayed greater prosocial conduct compared to adolescents of parents who used power assertive discipline styles (e.g., promising punishment in response to undesired behavior).
Because most (79%) American children under the age of 18 live with at least one sibling, and the majority of children (64%) live with either one or two siblings (Kreider, 2007), many youth have opportunities to learn and initiate prosocial conduct with siblings early in their lives. Although conflict is common to all sibling relationships, observational studies of young children have shown that kind and caring acts also occur naturally within sibling relationships. Observational studies revealed that prosocial behaviors that occur between siblings fall into six general categories: sharing, helping, comforting, supporting, affection, and caretaking. For example, young children often give or share items with their siblings, cooperate with or help their sibling, give praise, approval, or show admiration for their sibling, provide comfort when their sibling is distressed, give hugs, and laugh with and smile at their sibling (Abramovitch, Corter, & Lando, 1979; Lamb, 1978). While older siblings are more likely to initiate prosocial behaviors with younger siblings, younger siblings are more likely to imitate the behaviors of their older siblings (Pepler, Abramovitch, & Corter, 1981). This suggests that both older and younger siblings learn about and practice prosocial behaviors within sibling relationships.

On the whole, however, much of the literature on prosocial conduct focuses on 1) younger, school-aged children and 2) how prosocial conduct is fostered within the context of parent-child and sibling relationships. Given that young adolescents (6th through 9th graders) are primarily interested in spending time with friends and peers, and are spending less of their time with parents and siblings (15% and 11%, respectively; Larson, Richards, Moneta, Holmbeck, & Duckett, 1996), it is necessary to examine whether factors outside of the family context are associated with their prosocial conduct.
Specifically, because young adolescents spend the majority of their time in school among friends and peers, it is important to understand whether their experience of the school context contributes to their kind and helpful behaviors.

**Prosocial Conduct in the School Context**

The role that teacher-student relationships play in the socialization of children’s prosocial behavior within the school context has been the main focus of school-based studies of prosocial conduct. Although some research shows that peer relationships have been associated with children’s prosocial conduct (i.e., greater peer acceptance associated with greater prosocial conduct; Wentzel & McNamara, 1999), teacher-student relationships have been of considerable interest because of the many similarities they share with parent-child relationships. That is, because teachers socialize their students much in the same way that parents socialize their children (i.e., by instilling values, standards of behavior, and goals) and spend a considerable amount of time with their students, teachers are considered important agents of socialization for youth. Indeed, research findings support the notion that teacher-student relationships are associated with children’s and adolescents’ prosocial conduct.

As early as toddlerhood, teacher-student relationships have been associated with greater social competence. For example, one longitudinal study of children’s relationships with their child care center teachers showed that they displayed more positive social behaviors with peers (e.g., gregarious, sympathetic toward other children) when they had a secure relationship with their teacher (i.e., easily comforted by the teacher; Howes & Hamilton, 1993). Specifically, the authors found that, compared to toddlers who maintained or changed to insecure teacher relationships, toddlers who
maintained a secure relationship with the same pre-school teacher over time, changed from one secure teacher relationship to a new secure teacher relationship, or moved from an insecure teacher-student relationship to a secure one showed more positive social behaviors with peers. Secure teacher-student relationships have also been associated with pre-school children’s prosocial conduct (Howes, Matheson, & Hamilton, 1994). Similar to findings for teacher-student relationships in toddlerhood, observational findings have also shown that pre-school students who had secure relationships with their teachers were rated by their teachers as more prosocial (e.g., more considerate toward peers).

Positive teacher-student relationships have also been associated with kindergarten, elementary, and middle school students’ prosocial behavior. In the kindergarten and the elementary school years, trust, warmth (Birch & Ladd, 1998), and closeness (Baker, 2006) within the teacher-child relationship were associated with students’ prosocial conduct, while high teacher expectations (Wentzel, 2002) were associated with middle school students’ prosocial goals (i.e., sharing, helping peers with academic problems). Students’ perceptions of the teacher-student relationship have also been associated with their prosocial conduct over time. Specifically, 8th grade students who perceived greater social support from teachers (e.g., “my teacher really cares about me”) were also more likely to report prosocial goals after controlling for their gender and prosocial goals and behavior in 6th grade (Wentzel, 1997).

Although the transition to middle school has been associated with students’ perceptions that their teachers no longer care about them (Eccles & Midgley, 1989), Wentzel’s (1997, 2002) findings suggest that the caring and supportive aspects of teacher-student relationships that have been associated with prosocial conduct can persist
in the middle school years. An important feature of students’ middle school experience that was noted, but not empirically examined in Wentzel’s (1997, 2002) studies was the fact that participants were teamed (i.e., received instruction from the same teacher and were with the classmates for all academic subjects) during their first year in middle school (i.e., 6th grade). Interpretation of her findings in light of the fact that participants were teamed with the same peers for their academic classes suggests that the ways in which new middle school students experience the school context is likely associated with their perceptions of the school and the kinds of relationships they can form with peers and teachers. Because many large urban middle schools provide a departmentalized curriculum that requires students to move to different classrooms to be taught different subjects by different teachers, students are more likely to encounter different teachers and peers throughout the school day. However, use of teaming in urban middle schools may help students develop the familiarity with peers and teachers that has been linked to prosocial conduct.

The notion that teaming practices may be indirectly associated with middle school students’ prosocial conduct begs the question of whether other aspects of the school context, and how students experience and perceive them, are also related to their kind and helpful behavior with peers. Given that ethnically diverse educational contexts are associated with a stronger sense of safety and decreased feelings of loneliness among ethnic minority youth in urban middle schools (Juvonen, Nishina, & Graham, 2006), the sense of security students experience in these contexts may play an important role in their prosocial conduct.
Although teaming and ethnic diversity may be indirectly associated with students’ prosocial conduct, the complex nature of the middle school context also exposes students to some features that may be negatively associated with their prosocial conduct, especially at large urban middle schools. Some features of the middle school context that new students are likely to experience, and how these features may be associated with their prosocial conduct, are discussed in greater detail in the following sections.

Can the Middle School Context Hinder Prosocial Conduct?

One feature of the new middle school environment that may curb prosocial conduct among young adolescents is increased school size (i.e., the number of students enrolled at school). When making the transition to middle school, many students move from a smaller elementary school to a larger middle school. Students are thus often surrounded by unfamiliar peers in an impersonal environment, which places them at risk for experiencing increased feelings of alienation (Huling, 1980) and decreased feelings of belonging (Fowler & Walberg, 1991). Thus, larger schools in which students remain unfamiliar with their peers may discourage their kind and helpful behavior.

In addition to the larger size of the middle school, an increasingly negative and antisocial peer culture (Seidman, Allen, Aber, Mitchell, & Feinman, 1994) may also hinder adolescents’ desire to engage their peers prosocially. Evidence suggesting that young adolescents strategically engage in aggressive or antisocial (i.e., bullying) behaviors to achieve higher social rank within the peer group (Prinstein & Cillessen, 2003) indicates that antisocial rather than prosocial behaviors are more likely to be valued in school and peer contexts (Galvan, Spatzier, & Juvonen, 2011). Moreover, evidence indicating that young adolescents prioritize popularity (frequently associated
with bullying) over other social domains such as friendship and empathizing with a peer (LaFontana & Cillessen, 2010) also suggests that the middle school peer culture may discourage young adolescents’ prosocial conduct.

Along with antisocial conduct, increases in classroom misbehavior (e.g., class disturbance, failure to follow rules; Theriot & Dupper, 2010) that have been observed across the transition to middle school might also negatively impact students’ prosocial conduct. Specifically, while students’ classroom misbehavior models inappropriate conduct to classmates, teachers’ aggressive discipline styles can also model indifferent and uncaring behavior for their students. As with parents, teachers’ use of power and aggressive discipline styles, including yelling, anger, sarcasm, and humiliation (Lewis, Romi, Katz, & Qui, 2008; Lewis, 2001), has been associated with poor behavioral adjustment in students (e.g., increased classroom misbehavior; Lewis, 2001; aggressive behavior, delinquency; Coie & Dodge, 1998). Hence, increases in classroom misbehavior that are met with power assertive classroom management strategies model aggressive rather than prosocial behaviors, thus making the middle school environment a poor place to foster students’ prosocial conduct.

Taken together, these findings suggest that the antisocial conduct, and possibly the discipline styles that young adolescents encounter at school, model aggressive and maladaptive behaviors that they later use with peers. Although these findings suggest that the typical middle school environment discourages prosocial conduct, educational practices designed to facilitate relationships and make the school feel smaller, as well as increased exposure to ethnically diverse peers may create conditions that are associated with more frequent prosocial conduct among students at urban middle schools.
Can the Middle School Context Promote Prosocial Conduct?

In considering the role that the school context plays in promoting young adolescents’ prosocial conduct, we must first understand the middle school student’s experience and consider how the school can meet their social-emotional needs during this transition. Given that many students transition from a small elementary school where they know their teachers well and are familiar with their classmates, they are likely to feel that they do not belong to their new school. Moreover, given that they have moved from a context in which they were the “top dogs” (i.e., biggest, oldest, and most powerful students) to one in which they are the “bottom dogs” (i.e., smallest, youngest, and least powerful), new middle school students may also experience feelings of vulnerability in their new middle school.

Contending with these challenges likely focuses students’ attention on finding ways to meet their basic needs for belonging, connectedness, and safety before tending to the needs of others. While meeting students’ needs is critical to their adjustment across the middle school transition, researchers who study prosocial behavior hypothesize that meeting these needs is also important for promoting their prosocial conduct. However, the critical questions of whether aspects of the school context, and students’ experiences of them, meet their need for belonging, connectedness, and safety, and whether they are associated with their prosocial conduct, remain unanswered.

Despite the fact that adolescents spend much of their time at school, researchers have only recently begun to explore the associations between students’ experiences of the school context and adolescents’ prosocial conduct. I am aware of only one study that has specifically examined this association. In their study, Barr and Higgins-D’Alessandro
(2009) examined whether changes in perceptions of school culture over a two-year period were associated with changes in adolescents’ empathy and prosocial conduct. Similar to the findings from their previous study (Barr & Higgins-D’Alessandro, 2007), the authors found that positive changes in students’ perceptions of respect and fair treatment by teachers and peers were associated with greater empathic perspective taking abilities over time, but not prosocial conduct.

Although students’ perceptions of other aspects of the school, such as safety and belonging, were not examined in these studies, some researchers maintain that they are likely to be positively associated with adolescents’ prosocial conduct (e.g., McEvoy & Welker, 2000; Carlo, Fabes, Liable, & Kupanoff, 1999). Specifically, they propose that sense of safety and belonging foster a sense of connectedness at school, which in turn facilitates prosocial conduct. As far as I know, such mediating mechanisms have not yet been examined. However, indirect evidence suggests that organizational practices used at large schools, and the ethnic representation of students at school, may be associated with more frequent prosocial conduct among young adolescents. In the following sections, I will briefly review empirical research on teaming practices and school-level ethnic diversity as they relate to young adolescents’ adjustment.

**Teaming: Turning Big Schools Into Small Communities**

One characteristic of schools that is continually scrutinized for its potential effect on student outcomes is school size (i.e., the number of students enrolled at school). The use of large schools has been justified on the basis that they 1) provide students with a greater variety of courses and 2) attract a diverse student population that provides opportunities for students to interact with a diverse group of peers. Yet empirical
findings indicate that smaller schools are more likely to be associated with positive student outcomes (Archibald, 2006; Bickel, Howley, Williams, & Glascock, 2001; Eberts, Schwartz, & Stone, 1990). Specifically, research on school size has shown that, compared to students who attend larger schools, students who attend smaller schools tend to experience increased feelings of connectedness and attachment to school (McNeely, Nonnemaker, & Blum, 2002; Crosnoe, Johnson, & Elder, 2004).

To better understand the association between school size and student outcomes, Leithwood and Jantzi (2009) reviewed 57 empirical studies conducted between 1990 and 2007 that examined school size in elementary and middle schools. Based on their review, they concluded that smaller schools offer greater benefits to students. Specifically, findings from the reviewed studies indicated that students attending smaller schools typically performed better academically, reported greater engagement in and connectedness to school, and participated in extracurricular activities more often. This was especially true for students from ethnic minority and disadvantaged backgrounds, who were found to benefit the most from attending smaller schools.

Given these findings, Leithwood and Jantzi (2009) recommended that schools, particularly those that serve students from ethnic minority or disadvantaged backgrounds, should enroll no more than 600 students. However, despite district efforts to better serve the growing student population in urban cities, middle schools in the largest urban school districts are often two to three times larger than the recommended enrollment of 600 students (Dalton, Sable, & Hoffman, 2006; Tang & Sable, 2009). Moreover, given that enrollment of ethnic minority youth in the largest urban school districts continues to

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1 Of the 57 studies included in the review, 46 assessed school size in middle schools.
increase (Kewal Ramani, Gilbertson, Fox, & Provasnik, 2007; Dalton, Sable, & Hoffman, 2006), many students attending middle schools in urban areas are unlikely to experience the benefits of a smaller school.

In response to increasing enrollment, many large schools have attempted to provide students the experience and benefits of a small school by implementing *teaming*, an organizational practice that clusters students into smaller learning communities that share common teachers and a common core academic course schedule (i.e., Math, Science, English, Social Studies). Although the social-emotional consequences of teaming are not well understood, some findings suggest that teaming may be beneficial for young adolescents’ feelings of connectedness to their peers, teachers, and the school.

**Teaming and school belonging.** Although teaming was initially intended to improve students’ social-emotional adjustment, studies that have examined the effectiveness of teaming mainly focus on its association with students’ academic performance (Arhar, Johnston, & Markle, 1989). However, findings from the few studies that have examined the social-emotional correlates of teaming have shown that it is associated with stronger feelings of belonging to a community in which students feel close to, care for, and feel cared for by their peers (Boyer & Bishop, 2004; George, 1987). This association between teaming and social-emotional outcomes was particularly pronounced for youth attending low SES schools, such that teamed students attending low SES schools (i.e., schools in which 25-55% of students received free or reduced price lunch) reported greater levels of bonding with peers and teachers relative to non-teamed students attending low SES schools (Arhar & Kromrey, 1995).
These results suggest that teaming may foster feelings of belonging and bonding with peers at school, particularly for students attending low SES schools. Given these findings, the use of teaming in large schools where young adolescents are less likely to see familiar faces throughout the school day and more likely to feel anonymous may be associated with their prosocial conduct. Specifically, because young adolescents are more likely to behave prosocially with familiar peers (Berndt, 1982; Eisenberg, 1986), teamed students should be more likely to engage their peers in kind, prosocial ways.

**Teaming and prosocial norms.** Because teaming is associated with a greater sense of connectedness and kinship with teammates, teamed students should be more likely to consider prosocial acts as appropriate behavioral responses to the needs of familiar peers (i.e., perceive prosocial conduct as normative). Although I am not aware of any empirical studies that have explicitly examined the association between teaming and perceived behavioral norms, previous research suggests that proximal peers serve as behavioral referents when youth estimate the prevalence of certain behaviors (i.e., “how many students engage in this behavior?”), and that these prevalence estimates (i.e., perceived norms) guide their own behavior.

Most research on perceived behavioral norms has focused on negative or risky behaviors. For example, several investigations conducted with older adolescents have demonstrated that perceived norms of alcohol consumption were significantly associated with intentions to consume alcohol (Rimal & Real, 2003, 2005) and subsequent alcohol consumption (Juvonen, Martino, Ellickson, & Longshore, 2007). This association has also been observed in studies that examined sexual behaviors among adolescents (Halpern-Felsher, Cornell, Kropp, & Tschann, 2005; Kinsman, Romer, Furstenberg, &
Schwarz, 1998; Nahom, Wells, Gillmore, Hoppe, Morrison, Archibald, et al., 2001), which revealed that adolescents who perceived a greater number of their peers engaging in sexual behaviors had greater intentions to and were more likely to engage in these behaviors themselves. Given these findings, perceptions of positive behaviors of peers may also be related to youths’ prosocial conduct.

Because students in teams spend much of the school day with many of the same peers, they are more likely to be familiar with students in their academic classes and have opportunities to observe their prosocial behaviors (e.g., being nice to peers, being considerate of peers’ feelings). As a result, perceptions of prosocial norms are likely to reflect their teamed classmates conduct (rather than the conduct of all their grade mates). Such perceptions of prosocial norms should in turn be related to students’ own kind and helpful behaviors towards peers. Hence, perceived norms might mediate the association between teaming and prosocial conduct. While the findings reviewed here indicate that teaming is one school characteristic that may be associated with adolescents’ prosocial behaviors, students’ experiences of other aspects of the school context may also be associated with their prosocial conduct. I will now turn to discussing how school ethnic diversity may also be related to kind and helpful conduct among young adolescents.

**Exposure to Ethnic Diversity**

Representations of ethnic diversity in the media tout increased tensions and violence as the main products of intergroup interactions. Although researchers have only begun to examine the benefits of ethnically diverse contexts, findings suggest that ethnic diversity at schools and in classrooms (Juvonen, Nishina, & Graham, 2006), and even in friendships (Kawabata & Crick, 2008) are all likely to be positively associated with
young adolescents’ social-emotional and behavioral adjustment (e.g., peer acceptance, prosocial conduct).

As a result of the increasing enrollment of students primarily from racial-ethnic minority groups, urban school districts are now serving a student population that is more ethnically diverse than ever before. Although de-facto segregation of urban middle schools has become the norm (Orfield, 2001; Orfield & Lee, 2006), there is evidence suggesting that greater ethnic diversity, characterized by the representation of multiple ethnic groups within the school context, is beneficial for ethnic minority youths’ psychosocial adjustment. Specifically, findings from one study revealed that ethnically diverse middle school contexts (i.e., schools and classrooms) were associated with increased feelings of safety and decreased feelings of loneliness among ethnic minority youth (Juvonen, Nishina, & Graham, 2006).

While I am not aware of any studies that have explored the processes by which feelings of safety at school are associated with youths’ prosocial conduct, school violence literature suggests that feeling safe is a requisite condition for engaging others prosocially. Evidence from school violence literature indicates that greater feelings of vulnerability and concerns for physical safety at school increase the likelihood that students will bring weapons to school (Price, Telljohann, Dake, Marsico, & Zyla, 2002). Although the tendency to engage in aggressive or violent behaviors does not necessarily preclude engagement in prosocial acts, I argue that these behaviors are mutually exclusive for students who feel vulnerable at school. For example, it stands to reason that when students feel more vulnerable and are concerned for their physical safety at school, they will be more likely to avoid situations in which helping others could make them easy
targets of aggression (e.g., standing up for a student who is made fun of or bullied; helping someone they don’t know well). Moreover, feelings of vulnerability and concerns for physical safety could be further compounded in middle school given other evidence indicating that some students use aggressive behaviors to achieve higher social status (Juvonen & Ho, 2008). As such, the stronger sense of safety that is borne out of ethnically diverse educational contexts may be indirectly associated with kind and helpful behavior with peers.

In addition to sense of school safety, the cross-ethnic friendships afforded by ethnically diverse schools have also been associated with a variety of positive social and behavioral outcomes, including prosocial conduct. For example, findings from one study showed that cross-ethnic friendships, but not same-ethnic friendships, were associated with more prosocial conduct toward peers (i.e., inviting a peer who has been left out of an activity to join in; Kawabata & Crick, 2008). Moreover, findings from another study indicated that the number of cross-ethnic friendships students had was associated with perceptions of greater peer support (e.g., being the recipient of others’ kind and caring behavior), especially for students in ethnically diverse classrooms. Together, these findings suggest that cross-ethnic friendships are associated with more frequent prosocial conduct.

Although ethnically diverse school contexts are associated with a stronger sense of school safety among ethnic minority youth (Juvonen, Nishina, & Graham, 2006) and afford opportunities for students to interact with ethnically diverse others, students’ access and proximity to cross-ethnic peers has been shown to be an important determinant of cross-ethnic friendships. That is, adolescents who had cross-ethnic
friendships formed these friendships with peers whom they saw often (Hallinan & Williams, 1989). This finding suggests that cross-ethnic friendships are more likely to form when students are in ethnically diverse classrooms. Thus, exposure to ethnically diverse peers in classes increases the likelihood that students will have more cross-ethnic friends, which in turn may be associated with more frequent prosocial conduct.

Summary

Although the increased feelings of alienation that students often experience with the transition to a large middle school (Huling, 1980) may hinder their prosocial conduct, teaming practices and exposure to ethnic diversity (e.g., in classrooms and friendships) may create conditions that are associated with frequent prosocial conduct. Because the small learning communities created by teaming practices have been associated with students’ feelings of belonging and provide opportunities to observe and assess normative prosocial behavior of peers (i.e., prosocial norms), teaming practices should be associated with frequent prosocial conduct among students.

Exposure to ethnic diversity in classrooms is also likely to be associated with students’ prosocial conduct. Specifically, because ethnic diversity has been associated with greater sense of safety at school and greater opportunities to form cross-ethnic friendships, exposure to ethnically diverse others should be associated with more frequent prosocial conduct. As such, exposure to greater ethnic diversity is likely to create conditions (e.g., sense of safety and cross-ethnic friendships) that are associated with greater prosocial conduct among adolescents.

Present Study
The goal of the present study was to extend research on prosocial conduct by examining the processes by which students’ experiences of the school context are associated with their kind and helpful behavior. Figure 1 shows the conceptual model guiding this research. As illustrated in the figure, I address two main questions in this study:

1. Do feelings of belonging and perceptions of prosocial norms mediate the association between extensiveness of teaming and prosocial conduct among young adolescents?

Because teaming has been associated with a strong sense of belonging in students, it is expected that students who are highly teamed will have a stronger sense of belonging at school. That is, because students who are highly teamed spend a substantial amount of time with many of the same peers whom they see often and with whom they become familiar, it is expected that students extensively teemed students will feel a stronger sense of belonging at their school. A stronger sense of school belonging is, in turn, expected to facilitate students’ prosocial conduct. That is, because adolescents are more likely to behave prosocially with close, familiar peers (Berndt, 1982; Eisenberg, 1986), greater feelings of belonging associated with being highly teemed are expected to foster increased prosocial conduct.

Because teaming has been associated with a greater sense of kinship with and concern for classmates (George, 1987), highly teemed students should be more likely to consider prosocial acts as normative. Because highly teemed students learn and spend time with many of the same peers with whom they develop a sense of kinship, it is likely that they will have more opportunities to observe peers’ prosocial behaviors and develop
stronger perceptions of prosocial norms. Perceptions of prosocial norms are, in turn, expected to be associated with more frequent prosocial conduct.

2. Do young adolescents’ feelings of safety at school and having a greater proportion of cross-ethnic friendships mediate the association between their exposure to ethnic diversity and prosocial conduct in multi-ethnic middle schools?

Consistent with past research (Juvonen, Nishina, & Graham, 2006), I propose that students who are exposed to a higher level of ethnic diversity across their academic classes will feel a stronger sense of safety at school and hence be more likely to behave in kind and helpful ways toward their peers. Additionally, I propose that the ethnic diversity available to students enables them to form cross-ethnic friendships, which are also likely to be associated with their prosocial conduct.

Because ethnic diversity is unlikely to be evenly spread across classrooms, some students may have fewer opportunities to interact with and befriend cross-ethnic peers. As such, I propose that greater exposure to ethnic diversity across students’ academic classes will be associated with having a greater proportion of cross-ethnic friendships because students will have more opportunities to become familiar with and befriend ethnically different peers. Moreover, I propose that having a greater proportion of cross-ethnic friendships will mediate the association between students’ exposure to ethnic diversity across their academic classes and their prosocial conduct.

Thus, it is expected that the sense of safety that is associated with exposure to ethnic diversity within classrooms, and the cross-ethnic friendships afforded in ethnically diverse classes will, in turn, be associated with young adolescents’ kindness and helpfulness towards peers.
Potential Contributions

The current study is one of the first to empirically examine how aspects of the school context are associated with students’ prosocial conduct. Although some aspects of the urban middle school context might undermine prosocial conduct (e.g., larger size and departmentalized delivery of the curriculum), the present study focuses on two features of schools that may be positively related to prosocial behaviors: teaming and exposure to ethnic diversity. The present study is also one of the first to empirically examine the processes by which a commonly used organizational practice (i.e., teaming) and the ethnic context are associated with students’ perceptions of and feelings about their school, and whether these, in turn, are associated with their prosocial conduct.

To this end, the current study will shed light on whether students’ sense of school belonging and perceptions of prosocial conduct mediate the association between teaming and prosocial conduct. While there is some evidence that teaming is associated with feelings of belonging at school, the present study is the first to examine whether the sense of school belonging afforded by teaming is associated with students’ prosocial conduct. Furthermore, while findings have shown that perceived behavioral norms of risky health behaviors are associated with engagement in these behaviors, the current study extends this line of research to examine whether perceived norms for kind and helpful behaviors are associated students’ own prosocial conduct.

The present study will also contribute to the growing body of literature focusing on the benefits of ethnically diverse educational contexts. Specifically, findings from this study will shed light on whether sense of safety at school and proportion of cross-ethnic friendships mediate the association between students’ exposure to ethnic diversity and
their prosocial conduct. While ethnic diversity has been associated with both sense of school safety and cross-ethnic friendships, and given that cross-ethnic friendships have been associated with prosocial conduct, the present study examines whether there is an association between ethnic diversity and students’ prosocial conduct, and whether their feelings of safety at school and cross-ethnic friendships can account for it.

The current study also offers several potential contributions that span conceptual, methodological, and substantive realms. Rather than examining whether students are “teamed” or “not teamed”, I will use a novel index that captures the degree to which each student is teamed (across academic core courses) to assess teaming at the student level (Echols, Simmons, & Van Slyke, 2012). The reconceptualization of teaming and novel method for assessing it at the student level, which is detailed in the following sections, will allow researchers to gain better insight into students’ day-to-day lives at school (e.g., understand how the attitudes and behaviors of peers to which they are regularly exposed are associated with student outcomes).

In a similar vein, the methodology I will use in the present study to assess individual students’ exposure to ethnic diversity provides an alternative way of conceptualizing and assessing students’ individual experiences of diversity in educational contexts. Although exposure to ethnic diversity has been measured and examined at the school and single-classroom level (Juvonen, Nishina, & Graham, 2006), assessing ethnic diversity across multiple courses allows for the measurement of each student’s exposure to ethnically different peers, which can vary between students depending on the relative representation and number of ethnic groups in a given classroom. This novel use of the diversity index, which is also detailed in the following sections, will allow researchers to
gain a better understanding of how ethnic diversity is associated with a variety of student outcomes.

**Method**

The data used in the present study came from the UCLA Middle School Diversity Project, which is a multi-year longitudinal study examining the associations between school ethnic diversity and social-emotional and academic outcomes in a large sample of middle school students attending urban public schools throughout California. The study began in the fall of 2009 with Cohort 1, which contains 1,955 students from six middle schools in the Los Angeles area. During the fall of 2010, an additional 3,113 students comprising Cohort 2 were recruited from 14 middle schools in both Los Angeles (eight schools, \(n=2,058\)) and the bay area of Northern California (six schools, \(n=1,055\)). Because this project focuses on how ethnically diverse educational contexts are associated with students’ social-emotional and educational outcomes, the middle schools that were recruited for participation varied in their ethnic composition. For example, in many of the schools one ethnic group (e.g., Latino) is the numerical majority while the other racial-ethnic groups (e.g., White, African American, Asian) are much smaller in numerical representation, with the majority group varying from school to school. The representation of different ethnic groups, school-level ethnic diversity, and the total enrollment of students at each school included in the current analyses appear in Table 1.

**Participant Sample**

Participants who self-identified as members of a mono-ethnic group (i.e., a member of a single pan-ethnic group), of African American/Black, East/Southeast Asian, European/White, or Latino/Mexican origin, and who had a complete class schedule in the
spring of 6th grade were included in the current study. In the event that a participant’s self-identified ethnic membership in the spring (wave 2) was missing, the ethnic membership reported at wave 1 (fall of 6th grade) was substituted. Ethnic groups for which few participants identified as members were excluded from analyses (South Asian, n=83; Middle Eastern, n=93, Filipino/Pacific Islander, n=137). Participants who identified as “other” (e.g., with a religion or nationality; n=67) or multi-ethnic (e.g., indicating membership in more than one pan-ethnic group, n=733) were also excluded because their cross-ethnic friendships could not be calculated. An additional 47 participants who did not indicate their ethnic group membership at wave 1 or wave 2 were also excluded.

Participants who met the inclusion criteria were 3,738 sixth grade students (51.5% female) from five Cohort 1 schools (N = 1,363) and 14 Cohort 2 schools (N = 2,375). Participants predominantly self-identified as members of ethnic minority groups. The sample was comprised of 15.9% African American/Black, 17.6% East/Southeast Asian, 21.6% European/White, and 44.9% Latino/Mexican students. One school from cohort 1 (School 1) was excluded due to the frequency and timing of changes in participants’ class schedule (i.e., students changing classes and teachers in the middle of a grading period), which did not permit accurate measurement of teaming or exposure to ethnic diversity for students at this school.

Data Collection Procedure

Participants were recruited in the fall of 6th grade (2009 for cohort 1; 2010 for cohort 2) from 20 schools in the Los Angeles and San Francisco Bay Areas. To increase the return rate of parental consent forms, all students who returned a signed consent form
with or without parent permission to participate were entered into two raffles. Students were entered into a raffle for one of two Apple iPods, and each student’s family was entered into a raffle for one of two $50 grocery gift cards. Across the participating schools, 80.5% of the 2,915 consent forms distributed at cohort 1 schools were returned (N=2,347), and 81.7% of the 4,543 consent forms distributed at cohort 2 schools were returned (N=3,711). Cohort 1 participants with signed parental consent and who provided assent in the fall of 6th grade completed a questionnaire twice in 6th grade (fall 2009 and spring 2010). Similarly, Cohort 2 participants with signed parental consent and who provided assent in the fall of 6th grade completed a questionnaire twice in 6th grade (fall 2010 and spring 2011). Because young adolescents need time to form stable friendships and perceptions of the school culture (e.g., safety, belongingness, norms) after making the transition from elementary school to middle school, the data that are used in this study come from survey measures administered during the spring semester of students’ 6th grade year (i.e., wave 2). Moreover, because students’ self-reported prosocial behavior is only measured at wave 2, all analyses will be performed using concurrent (wave 2) data.

The questionnaire was administered to students during class time. At wave 1, students who had signed parental consent and who wished to participate in the study were asked to sign an assent form. Prior to completing the questionnaire at each wave of data collection, students were reminded that their answers would be kept private and confidential, that they should answer only the questions they felt comfortable answering, and that they could end their participation at any time without consequence. Students were instructed to mark their responses on the questionnaire as a graduate research
assistant read the instructions and survey items aloud. As a token of appreciation for their participation, students were given $5 after completing the survey in the fall and spring of 6th grade.

**Questionnaire Measures**

**School belonging.** Four items taken from Gottfredson’s (1984) *Effective School Battery* were used to assess students’ feelings of belonging and connectedness to their school. For each item, students were asked to indicate how much they agreed with each statement on a scale of 1 (“For sure yes!”) to 5 (“No way!”). Sample items include “I feel close to people at this school” and “I feel like I am a part of this school” (see Appendix). A composite score reflecting the average of the four items (reverse coded) was calculated for each student (α = .80). Higher scores reflected stronger feelings of school belonging.

**Perceived prosocial norms.** Five items were used to assess students’ perceptions of the prevalence of prosocial conduct among their peers. For each item, students were asked to indicate approximately how many students at their school engage in each of five prosocial behaviors on a scale of 1 (“Almost all the students”) to 5 (“Hardly any”). The five prosocial behaviors assessed with this measure include 1) standing up for others who are made fun of or bullied, 2) helping students whom they do not know well, 3) resolving arguments between other students, 4) being considerate of others’ feelings and 5) being nice to everyone, not just their friends (see Appendix). A composite measure reflecting the average of the five items (reverse coded) was calculated for each student (α = .80). Higher composite scores reflected students’ perception that prosocial conduct was more normative among peers.
School safety. Six items taken from Gottfredson’s (1984) *Effective School Battery* were used to assess students’ feelings of safety at school. For each item, students were asked to indicate how often they had concerns about or felt safe in specific areas of their school (e.g., “How often do you feel safe in hallways or stairs?”) on a scale of 1 (“Always”) to 5 (“Never”). A composite score reflecting the average of the six reverse-coded items was calculated for each student to represent their feelings of safety at school ($\alpha = .80$).

Cross-ethnic friendships. To capture the extent to which students interact with cross-ethnic peers, a proportion score based on 1) a friendship measure in which students were asked to nominate good friends in their grade at their school and 2) students’ self-reported ethnic identification was used to calculate the proportion of cross-ethnic friendships for each student. At each wave of data collection, students provided unrestricted nominations of their good friends in their grade at school and their own ethnic group affiliation. Using these friendship nominations and students’ self-reported ethnic identification at wave 2, the total number of same-sex, reciprocated friendships and same-sex, reciprocated cross-ethnic friendships were counted for each student.

Because students had to identify as monoethnic and specify membership in one of four pan-ethnic groups to meet inclusion criteria for the present study (i.e., identify as African American, Asian, Latino, or White), cross-ethnic friendships with same-sex peers from ethnic groups excluded from the sample (i.e., South Asian, Middle Eastern, Multi-

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2 Students’ self-reported ethnicity was collapsed into nine categories: African American/Black, East/Southeast Asian, European/White, Latino/Mexican, South Asian, Filipino/Pacific Islander, Middle Eastern, Multiethnic, and Other.

3 Students nominated as many friends as they liked within the time allotted to complete the friendship measure.
ethnic) were not counted. Thus, only nominations that were reciprocated by a same-sex peer who reported being in one of the three included ethnic groups that was different from the ethnic group of the nominator were counted as cross-ethnic friendships (e.g., only same-sex reciprocated friendships with Asian, Latino, and White students were counted as cross-ethnic friendships for African American students). Only same-sex, reciprocated friendships were counted in order to maintain consistency with previous friendship research. Proportion scores for each student were calculated by dividing the number of same-sex, reciprocated cross-ethnic friendships by the total number of same-sex reciprocated friendships. While these criteria yielded a very conservative measure of cross-ethnic friendships, its large correlation with a measure of cross-ethnic friendships that included friendship nominations with participants from excluded groups (i.e., South Asian, Filipino/Pacific Islander, Middle Eastern; $r=.92, p<.01$) suggests that the majority of students’ cross-ethnic friendships are with peers from the four pan-ethnic groups included in the analytic sample. Thus, the more conservative measure of cross-ethnic friendships was used. Proportion scores ranged from 0 to 1 ($M=.16, SD=.32$).

**Prosocial conduct.** To assess prosocial conduct, students were asked to rate on a scale of 1 ("Always") to 5 ("Never") how often five statements about prosocial conduct were true for them. The five statements asked students about 1) standing up for others who are made fun of or bullied, 2) helping students whom they do not know well, 3) resolving arguments between other students, 4) being considerate of others’ feelings, and 5) being nice to everyone, not just their friends. While the first two items (standing up for others, helping others) were created based on focus group findings of prosocial behaviors that young adolescents considered important and valuable (Bergin, Talley &
Hamer, 2003), the remaining items were adapted from the *Prosocial Behavior Questionnaire* (resolving arguments; Weir & Duveen, 1981) and the *Social Difficulties Questionnaire* (considerate of others’ feelings, being nice to everyone; Goodman, 1997). A composite measure reflecting the average of the five items (reverse coded) was calculated for each student ($\alpha = .78$). Higher composite scores reflected higher average frequency of prosocial conduct.

**Novel Indices**

**Extensiveness of teaming.** A novel index that reflects the extent to which a given student is teamed with classmates across their four academic courses was created to capture teaming. While the original teaming index is intended to measure the extent to which students at a given school are teamed *on average* and be used as a school level variable, the teaming index used in the current study has been adapted to measure the extent to which *individual students are teamed with other students for their core courses* and be used as an individual level variable. A detailed description of how the teaming index was calculated appears below.

Extensiveness of teaming is based on 6th grade school record data that provides the class schedule (i.e., class name, teacher name, and class period) for every student at each of the participating schools in the spring of 6th grade. Typically, students who are teamed together are enrolled in many of the same, and sometimes all four core academic classes (Math, Science, English, Social Studies), and thus share the same teachers and academic class schedule. I used the following formula to calculate the extent to which each student is teamed with other students in their grade at school:

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4 One school provided class schedules only for participating students.
In this formula, the number of students who are enrolled in any two given classes, represented by the intersection (similarity) of members in Class X and Class Y excluding the student for which the index is calculated, \((C_x \cap C_y) - 1\), relative to the total number of students enrolled in Class X excluding the student for which the measure is calculated, \(C_x - 1\), represents the extent to which a given student is teamed with other students for Classes X and Y. While the number of students who are enrolled in both Classes X and Y will always be the same for any given ordered pair of classes, \((C_x \cap C_y) - 1\), the total number of students enrolled in Class X and Class Y (represented by \(C_x - 1\)) may not always be equal. The above formula accounts for this difference in enrollment across classes by including every possible ordered combination (i.e., permutation; \{Science, English\}, \{English, Science\}), which allows the comparison of the number of students enrolled in both Class X and Class Y (excluding the student for which the index is calculated) to the total number of students enrolled in Class X for the first event and the total number of students enrolled in Class Y for the second event (excluding the student for which the measure is calculated in both occasions). This is illustrated in the following example:

For the first event of \{Science, English\}, Class X is a Science class in which 30 students are enrolled \((C_x - 1 = 30 - 1 = 29)\), Class Y is an English class in which 35 students are enrolled \((C_y - 1 = 35 - 1 = 34)\), and the number of students who are enrolled in both classes is 20 \([(C_x \cap C_y) - 1 = 20 - 1 = 19]\). Following the above formula, the proportion of students enrolled in both classes, \((C_x \cap C_y) - 1\),
relative to the total number of students enrolled in Science Class \((C_x - 1)\) is \(19/29\), or approximately .65.

For the second event of \{English, Science\}, Class X is an English class in which 35 students are enrolled \((C_x - 1 = 35 - 1 = 34)\), Class Y is a Science class in which 30 students are enrolled \((C_y - 1 = 30 - 1 = 29)\), and the number of students who are enrolled in both classes is 20 \([(C_x \cap C_y) - 1 = 20 - 1 = 19]\). Following the above formula, the proportion of students enrolled in both classes, \((C_x \cap C_y) - 1\), relative to the total number of students enrolled in the English class \((C_x)\) is \(19/34\), or approximately .56.

Because of possible differences in the number of students enrolled in each class and to achieve greater accuracy, proportions based on each unique ordered pair of core academic classes were included in calculating the extent to which a given student is teamed with other students at school. Thus, a proportion will be calculated for every possible ordered pair of core academic classes (e.g., \{Science, English\} \{English, Science\}) from the total number of core academic classes in a student’s schedule \(n\) with the constraint that the classes considered in a given pair are not the same (i.e., Class X cannot be Class Y).

The proportions were summed and divided by the total number of possible permutations of non-repeating ordered pairs of core academic classes (represented by \(nP_2\), where \(n\) = the total number of academic classes in a student’s schedule [4], and 2 represents the number of elements, or classes, considered in each permutation). By dividing the sum of all proportions by the total number of possible permutations (i.e.,
ordered pairs of classes), students’ teaming index scores will fall within the range of 0 and 1. Teaming index scores that are closer to 0 indicate that the student is with very few of the same peers for their four core academic courses, while teaming scores that are closer to 1 indicate that the student is with many of the same peers for their four core academic courses. Teaming index scores in the analytic sample ranged from 0 to 1.

**Exposure to ethnic diversity.** An index score reflecting the amount of ethnic diversity that exists across each student’s four core academic courses was calculated for each student. Using students’ self-reported ethnic identification collected at wave 2 (or wave 1 if their wave 2 response was missing), several ethnic groups were collapsed into nine categories: African American/Black, East/Southeast Asian, European/White, Latino/Mexican, South Asian, Filipino/Pacific Islander, Middle Eastern, Multiethnic, and Other. The total proportion of students from collapsed ethnic groups across the four core academic courses was used to calculate the ethnic diversity across each participant’s academic courses using Simpson’s (1949) index, which has been used in several other studies that have assessed school and classroom ethnic diversity (see Juvonen, Nishina, & Graham, 2006; Bellmore, Nishina, Witkow, Graham, & Juvonen, 2007). All nine categories were used in order to obtain the most accurate measure of the ethnic diversity students are exposed to across their academic courses.

\[ D_e = 1 - \sum_{i=1}^{g} p_i^2 \]

Using this formula, exposure to ethnic diversity across the four core academic courses \(D_e\) was measured by subtracting the sum of squared proportions of students from each ethnic group \(i\) from the total number of ethnic groups present at the school...
Scores thus represent individual students’ exposure to ethnic diversity across their academic courses. These scores fall within the range of 0 to 1, with smaller proportion scores indicating less exposure to ethnic diversity across academic courses and larger proportions indicating greater exposure to ethnic diversity across academic courses. Exposure to ethnic diversity scores ranged from .16 to 1.0.

**Data Management: Missing Data and Data Imputation**

**Missing data.** Because the number of measures included in the questionnaire required more time to complete than was allotted in a single class period, the method of planned missingness (Graham, Taylor, Olchowski, & Cumsille, 2006) was implemented to permit the collection of responses to all the questionnaire measures without administering every measure to every participant. The purpose of the planned missing procedure is to minimize missing data due to time constraints or other factors associated with the length of a questionnaire that can affect the presence or quality of data (e.g., missing or inaccurate responses due to fatigue). As such, it allows the random distribution of missing measures across several versions of a questionnaire that would otherwise be included if, for example, there were no time constraints for its administration. Following this method, all the measures in the questionnaire beginning at wave 2 were distributed across four blocks – X, A, B, and C. The X block contained measures that are central to the main hypotheses of the UCLA Middle School Diversity Project. As such, the X block contained the most measures and appeared first in every questionnaire. Blocks A, B, and C contained fewer measures than block X, but were roughly equal to each other in the number of items they contained.
Using these four blocks, three versions of the wave 2 questionnaire were constructed. Each version contained three blocks with the constraints that 1) one of the three blocks was the X block, 2) the X block appeared first to reduce the likelihood of missing responses on central measures, and 3) no block was repeated within the same version of the survey. Within these constraints, three versions of the questionnaire (XAB, XAC, XBC) were created. The three versions were then randomly assigned to classrooms at each school. As a result, roughly two-thirds of all participants responded to measures in blocks A, B, and C, and all participants responded to measures in block X. Questionnaire measures used in the current study that were part of the planned missing blocks include sense of school belonging and prosocial conduct. The percentage of missing data on these measures appears in Table 2. Less than 5% of data were missing on measures that were included in block X (i.e., perceived prosocial norms and sense of school safety).

**Data imputation.** Because specific measures are missing by design and thus assumed to be missing completely at random (MCAR), missing data were imputed using the PROC MI procedure in SAS version 9.3 (SAS Institute, Inc., 2002-2010, Cary, NC). Within the PROC MI procedure, the Markov Chain Monte Carlo (MCMC) method with a single chain was used to create 20 imputed data sets. The starting value for the MCMC chain was computed from the expectation maximization (EM) algorithm. The imputation model included demographic covariates and measures used in the three models. Demographic covariates for gender, ethnicity, and cohort membership were included in the imputation model as dummy vectors, along with parent’s level of education, composite measures of extensiveness of teaming, exposure to ethnic diversity, proportion
of cross-ethnic friendships, prosocial conduct, prosocial norms, school safety, and school belonging. To further inform the estimation of missing data, the imputation model included 39 additional variables that appeared on either or both of the X block of the wave 2 questionnaire and the wave 1 questionnaire, which was administered in full to all participants. Students’ teaming index scores at wave 1 were also included in the imputation model. A complete list of wave 1 and wave 2 measures included in the imputation model appears in Table 3.

**Analytic procedure**

The nested structure of the data (i.e., students within schools) was accounted for in each analysis by using the multilevel framework to test the proposed mediation hypotheses. Specifically, because the correlated errors among individuals nested within groups violates the GLM assumption of independent observations, use of single-level models with clustered (multilevel) data often results in downwardly biased estimates of standard errors, inflated test statistics, and inflated rates of Type I errors (Barcikowski, 1981). Using the multilevel framework ensures that the error structure of unbalanced nested data is appropriately modeled by partitioning the variance of the outcome into within-school and between-school components.

Each hypothesized mediation model was tested by fitting a series of random coefficient (multilevel) models to the 20 imputed data sets. Results obtained from each data set were then combined and analyzed using the PROC MIANALYZE procedure in SAS 9.3 to generate valid statistical inferences about the estimated parameters in each model. Students’ gender\(^5\), socioeconomic status (SES)\(^6\), ethnicity\(^7\), the size of their

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\(^5\) Reference group was males
school (i.e., grand mean centered total enrollment), and cohort membership\(^8\) were included as covariates in each model. Students’ self-reported gender and family SES were included as covariates because being female and of low SES have been associated with greater prosocial conduct (Piff, Kraus, Cote, Cheng, & Keltner, 2010). Because ethnic differences in the frequency and value of prosocial conduct have been observed in previous literature (Armenta, Knight, Carlo, & Jacobson, 2011), students’ self-reported ethnic membership was also included as a covariate. Due to the large variation in the total enrollment of students across the 19 schools (ranging from 476 to 2,065), school size was also included in each model. Cohort membership was also included to account for any differences that could be attributable to entering 6\(^{th}\) grade in 2009 versus 2010. In each model, only the intercept was specified to vary randomly\(^9\).

**Results**

Descriptive findings and correlations are presented first, followed by results from the multilevel models used to test the mediation hypotheses previously outlined.

**Descriptive Findings**

The mean of each predictor, mediator, and the outcome was calculated for each of the 19 schools across the 20 imputed data sets and appears in Table 4. Looking first to the means of the novel indices used in this study, it appears that there was some variation

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\(^6\) Because SES and highest level of education are highly correlated, parents’ self-reported highest-level of education assessed at wave 1 will be used as a proxy for SES. Reference group was 4-year college or university degree.

\(^7\) Reference group was Mexican/Latino.

\(^8\) Reference group was Cohort 1

\(^9\) Random slopes for each predictor and mediator were tested in their respective models. Results indicated that the effects of the predictors and mediators did not vary across schools.
in the average extent to which individual students were teamed with classmates at their school (Table 4, column 3). Of the 19 schools included in the study, 14 had a very high average teaming index score approaching or above .90, three had a moderate-to-high average teaming index score (.40 to .70), and two schools had a low average teaming index score (below .40). The variance in teaming at each school also appears in Table 4. It appears that seven schools (schools 3, 5, 8, 10, 12, 15, and 20) had the largest observed variances (i.e., .02 or greater). Of these seven schools, four of them (schools 3, 5, 10, and 20) had a low average teaming score (i.e., below the grand mean of .83) and three had a high average teaming index score (i.e., above the grand mean of .83). These findings suggest that teaming practices may vary within some schools (i.e., some students are highly teamed, while others are not).

To further examine the variation in the extent to which individual students were teamed at their schools, an unconditional multilevel model was fit to determine the variation that existed between schools, and between students within schools in extensiveness of teaming. Because teaming index scores are bounded from zero to one, a logit link function should ideally be applied in the model to prevent the prediction of scores that are outside of the bounded range (i.e., less than zero, or greater than one). However, because the error variance of logit models is fixed and thus is not estimated, applying the logit link function cannot provide an estimate of the Level-1 variance, which is necessary to compute the intraclass correlation. In order to obtain an estimate of the Level-1 variance, I fit an unconditional multilevel model in which a logit link function was not applied. Results from this model showed that schools differed in their average level of teaming ($\tau = .065, p=.003$). This result was not surprising given that five of the
19 schools had a low-to-moderate average teaming index score (i.e., below .70). The results further suggested that there was variation among students within schools in the extent to which they are teamed (σ²=.018, p<.001). The intraclass correlation indicated that 78.5% of the total variance in extensiveness of teaming occurred between schools.

The average level of ethnic diversity that students were exposed to also appeared to vary across schools (Table 4, column 6). Of the 19 schools that were included in the present study, students’ average exposure to ethnic diversity was somewhat low at three schools (.40 to .49), moderate at eight schools (.50 to .65), and somewhat higher at eight schools (.65 to .75). The small negative correlation between school-level ethnic diversity (Table 1) and school-level average of students’ exposure to ethnic diversity (Table 4) suggests that the ethnic diversity of the school was not necessarily reflected in students’ average exposure to ethnically diverse peers in their core courses, r = -.036, p = .88).

To examine the variation that existed between schools, and between students within schools in exposure to ethnic diversity, I fit an unconditional multilevel model. Like teaming index scores, individual students’ scores reflecting their exposure to ethnic diversity were also bounded by zero and one. Although fitting a model with a logit link function is the most appropriate approach because it prevents predicted scores from being out of range, it does not allow estimation of the Level-1 variance, which is needed to compute the intraclass correlation. In order to obtain an estimate of the Level-1 variance, I fit an unconditional multilevel model in which a logit link function was not applied. Results of this model showed that schools differed in students’ average level of exposure to ethnic diversity (τ = .010, p = .003) and also indicated that there was variation among students within schools on exposure to ethnic diversity (σ²=.016, p<.001). The intraclass
correlation indicated that 38.3% of the total variance in exposure to ethnic diversity across the four core academic courses occurred between schools, while the majority of the variance occurred between students within schools.

Turning now to the means of questionnaire measures that served as mediators in the current study (Table 4, columns 9 through 13), it appears that students’ average sense of safety was fairly high across schools, ranging from 3.87 to 4.35 (Table 4, column 9). This suggests that, on average, most students felt safe at school ‘most of the time’. To examine the variation that existed between schools, and between students within schools on sense of safety, I fit an unconditional multilevel model. Results of this model showed that the school-level average sense of safety differed between schools (τ = .021, p=.007) and also indicated that there was variation among students within schools in their sense of safety at school (σ²=.436, p<.001). The intraclass correlation indicated that 4.6% of the total variance in sense of safety occurred between schools.

Students’ average sense of belonging at school, however, was somewhat lower across schools, ranging from 3.42 to 3.80, indicating that they felt that they ‘sometimes’ belonged to and felt like valued members of their school (Table 4, column 10). An unconditional multilevel model was fit to the data to further examine the variation that existed between schools, and between students within schools on sense of school belonging. Results showed that the school-level average sense of belonging differed between schools (τ = .011, p=.035) and also indicated that there was variation among students within schools in their sense of belonging (σ²=.649, p<.001). The intraclass correlation indicated that only 1.6% of the total variance in sense of belonging occurred between schools.
Average perceptions of normative prosocial conduct across schools appeared to be extremely low, ranging from 2.46 to 2.97 (Table 4, column 11). This finding suggests that, on average, students perceived that only a few of their peers engaged in kind and helpful behavior towards others at school. Results from an unconditional multilevel model examining students’ perceived prosocial norms showed that schools differed in their average level of perceived prosocial norms ($\tau = .012, p=.02$) and also suggested that there was significant variation among students’ perceptions of prosocial norms within schools ($\sigma^2=.601, p<.001$). Similar to prosocial conduct, the intraclass correlation of perceived prosocial norms indicated that only 1.9% of the total variance occurred between schools.

The average proportion of cross-ethnic friendships that students had at each school appears in Table 4 (column 12). Overall, the average proportion of cross-ethnic friendships across schools was fairly low, ranging from .06 to .25. This finding is not surprising given previous research indicating that cross-ethnic friendships are much rarer than same-ethnic friendships (Way & Chen, 2000). Exact counts of the total number of same-sex, reciprocated friendships and to the total number of same-sex, reciprocated cross-ethnic friendships students reported are provided in Table 5 to give clearer understanding of cross-ethnic friendships as they were defined in the current sample. Based on the criteria I used for assessing friendships, 31.3% of the students’ friendship nominations did not meet the criteria of being reciprocated by a same-sex peer (n=1,172). Of the students whose friendships were reciprocated by a same-sex peer (n=2,566), 860 had at least one cross-ethnic friend (i.e., a friend from one of the three ethnic groups.
included in the study that was not their own; see note ‘c’ in Table 5), and 358 had only cross-ethnic friends (see note ‘d’ in Table 5). Few students had two or more cross-ethnic friendships, with 174 having only two cross-ethnic friends (see note ‘e’ in Table 5), and 30 students having three or more cross-ethnic friends (see note ‘f’ in Table 5).

To further examine the variation that existed between schools, and between students within schools in proportion of cross-ethnic friendships, I fit an unconditional multilevel model. Like teaming index scores and exposure to ethnic diversity, proportion scores representing the number of same-sex, reciprocated cross-ethnic friendships that students had relative to the total number of same-sex, reciprocated friendships were also bounded by zero and one. Although fitting a model with a logit link function is the most appropriate approach because it prevents predicted scores from being out of range, it does not allow estimation of the Level-1 variance, which is needed to calculate the ICC. In order to obtain an estimate of the Level-1 variance, I fit an unconditional multilevel model in which a logit link function was not applied. Results of this model showed that schools differed in students’ average level of proportion of cross-ethnic friendships ($\tau = .002, p = .007$) and also indicated that students within schools varied on proportion of cross-ethnic friendships ($\sigma^2 = .099, p < .001$). The intraclass correlation indicated that only 2.3% of the total variance in proportion of cross-ethnic friendships occurred between schools.

The average frequency of prosocial conduct for each of the 19 schools appears in the last column of Table 4. The average frequency of students’ kind and helpful behavior across schools appeared to be somewhat low (3.21 to 3.68), indicating that students, on average, were ‘sometimes’ nice to kids who were not their friends, helpful toward kids
they did not know well, considerate of others’ feelings, willing to defend kids who were teased or bullied, and were willing to help resolve arguments between other kids. An unconditional multilevel model was fit to examine the variation that existed between schools, and between students within schools in the frequency of students’ prosocial conduct. Results of the model showed that schools differed in their average level prosocial conduct ($\tau = .011, p=.02$) and also suggested that there was significant variation among students within schools on prosocial conduct ($\sigma^2=.494, p<.001$). The intraclass correlation indicated that only 2.1% of the total variance in prosocial conduct occurred between schools, suggesting that much of the variation in students’ prosocial conduct occurred at the student level (Level 1).

Correlations between predictors, mediators, and the prosocial conduct outcome were calculated separately for each of the 20 imputed data sets and were then combined for analysis. The correlations appear in Table 6. Statistical tests of the correlation coefficients were generated using Fisher’s $z$ transformation in PROC MIANALYZE in SAS (version 9.3; SAS Institute, 2002-2010, Cary, NC). Correlations between the two novel indices, prosocial conduct, and their respective mediators are briefly reviewed next.

Looking first to the association between the novel teaming index and prosocial conduct, the results showed that extensiveness of teaming was not significantly associated with prosocial conduct, $r=-.04$. The results of the correlation analysis also showed that students’ sense of school belonging and perceptions of prosocial norms were not associated with extensiveness of teaming ($r=.003$ and $r=-.02$, respectively). However, students’ sense of school belonging and perceptions of prosocial norms were
significantly and positively associated with prosocial conduct, $r=.34$ and $r=.37$, $p<.001$, respectively.

The association between students’ exposure to ethnic diversity and prosocial conduct was extremely small and positive, yet statistically significant, $r=.04$, $p<.05$. Students’ exposure to ethnic diversity was also significantly and positively associated with their sense of safety at school and proportion of cross-ethnic friendships, $r=.18$ and $r=.13$, $p<.001$, respectively. Students’ sense of safety at school and proportion of cross-ethnic friendships were also significantly and positively associated with their prosocial conduct, though the magnitude of these correlations was quite small, $r=.10$ and $r=.04$, $p<.001$.

**Mediation Analyses**

Due to the nested structure of the data (i.e., students nested within schools), each model was fit using the multilevel framework. The total effect of the predictor on the outcome was examined before testing the hypothesized mediated effects. All models were simultaneously fit to each of the 20 imputed data sets, after which coefficient estimates from each imputed data set were combined and analyzed using PROC MIANALYZE in SAS 9.3. Because the predictor and mediators in each model are measured at the student level (Level 1), lower level (1→1→1) multilevel mediation models were fit to the data (see Krull & MacKinnon, 2001). In each model, only the intercept was specified to vary randomly.

Although several strategies exist for testing mediated effects (e.g., causal steps approach, Baron & Kenny, 1986; product of coefficients or “Sobel test”, Sobel, 1982), bootstrapping is currently the recommended strategy for assessing mediation in single
and multilevel models. Because bootstrapping utilizes a non-parametric resampling procedure to empirically approximate the sampling distribution of the mediated effect, it frees researchers from the assumption that the sampling distribution be normally distributed. While a few studies have applied the bootstrapping method to multiple mediation models (e.g., Briggs, 2006), this strategy is still being developed and tested for use with multilevel mediation models that utilize multiply imputed data. Because multiple mediator models will be fit to multiply imputed data to test the current hypotheses, the product of coefficients approach, also known as the Sobel test, will be used to assess mediation effects in the current study. Prior research indicates that this procedure is an appropriate and likely conservative method for investigating mediation or indirect effects in the multilevel framework (Fritz & MacKinnon, 2007; Krull & MacKinnon, 1999; Krull & MacKinnon, 2001).

**Research Question 1.** The aim of my first research question was to examine whether the extent to which students are teamed (i.e., with the same classmates across their core academic classes) was associated with having stronger feelings of belonging at school and increased perceptions of normative prosocial conduct among peers, and whether these, in turn, were associated with more frequent prosocial conduct (Figure 2a). Prior to testing whether sense of school belonging and perceived prosocial norms acted as dual mediators of the association between extensiveness of teaming and prosocial conduct, I fit a multilevel model in which prosocial conduct was regressed on the extensiveness of teaming to obtain the estimate of the total effect, $\beta_c$. The results showed that the extent to which individual students are teamed with grademates for their four core courses was not significantly associated with the frequency of their prosocial
conduct, $\beta_c=-.044$, SE=.077, $p=.57$. Because lack of a significant association between a predictor and outcome does not preclude the existence of indirect associations (Hayes, 2009), I next tested the proposed indirect effects of extensiveness of teaming on prosocial conduct via sense of school belonging and perceived prosocial norms.

The test of the hypothesized indirect effects was completed by fitting three multilevel models. In the first model, I regressed sense of school belonging (mediator) on extensiveness of teaming (predictor) to obtain the $\beta_{a1}$ estimate (Figure 2a). Results of this analysis showed that greater teaming was not significantly associated with a stronger sense of school belonging ($\beta_{a1}=0.085$, SE=.09, $p=.346$). In the second model, I regressed perceptions of prosocial norms (mediator) on extensiveness of teaming (predictor) to obtain the $\beta_{a2}$ estimate (Figure 2a). Similar to the results of the previous analysis, greater teaming was not associated with perceiving prosocial conduct as more normative among peers ($\beta_{a2}=-.100$, SE=.079, $p=.204$). The lack of an association between extensiveness of teaming and school belonging is rather surprising given that previous findings have shown that teamed students reported a stronger sense of belonging to the school community, and that teaming is often used to foster a sense of belonging at school during the transition year (i.e., the first year of middle school).

In the third model, students’ prosocial conduct (outcome) was regressed on extensiveness of teaming (predictor), sense of school belonging and perceived prosocial norms (mediators) to obtain the $\beta_{b1}$ and $\beta_{b2}$ coefficient estimates, respectively (Figure 2a). Results of the third model showed that a stronger sense of school belonging ($\beta_{b1}=.196$, SE=.02, $p<.001$) was associated with greater prosocial conduct such that the frequency of students’ prosocial conduct increased by .196 for every one-unit increase in students’
sense of belonging, holding all else constant. Similarly, perceiving prosocial conduct as
more normative among peers ($\beta_{b2}=.248$, SE=.02, $p<.001$) was associated with greater
prosocial conduct, such that the frequency of students’ prosocial conduct increased by
.248 for every one-unit increase in perceived prosocial norms, holding all else constant.
The coefficient estimates appear in Figure 2b, and all estimated coefficients from the
three models tested appear in Table 7.

The interactive Sobel calculator provided by Preacher and Leonardelli (2003) was
used to test whether the indirect effects of sense of school belonging and perceived
prosocial norms were significant. The results of the Sobel tests revealed that the indirect
effects of extensiveness of teaming on students’ prosocial conduct via sense of school
belonging and perceived prosocial norms were not significant, $\beta_a \beta_b = .0167$, $s_{\beta_a \beta_b} = .0178$, $z = 0.9382$, $p = .348$, and $\beta_{a2} \beta_{b2} = -.0248$, $s_{\beta_{a2} \beta_{b2}} = .0197$, $z = -1.262$, $p = .207$,
respectively. Given the lack of significant findings, I conducted power analyses to
determine how small of an effect could be detected in the present model. Specifically,
for each of the two mediators I examined the power to detect the coefficient for the $\beta_a$
path. I then examined the power to detect entire mediated effects in the full model (i.e.,
$\beta_a \beta_b$).

To determine whether there was sufficient power to detect a small effect along the
$\beta_{a1}$ path in the random intercept only mediation model in which sense of school
belonging was regressed on extensiveness of teaming, I calculated $N_{\text{effective}}$ (i.e.,
$\frac{\text{Total sample size}}{1+((n-1)\rho)}$, where $n=$harmonic mean), which is the equivalent single-level sample
size that corresponds to the current multilevel sample. Because sense of school
belonging (mediator) served as the outcome variable when estimating the $\beta_{a1}$ path of the
model, $N_{\text{effective}}$ was calculated using the ICC ($\rho$) for students’ sense of school belonging ($\rho=.01658$). I then input the estimated $N_{\text{effective}}$ of 1,014 and the desired level of power (i.e., .80) in the linear multiple regression sensitivity power analysis in G*Power (version 3.1.7; Faul, Erdfelder, Buchner, & Lang, 2009) to determine how small of an effect could be detected. Results from G*Power showed that a very small effect of $f^2 = .006$ with power of .80, alpha level of .05, and $N_{\text{effective}}$ of 1,014 could be detected for the $\beta_{a1}$ path of the model. This result indicates that there was sufficient power to detect a very small effect of extensiveness of teaming on sense of school belonging and suggests that the null effect observed was not likely due to low power.

Because this is the first study to my knowledge that has examined the association between extensiveness of teaming and students’ perceptions of prosocial norms, the null effect observed must also be examined more carefully. To determine how small of an effect could be detected along the link in the model in which perceived prosocial norms was regressed on extensiveness of teaming, I followed the same procedure outlined previously. However, because perceived prosocial norms (mediator) served as the outcome variable when estimating $\beta_{a2}$, the ICC ($\rho$) for perceptions of prosocial norms ($\rho=.01965$) was used to calculate $N_{\text{effective}}$. Results from the linear multiple regression sensitivity power analysis in G*Power showed a very small effect of $f^2 = .007$ with power of .80, alpha level of .05, and an $N_{\text{effective}}$ of 894 could be detected, indicating that there was sufficient power to detect a very small effect of extensiveness of teaming on students’ perceptions of prosocial norms.

To further examine the power to detect a small mediated (indirect) effect in the current hypothesized mediation model, $N_{\text{effective}}$ for the final model that estimated the $\beta_{b1}$
and $\beta_{b2}$ paths was calculated using the ICC for prosocial conduct ($p=.02139$). Because this estimate of $N_{\text{effective}}$ was most conservative (837, compared to 1,014 and 894), it was compared to the necessary sample size obtained in Fritz and MacKinnon’s (2007) simulation study. Based on this comparison, the minimum required sample size needed to detect a small mediated effect of .14 (for either or both paths in a mediation model) is 667 when the Sobel test is used. Because the more conservative $N_{\text{effective}}$ estimate of 837 is greater than the minimum sample size needed when using the Sobel test, I can further conclude that the observed null mediated effect, in which the effect of extensiveness of teaming on students’ prosocial conduct was not mediated by sense of belonging or perceived prosocial norms, was not due to low power.

Though it is apparent that the lack of mediated effects is not due to low power, it is possible that restricted variance in teaming index scores resulted in the null effect. Therefore, the above models were also fit to a subsample of the data containing the seven schools with the greatest variance in teaming index scores (i.e., schools 3, 5, 8, 10, 12, 16, and 20 in Table 4). Although coefficient estimates were slightly different, the results of each model followed the same patterns described in the previous paragraphs. Because the results of these models were consistent between the sample containing 19 schools and the subsample containing only seven schools, only the results from models fit to the 19 schools were retained and reported. Moreover, compared to the subsample with seven schools, the substantially larger sample with 19 schools likely afforded greater power to detect small effects.

**Summary.** Results of the descriptive analyses revealed that schools differed significantly in their average level of teaming, and that there was significant variation in
teaming index scores among students within schools. The intraclass correlation showed that the majority of the variation in teaming index scores occurred between schools (78.5%). While results showed that schools differed significantly in their average level of sense of belonging and perceived prosocial norms, and that there was significant variation in sense of belonging and perceptions of prosocial norms among students within schools, very little of the variation in these measures occurred between schools (1.6% and 1.9%, respectively).

Turning to the main analyses, the extent to which students were teamed was not associated with their prosocial conduct (i.e., total effect), nor was this association mediated by their feelings of school belonging or their perceptions of prosocial conduct. However, the findings indicated that students’ sense of belonging at school and their perceptions of prosocial norms are significantly associated with their prosocial conduct. Based on these findings, it can be concluded that students’ positive perceptions of the school context as a place in which they feel they belong and are valued, and where they perceive that their peers are kind to one another, are positively associated with their own engagement in kind and helpful behaviors.

**Research Question 2.** The aim of my second research question was to examine whether students’ exposure to ethnic diversity across their academic classes was associated with a stronger sense of safety at school and greater proportion of cross-ethnic friendships, and whether these, in turn, were associated with more frequent prosocial conduct (Figure 3a). Prior to testing whether stronger sense of school safety and greater proportion of cross-ethnic friends acted as dual mediators of the association between exposure to ethnic diversity and prosocial conduct, I fit a model in which frequency of
students’ prosocial conduct was regressed on their exposure to ethnic diversity to obtain the estimate of the total effect, $\beta_c$. Results showed that exposure to ethnic diversity across students’ core courses was not significantly associated with their prosocial conduct, $\beta_c=.017$, SE=.107, $p=.87$. However, because lack of a significant association between a predictor and outcome does not preclude the existence of indirect associations, I next tested whether exposure to ethnic diversity was indirectly associated with students’ prosocial conduct via sense of school safety and proportion of cross-ethnic friendships.

Three random coefficient models were then fit to test the hypothesized indirect effects. In the first model, sense of school safety (mediator) was regressed on exposure to ethnic diversity (predictor) to obtain the $\beta_{a1}$ estimate. Consistent with previous research on diverse educational contexts, results showed that greater exposure to ethnic diversity was significantly associated with increased feelings of safety at school, $\beta_{a1}=.213$, SE=.087, $p=.014$. In the second model, I regressed the proportion of students’ cross-ethnic friendships (mediator) on exposure to ethnic diversity (predictor) to obtain the $\beta_{a2}$ estimate. Results showed that students’ exposure to ethnic diversity was significantly associated with having a greater proportion of cross-ethnic friendships, $\beta_{a1}=.315$, SE=.040, $p<.001$. This finding is consistent with prior research indicating that diverse educational contexts provide opportunities for students to get to know and befriend peers from different ethnic groups (Hallinan & Williams, 1989).

In the third model, students’ prosocial conduct (outcome) was regressed on students’ exposure to ethnic diversity (predictor), sense of school safety, and proportion of cross-ethnic friendships (mediators) to obtain the $\beta_{b1}$ and $\beta_{b2}$ coefficient estimates. Results of this model showed that sense of school safety remained significant with both
exposure to ethnic diversity and proportion of cross-ethnic friendships in the model, 
\( \beta_{b1} = .077, SE = .020, p < .001 \). However, proportion of cross-ethnic friendships was only marginally significant with both exposure to ethnic diversity and sense of school safety in the model, \( \beta_{b2} = .075, SE = .04, p = .064 \). The coefficient estimates appear in Figure 3b, and all estimated coefficients from the three models tested appear in Table 8.

The interactive Sobel calculator provided by Preacher and Leonardelli (2003) was used to determine whether the hypothesized indirect effects were significant. Results of the Sobel test showed that the unique indirect effect of sense of school safety was significant, \( \beta_{a1}\beta_{b1} = .0164, s_{\beta a1\beta b1} = .0079, z = 2.07, p = .039 \). However, the unique indirect effect of proportion of cross-ethnic friendships was only marginally significant, \( \beta_{a1}\beta_{b1} = .0235, s_{\beta a1\beta b1} = .0130, z = 1.81, p = .071 \). Because the Sobel test is overly-conservative, significant indirect or mediated effects are less likely to be detected than when using alternative methods, such as bootstrapping, which utilizes a non-parametric resampling procedure to empirically approximate the sampling distribution of the mediated effect. As such, it is likely that marginal effects observed when using the Sobel test are truly present.

**Summary.** Similar to extensiveness of teaming, the total effect of students’ exposure to ethnic diversity was not significant. However, in contrast to extensiveness of teaming, students’ exposure to ethnic diversity appeared to have a significant and indirect association with their prosocial conduct. Findings from the current study indicated that greater exposure to ethnic diversity across academic classes was indirectly associated with more frequent prosocial conduct among students via a stronger sense of safety at school. The significant indirect effect of sense of school safety allows me to conclude
that the reduced feelings of vulnerability students experience when they are exposed to ethnically diverse peers may create conditions conducive for engaging their peers in prosocial ways.

Although the indirect effect of exposure to ethnic diversity on students’ prosocial conduct via proportion of cross-ethnic friendships was only marginally significant, the results nonetheless allow me draw several conclusions. The significant association between exposure to ethnic diversity and proportion of cross-ethnic friendships indicates that exposure to ethnically diverse peers across core academic classes provides opportunities for students to form friendships with peers from different ethnic groups. Although the association between the proportion of cross-ethnic friendships students had and their prosocial conduct was only marginally significant, this finding nonetheless suggests and that cross-ethnic friendships may provide a unique interpersonal context that is beneficial for students’ behavioral adjustment.

**Discussion**

The present study contributed to the extant literature in three noteworthy ways: first, by moving beyond the family context to examine how students’ experience of the school context is associated with their prosocial conduct; next, by utilizing novel indices to assess the extent to which individual students are teamed with their peers and are exposed to ethnic diversity in their classes; and finally, by examining the processes by which the extent to which individual students are teamed and individual exposure to ethnic diversity are associated with prosocial conduct. These contributions are discussed in more detail and in light of the current findings in the following sections.

**Relevant Contexts: Adolescents in School**
In contrast to much of the literature on youths’ prosocial conduct, which has primarily examined the roles of individual characteristics (e.g., empathy, Eisenberg & Miller, 1987; Eisenberg & Fabes, 1990; Hoffman, 1977), parents (e.g., discipline styles, Krevans & Gibbs, 1996; emotional expressiveness, Roberts & Strayer, 1996), and siblings (Pepler, Abramovitch, & Corter, 1981; Lamb, 1978) the purpose of the current study was to examine the processes by which young adolescents’ experience of the school context were related to their kind and helpful behavior.

In focusing on how students’ experience of the school context was associated with their prosocial conduct, the current study extends the prosocial literature in two important and complimentary ways. First, the current study examined prosocial conduct in an understudied population – youth who are on the cusp of transitioning to adolescence. Because much of the prosocial literature has examined kind and helpful behavior in young children (Eisenberg & Fabes, 1998; Denham, 1986; Radke-Yarrow & Zahn-Waxler, 1984; Yarrow et al., 1976), the current study addresses this gap by focusing on youth during the developmental transition to adolescence. Second, the current study shifts the focus from examining the roles of individual characteristics and the family context to examining the role of the school context. Given that youth transition to a new environmental context when they enter middle school (i.e., around the same time they enter adolescence), the current study focuses on the role of the school as a developmentally relevant and prominent context in which youth spend a significant amount of their time.

In addition to addressing gaps in the prosocial literature, the current study not only examines two understudied features of middle schools – teaming and ethnic
diversity, but also examines them in methodologically novel ways. The novel teaming index presented in this study was examined for its ability to support positive perceptions of the school climate (i.e., sense of school belonging, perceived prosocial norms) that were then expected to foster students’ kind and helpful behavior. Similarly, the novel application of Simpson’s (1949) diversity index for assessing individual students’ exposure to ethnic diversity across their academic courses was examined in relation to their feelings of safety at school and opportunities to form cross-ethnic friendships, which were expected to be associated with more frequent prosocial conduct. The ways in which teaming and ethnic diversity were reconceptualized in the current study, and how they contribute to prosocial research, are discussed in the following sections in tandem with their respective findings.

**Prosocial Conduct in the School Context**

Youth spend a significant amount of their time in school. Middle school students in particular may find themselves spending even more time at school given that they have opportunities to participate in extracurricular clubs and activities. Despite the large amount of time that middle school students spend in school, few studies have explicitly examined their prosocial conduct within the school context. The findings from the present study thus shed light on how aspects of the school context might be associated with young adolescents’ prosocial conduct. Descriptive findings revealed that the average level of prosocial conduct varied significantly between schools, and that there was significant variation in frequency of prosocial conduct between students within schools. Examination of the intraclass correlation revealed that only 2.1% of the variance
in prosocial conduct scores occurred at the school level, suggesting that the variation in prosocial conduct primarily exists at the student level.

The correlations between prosocial conduct and the proposed predictors and mediators are, to my knowledge, some of the first empirical findings that describe the associations between middle school students’ prosocial conduct and their experiences (i.e., teaming and exposure to ethnic diversity) and perceptions (i.e., sense of belonging and safety, perceptions of prosocial norms, and cross-ethnic friendships) of their school context. Specifically, these correlations revealed that students’ prosocial conduct was most strongly associated with their perceptions of prosocial norms and sense of school belonging ($r = .369, p < .01; r = .344, p < .01$). Students’ prosocial conduct was also significantly associated with their sense of safety at school, exposure to ethnic diversity, and proportion of cross-ethnic friendships, though to a lesser degree ($r = .10, p < .01; r = .04, p < .05; r = .037, p < .05$, respectively). Contrary to my expectation, students’ prosocial conduct was negatively, albeit not significantly, associated with the extent to which they were teamed ($r = -.014$). Although descriptive, these findings indicate that students’ experience of their school, outside of individual characteristics and the familial relationships, are associated with their prosocial conduct.

**Teaming and Prosocial Conduct**

The first aim of the present study was to examine whether being extensively teamed with classmates was associated with a stronger sense of school belonging and greater perceptions of prosocial norms, and whether these, in turn, were associated with more frequent prosocial conduct. As such, students’ sense of school belonging and perceptions of prosocial norms were tested as dual mediators of the association between
extensiveness of teaming and prosocial conduct. Teaming has traditionally been conceptualized and measured as an “all-or-none” organizational practice, with students essentially categorized as either being teamed (i.e., sharing all of their classes with the same classmates) or not teamed (i.e., not sharing all of their classes with the same classmates). From a methodological standpoint, categorizing students as “teamed” or “not teamed” inherently ignores the variation that exists between non-teamed students with respect to the proportion of peers they share classes with. For example, non-teamed students who encounter only some of the same peers in their classes and those who encounter many (but not all) of the same peers in their classes are assumed to have the same “teaming” experience because they are not completely teamed with their classmates. The teaming index used in the present study moves beyond the limitations of the traditional conceptualization of teaming by reframing the underlying question “Are students teamed together?” to “To what extent are students teamed together?”. As such, the teaming index allows more accurate assessment of students’ experience of teaming and investigation of how it is associated with various student outcomes (e.g., social-emotional, behavioral, academic).

Using the novel teaming index, one goal of the present study was to better understand how this organizational practice is associated with youths’ prosocial conduct. Examination of teaming using this novel index revealed that while there was variation between students in the extent to which they are teamed with classmates, there was also variation between schools in the average level of teaming of students. The average teaming score of .83 across the entire sample, coupled with the high average teaming scores (i.e., approaching or over .90) at more than half of participating schools and very
few teaming scores that approached zero suggests that teaming students for their academic courses is a common practice in urban middle schools. The rather high amount of variance in students’ teaming scores that occurred between schools (i.e., 78.5%) suggests that schools differ in their use of teaming (i.e., some schools team to a greater degree than others). This finding may reflect a greater need for, and tendency to, implement teaming at schools that offer specialized academic programming (e.g., magnet, highly gifted). Specifically, it may be the case that schools that offer specialized academic programming team students based on their participation in these programs. Thus, the average level of teaming may vary between schools depending on the number of specialized programs offered and the number of students who participate in them.

The results for the first hypothesized mediation model showed that the indirect effect of teaming on prosocial conduct via sense of school belonging and perceived prosocial norms was not significant. However, both sense of school belonging and perceived prosocial norms were associated with more frequent prosocial conduct. Together, these results imply several noteworthy conclusions. First, the lack of a significant association between extensiveness of teaming and sense of school belonging is rather surprising because it is contrary to prior research (Boyer & Bishop, 2004; George, 1987) and undermines one of the primary justifications for implementing teaming in larger middle schools – to promote a stronger sense of school belonging and sense of community. Given that low power does not explain the observed null effect of extensiveness of teaming on students’ sense of belonging, the question remains as to why students who are highly teamed did not report a stronger sense of school belonging.
It is possible that teaming might have differential effects at the within and between school levels. Therefore, an additional analysis in which extensiveness of teaming was modeled with both a school-level and individual-level measure of teaming was fit to the data. In this model, prosocial conduct was regressed on the school average teaming index score and students’ deviation from the school average (i.e., deviation = school average teaming index score – student teaming index score). Neither the effect of school average teaming nor students’ deviation from their school’s average teaming index score were significant. These findings suggest that there may be other aspects of teaming that are not captured by the teaming index that are associated with students’ sense of school belonging.

Researchers suggest that other aspects of being highly teamed are necessary for promoting a strong sense of belonging. For example, George’s (1987) findings suggest that students are more likely to develop a strong sense of belonging when students remain teamed with the same peers and teachers for extended periods of time (i.e., up to three years). Moreover, Doda (1992) suggests that a strong sense of belonging can be fostered when teams are given their own common space and location in the school that physically distinguishes them from other teams. While these strategies may be more difficult to implement in large urban schools, Doda suggests that there is one crucial strategy that could make all the difference for teamed students – making them aware that they are teamed. Doda (1992) argues that students may not be aware that they are teamed and thus must be made aware of it (e.g., by naming their team) to “witness that sense of smallness” (pp. 56) that comes with teaming before they can begin to develop a strong sense of belonging.
Second, the finding that students’ sense of school belonging was associated with more frequent kind and helpful behavior leads me to conclude that positive perceptions of their school plays an important role in students’ prosocial conduct. To my knowledge, this is the first study empirically support the notion that students’ feelings of school belonging matter in supporting prosocial conduct with peers, which has been proposed by several prosocial behavior researchers (Carlo, Fabes, Laible, & Kupanoff, 1999; McEvoy & Welker, 2000). In addition to extending the prosocial literature, this finding indicates that students are more likely to behave in kind and helpful ways with peers when they feel that they belong to and are a part of their school, feel close to others at school, and feel respected and valued at their school.

Although the extent to which students were teamed was expected to be positively and significantly associated with their perceptions of prosocial norms, no support was found for this hypothesis. Again, to explore the possibility of differential effects of teaming at the between and within school levels, an additional model in which extensiveness of teaming was modeled using both a school-level and individual-level measure of teaming was fit to the data. In this model, students’ perceptions of prosocial norms were regressed on the school average teaming index score and students’ deviation from the school average teaming index score. The results showed that neither the school average on the teaming index score, nor students’ deviation from their school’s average teaming index score, were significantly associated with perceptions of prosocial norms.

Together, these findings suggest that other factors may be more critical to informing young adolescents’ perceptions of normative kind and helpful behavior. Although a detailed discussion of the possible factors that inform adolescents’
perceptions of normative social behaviors is beyond the scope of the current study, it is possible that behaviors of close friends (e.g., Barry & Wentzel, 2006), high status peers, or evaluations of others’ behavior obtained through other channels (i.e., gossip about another peer’s behavior) serve as primary referents when estimating perceived behavioral norms.

However, the finding that perceptions of prosocial norms were significantly and positively associated with students’ prosocial conduct is noteworthy for several reasons. First, much of the literature that has examined the effects of perceived behavioral norms on adolescents’ subsequent behavior has primarily focused on risky health behaviors (e.g., smoking, Eisenberg & Forster, 2003; Ellickson, Bird, Orlando, Klein, & McCaffrey, 2003; drug use, Juvonen, Martino, Ellickson, & Longshore, 2007). To my knowledge, this is the first time that perceived prosocial norms for positive behavior have been shown to significantly predict prosocial conduct in young adolescents. Moreover, the low mean of perceived prosocial norms observed in the present sample suggests that perceiving even a few students (i.e., “some” to “a few”) behaving prosocially towards others may promote students’ own kind and helpful behavior.

**Exposure to Ethnic Diversity and Prosocial Conduct**

The second aim of the present study was to examine whether greater exposure to ethnically diverse peers was associated with a stronger sense of safety at school and having a greater proportion of cross-ethnic friendships, and whether these, in turn, were associated with more frequent prosocial conduct. Although school and classroom level ethnic diversity have been associated with greater feelings of safety among ethnic minority youth (Juvonen, Nishina, & Graham, 2006) and increased opportunities to
befriend cross-ethnic peers (Khmelkov & Hallinan, 1999; Moody, 2001; Quillian & Campbell, 2003), school and single-classroom ethnic diversity do not adequately reflect individual students’ exposure to ethnically diverse peers.

Specifically, because school-level diversity reflects the relative ethnic representation of all students in the school, including those with whom students have limited contact with for much of the school day (i.e., students from other grades), the ethnic diversity of the school may not accurately reflect individual students’ exposure to ethnic diversity. Indeed, the correlation between school-level ethnic diversity and school-level average of students’ exposure to ethnic diversity in the present study was not significant ($r = -.036$). This finding suggests that the ethnic diversity observed at the school level is not the ethnic diversity that individual students are exposed to on a day-to-day basis in their classrooms.

Although the ethnic diversity of one classroom in a student’s schedule does reflect the amount of ethnic diversity students in that class are exposed to, limiting the assessment of ethnic diversity to a single classroom ignores the ethnic diversity students are exposed to in their other classes. To overcome this limitation and avoid any potential bias from using school or single-classroom ethnic diversity, Simpson’s (1949) diversity index was used to assess students’ overall exposure to ethnically diverse others across the four core academic courses (i.e., Math, Science, English, Social Studies). Because academic courses tend to be pre-determined (i.e., not selected by the student) and stable across the academic year, they were deemed most suitable for assessing students’ exposure to ethnic diversity. Applied in this manner, Simpson’s diversity index allowed
me to examine how variations between students in their exposure to ethnic diversity are associated with their prosocial conduct.

Initial examination of students’ exposure to ethnic diversity showed that 38.3% of the variation in scores occurred between schools, suggesting that much of the variation in students’ exposure to ethnic diversity occurred at the student level. This finding suggests that students within the same school experience different levels of exposure to ethnic diversity across their academic courses. Though the majority of the variance in exposure to ethnic diversity occurred at the student level, schools varied significantly in their average level of students’ exposure to ethnic diversity. This may reflect findings from previous research showing that public schools, especially those in urban areas, have become more racially segregated in recent years (Orfield & Lee, 2006).

Initial examination of the association between students’ exposure to ethnic diversity and prosocial conduct revealed a nonsignificant total effect. However, a unique significant indirect effect of exposure to ethnic diversity on students’ prosocial conduct via students’ sense of school safety was observed, over and above the effect of the indirect effect of proportion of cross-ethnic friendships. This finding suggests that exposure to ethnically diverse peers across the core academic courses was associated with feeling safe and less vulnerable at school, which in turn was associated with more frequent prosocial conduct. The positive and significant association between exposure to ethnic diversity and sense of school safety is consistent with previous research showing that both school- and classroom-level ethnic diversity were associated with a stronger sense of safety at school for ethnic minority youth (Juvonen, Nishina, & Graham, 2006). These findings suggest that when students’ need for physical safety at school (i.e., feeling
less vulnerable) is met, they can more easily tend to the needs of their peers. This may be especially true for prosocial behaviors that carry some risk, such as when a student stands up for a peer who is being made fun of or bullied.

The present results also suggested that schools may foster the formation of cross-ethnic friendship by increasing the ethnic diversity of academic classes, and that these friendships play an important role in students’ prosocial conduct. While previous findings have shown that having cross-ethnic friendships was associated with engaging in inclusive behavior (Kawabata & Crick, 2008), the present findings are the first to empirically link students’ cross-ethnic friendships with a variety of prosocial acts, including helpfulness in victimization situations (e.g., being made fun of or bullied).

Although the results of the Sobel test indicated that the indirect effect of students’ exposure to ethnic diversity on prosocial conduct via proportion of cross-ethnic friendships was only marginally significant, it is reasonable to conclude that the indirect effect is present given the conservative nature of the Sobel test. More noteworthy, however, is that this unique indirect effect was observed over and above the significant indirect effect of sense of safety discussed previously. The finding that students who are exposed to greater ethnic diversity across their courses also had a greater proportion of cross-ethnic friendships is consistent with prior research showing that exposure to ethnically diverse peers provides students opportunities to develop cross-ethnic friendships (Quillian & Campbell, 2003). Given that the ethnic diversity across core courses was moderate on average ($M=.63, SD=.161$), it is reasonable to expect that most students in urban schools have opportunities to interact with peers from different ethnic groups. Moreover, because many students do not have the option of selecting the
sequence of their core courses, as they often do with their elective courses, school administrators could achieve maximum ethnic diversity in core academic courses by considering students’ ethnicity when creating class schedules.

It is, however, unclear as to whether highly prosocial students are more likely to have cross-ethnic friends or if the context of cross-ethnic friendships encourages greater prosocial conduct. Because prosocial students may be more socially adept in general, they may be more likely to form friendships with both same- and cross-ethnic peers than students whose social skills are lacking. Alternatively, self-expansion theory (Aron et al., 2004) suggests that students with cross-ethnic friendships may perceive some cross-ethnic peers as more similar to themselves. Self-expansion theory posits that individuals incorporate traits and characteristics of close others into the self-concept (Aron, Aron, Tudor, & Nelson, 1991), much the same way that we incorporate multiple ingroups into the self-concept (Tropp & Wright, 2001). While it seems counterintuitive that one could incorporate the traits and characteristics of a cross-ethnic friend’s ethnic group (i.e., an outgroup) into the self-concept, self-expansion theory posits that even multiple collective identities can be “absorbed” and viewed as part of the self (Aron et al., 2004; Schubert & Otten, 2002).

For example, Page-Gould, Mendoza-Denton, Alegre, & Siy (2010) found that participants who took longer to categorize a cross-ethnic friend’s ethnic group as not descriptive of themselves were more likely to make the error of identifying a cross-ethnic friend’s ethnicity as descriptive of themselves (e.g., a Latino participant with a close Asian friend took longer to decide that the descriptor “Asian” was not descriptive of themselves). They argued that this finding suggests that self-expansion is not limited to
personality traits, but can include the ethnic identity of a cross-ethnic friend. The notion that the personality traits and ethnic group of close cross-ethnic friends become included in the self concept was further evidenced by the finding that the longer it took for participants to decide whether a cross-ethnic friend’s ethnicity was descriptive or not descriptive of themselves, the more likely they were to explicitly identify with that friend’s ethnic group on an ethnic identity measure.

While both of the indirect effects tested in these models were significant, the total effect of exposure to ethnic diversity on prosocial conduct was nonsignificant. Although the direct effect was nonsignificant, this pattern of results suggests that there might be other mediators with negative effects that have not been accounted for in the present model. For example, one possible mediator that may account for the negative and nonsignificant direct effect could be exposure to same-ethnic peers across the four core courses. It may be the case greater exposure to ethnic diversity is associated with less exposure to same-ethnic peers (i.e., negative ‘a’ path), and that decreased exposure to same-ethnic peers (i.e., similar others, to whom we tend to be more prosocial), in turn, is associated with less frequent prosocial conduct (i.e., a negative ‘b’ path). Because a number of mediators may account for this negative association, other mediators in addition to sense of safety and proportion of cross-ethnic friendships should be included in future research.

These findings have implications for social behavior that occurs in ethnically diverse contexts. Given the self-expansion process within the context of close cross-ethnic friendships, students with cross-ethnic friends may be more likely to act prosocially with both in- and out-group members given that individuals who are
motivated to help are more likely to extend help to members of the same cultural group (Stürmer, Snyder, Kropp, & Siem, 2006). Thus, it stands to reason that students with cross-ethnic friends would behave in kind and helpful ways with members of a cross-ethnic friends’ ethnic group, inasmuch as they were ingroup members. That is, these findings suggest that students with a greater proportion of cross-ethnic friendships may be more likely to engage in more prosocial conduct.

Summary

Taken together, the findings from the present study indicate that the processes by which students’ unique experience of the school context is associated with their prosocial conduct are complex. Although the extent to which students were teamed with classmates did not appear to be associated with their feelings of school belonging or perceptions of prosocial norms, the present findings indicated that these perceptions of the school climate play an important role in young adolescents’ prosocial conduct. However, individual students’ exposure to ethnic diversity across their four core academic courses appeared to play a more critical role in students’ prosocial conduct. Specifically, it appears that students’ experience of the racial-ethnic context at school (i.e., exposure to ethnic diversity) may help fulfill their need to feel safe at school and foster the formation of cross-ethnic friendships, thus creating conditions that could encourage adolescents to engage in kind and helpful behaviors towards peers. However, the nonsignificant total effect observed between exposure to ethnic diversity and students’ prosocial conduct suggests that other mediating variables (e.g., representation of same-ethnic peers across classes) that were not included in the present model might account for this association.
Although the teaming index was only examined with regard to its association with students’ positive perceptions of the school context in the current study, it can be utilized in future research to further explore how school organizational practices are associated with students’ social-emotional (e.g., feelings of loneliness), behavioral (e.g., rule-breaking), and academic outcomes (e.g., GPA). Moreover, while exposure to ethnic diversity across academic courses is examined in the current study with regard to its associations with students’ sense of safety at school and cross-ethnic friendships, it can also be utilized to better understand how students’ experience of the ethnic context is associated with their social and academic outcomes, and intergroup attitudes.

**Limitations and Future Directions**

Despite these contributions, the present study had several limitations that readers ought to be mindful of when interpreting the findings and consider prior to examining teaming and exposure to ethnic diversity in future studies. One such limitation is that students’ prosocial conduct was self-reported. Whether they succumbed to social desirability demands or tried to preserve their self-esteem, students may have overestimated the frequency of their own prosocial conduct with peers. Future research should utilize measures of prosocial conduct from multiple informants to minimize issues and concerns surrounding shared method variance. Although behavioral observation during structured and unstructured school time becomes increasingly difficult for large samples, peer nominations and teacher ratings would likely be sufficient alternatives.

A more conceptual challenge of the prosocial conduct measure used in the current study, as well as those used in other studies, is the developmental relevance of the prosocial acts that are assessed. While the meaning and intent of prosocial acts remains
the same throughout development, the way in which prosocial behavior is expressed is likely to vary across development. For example, one hallmark prosocial act that has been observed among young children is sharing (e.g., toys). This behavior may be particularly relevant in early childhood because it revolves around a highly valued activity (i.e., play) and something of great interest to children (i.e., toys). Thus, sharing toys may signal a child’s growing ability to put another’s desires before their own.

However, as children move from childhood to adolescence, their priorities and desires change. For example, because young adolescents tend to prioritize social relationships with peers, prosocial acts that help restore positive social interactions (i.e., helping to resolve arguments) may be particularly relevant during adolescence. Although engaging in behaviors that help restore positive social interactions between others may temporarily put the helper’s social relationships with arguing peers at risk (i.e., arguing parties may become temporarily angry at the helper), such acts signal the ability to put others’ desires for positive social relationships before one’s own. Although I am aware of only one study that explored how young adolescents behaviorally express their prosocial intentions (Bergin, Talley, & Hamer, 2003), more research is needed to identify developmentally relevant prosocial acts. By doing so, researchers will be better able to assess prosocial conduct and understand its associations with youths’ social-emotional outcomes.

In a similar vein, inclusion of only the four core academic courses imposed limitations on both the teaming and exposure to diversity indices. Because of the academic nature of core academic courses, students may have fewer opportunities to socialize with peers to the extent that they can socialize in physical education (P.E.) and
elective courses. It may be the case that these courses play a more critical role in
teaching’s ability to affect students’ perceptions of the school climate and their prosocial
culture. For example, a stronger sense of belonging may be best fostered when a student
sees many of the same peers from their core academic courses in their P.E. or elective
courses where they have more opportunities for social interaction. As such, future
research that utilizes these indices should include in their calculation all classes in a
student’s schedule.

In regard to measuring the extent to which individual students are teamed, future
research should also assess the extent to which students are aware that they are teamed, as
well as overt efforts of the school (e.g., teacher teams, team field trips) that aim to foster
the sense of community that is expected when students are clustered into smaller learning
communities. Furthermore, as suggested by George (1987), the effects of teaming may
only manifest after several years. Future research should examine both the stability in the
extent to which students are teamed, as well as stability in the proportion of unique
classmates students are teamed with over the middle school years. These measures could
determine whether being highly teamed in general, or highly teamed with the same peers
over time makes a difference in students’ feelings of school belonging.

Researchers interested in further examining teaming must also evaluate and
incorporate measures of academic or ability tracking that may be used in tandem with
teaching in middle schools. The fact that ability tracking was not accounted for in the
current study limited my ability to examine whether the benefits of teaming varied as a
function of whether and at what levels students were teamed and tracked based on
academic ability or participation in special academic programs. For example, while
students who are enrolled in honors courses and students who are enrolled in remedial courses are often teamed with classmates of similar ability, it is not known whether teaming is equally beneficial for students of these different ability groups.

While accounting for tracking practices within a single school is unlikely to pose methodological challenges, accounting for teaming practices at different schools, and for schools in different school districts in particular, may pose problems for researchers. Specifically, because school districts often vary in how they catalog the level of academic courses (e.g., honors vs. remedial), determine student participation in advanced programs (e.g., membership in gifted or magnet programs), and permit students to qualify for gifted status (e.g., prior enrollment in honors courses vs. teacher recommendation), the task of examining tracking practices across many schools becomes increasingly complex. As such, future researchers who wish to examine teaming in conjunction with tracking must find ways of equating these practices across schools to ensure both the reliability and validity of their findings.

While the novel use of Simpson’s (1949) diversity index in the present study was used to assess students’ exposure to ethnic diversity across their four core academic courses, the index does not provide information regarding the relative representation of specific ethnic groups. For example, two students may have the same exposure to ethnic diversity score of .73, wherein four ethnic groups are, on average, represented as follows: 25%, 25%, 35%, and 15%. Although both students have the same exposure to ethnic diversity score, 35% of one student’s classmates could be Asian, while 35% of the other student’s classmates could be African American. While a more nuanced evaluation of students’ exposure to ethnic diversity may not seem necessary as exposure to ethnic
diversity approaches the maximum level of 1, the fact that exposure scores were moderate on average (i.e., overall mean of .63) suggests that the representation of ethnic groups that comprise the ethnic context of students’ classrooms should be considered and accounted for when examining how exposure to ethnic diversity is associated with prosocial conduct.

Although the correlation between exposure to ethnic diversity and students’ prosocial conduct was positive ($r=.04, p<.05$), the correlation between exposure to ethnic diversity and perceptions of prosocial norms, which were most strongly associated with prosocial conduct, was negative ($r=-.042, p<.05$). This suggests that the representation of ethnic groups may ‘color’ students’ perceptions of the school context. For example, it may be the case that the overrepresentation of one ethnic group (relative to other ethnic groups) could prime students to estimate the prevalence of prosocial conduct based on the prevalence of an overrepresented ethnic group and their own expectations of and stereotypes about that group’s behavior. Moreover, overrepresentation of one’s own ethnic group (relative to other ethnic groups) could bias students’ perceptions of peers’ prosocial conduct, such that when ingroup members are overrepresented, students may wish to see their group in a positive light and report that many students in their school are prosocial. Thus, future examination of the association between exposure to ethnic diversity and prosocial conduct should include the representation of same- and cross-ethnic peers in the model, and evaluate whether perceived prosocial norms is a third mediator of this association.

In the present study, the hypothesized mediation analyses were performed on multiply imputed data. Although a large number of variables were included in the
imputation model, the limitations of current software packages that are widely available prevented the ability to account for clustering in the imputation model. While ignoring the clustered structure of the data may result in ICCs that are too small, including the cluster structure in the form of dummy coded variables can result in ICCs that are too large (Graham, 2012). As such, the estimates reported in the present study are likely to be more conservative than expected had the cluster structure of the data been appropriately modeled when imputing missing data. Moreover, from an analytic standpoint, the product of coefficients approach for assessing mediated and indirect effects is extremely conservative and largely underpowered. Because the multiply imputed data was tested in the multilevel framework, I was unable to utilize bootstrapping, which is a more appropriate method for testing mediation hypothesis.

**Implications**

The present findings have several important implications for educational research on teaming, as well as educational practice and policy. First and foremost, findings from the present study showed that the extent to which students were teamed with classmates was not significantly associated with their sense of belonging at school, nor their prosocial conduct. Given that teaming is often implemented as a means of promoting students’ sense of belonging at school, decreasing feelings of alienation, and creating a kind and supportive learning context, the present findings indicated that educational researchers need to evaluate teaming practices beyond the mere organization of students to better understand how the social-emotional benefits of teaming can be achieved in large urban middle schools.
As such, educators, administrators, and policymakers should evaluate current teaming practices to determine whether additional practices such as interdisciplinary teaching teams (i.e., when two teachers are assigned to collaborate with each other regarding instruction of core subjects, and teach these subjects to the same group of students) and insulated teams (e.g., teams in which students remain together in the same room and receive instruction from several different teachers) should be implemented to improve students’ social-emotional outcomes. This is particularly important and timely for large public middle schools in urban areas of California due to recent budget cuts to education. That is, large school districts and students may benefit when other effective and low-cost practices that could promote students’ sense of belonging at school can be applied in tandem with organizing students into teams.

Moreover, the finding that students’ exposure to ethnic diversity appeared to create conditions conducive to prosocial conduct suggests that administrators should consider students’ ethnic membership when creating student schedules. Because current legislation does not allow school districts to increase school ethnic diversity by strategically placing students in schools based on their racial-ethnic membership, schools can capitalize on the benefits of ethnic diversity by strategically placing students to increase ethnic diversity across classes. Although other organizational practices may limit students’ exposure to ethnic diversity in their classrooms (i.e., ability tracking), school administrators should nevertheless aim to maximize ethnic diversity in all classes.
Appendix

Question stem and items from self-report measures used in the present study.

**Sense of School Belonging**

*These questions ask for your opinions about your school.*

1. I feel like I am a part of this school.
2. I feel close to people at this school.
3. I feel that I belong in this school.
4. I feel respected and valued at this school.

**Sense of School Safety**

*How often…*

1. do you feel safe at school?
2. are you afraid that someone will hurt or bother you at school?
3. do you feel safe during nutrition?
4. do you feel safe in hallways or stairs?
5. are you afraid that someone will hurt or bother you in your school restrooms?
6. do you feel unsafe during lunch?

**Perceived Prosocial Norms**

How many students in your school…

1. stand up for kids who are made fun of or bullied?
2. help other kids even if they don’t know they well?
3. are considerate of other people’s feelings?
4. help resolve arguments between other kids?
5. are nice to everyone, not just their friends?
Prosocial Conduct

These questions are about the things you do, think, and feel. Please mark how often each statement is TRUE for you.

1. I stand up for kids who are made fun of or bullied.
2. I help other kids even if I don’t know them well.
3. I am considerate of other people’s feelings.
4. I help resolve arguments between other kids.
5. I am nice to everyone, not just my friends.
Table 1

*School size, ethnic composition, and ethnic diversity of cohort 1 and cohort 2 schools (all values with the exception of school size and ethnic diversity represent percentages).

<table>
<thead>
<tr>
<th>Cohort 1</th>
<th>School</th>
<th>Size</th>
<th>African American</th>
<th>Asian</th>
<th>Hispanic/Latino</th>
<th>Multi/Other/NR</th>
<th>White</th>
<th>Ethnic Diversity</th>
</tr>
</thead>
<tbody>
<tr>
<td>School 1*</td>
<td>850</td>
<td>12.1</td>
<td>16.4</td>
<td>32.7</td>
<td>0.7</td>
<td>38.1</td>
<td>.71</td>
<td></td>
</tr>
<tr>
<td>School 2</td>
<td>1699</td>
<td>23.9</td>
<td>16.0</td>
<td>41.3</td>
<td>1.2</td>
<td>17.6</td>
<td>.68</td>
<td></td>
</tr>
<tr>
<td>School 3</td>
<td>983</td>
<td>21.1</td>
<td>7.6</td>
<td>52.6</td>
<td>1.6</td>
<td>17.1</td>
<td>.71</td>
<td></td>
</tr>
<tr>
<td>School 4</td>
<td>1966</td>
<td>13.6</td>
<td>34.6</td>
<td>42.4</td>
<td>1.5</td>
<td>7.8</td>
<td>.64</td>
<td></td>
</tr>
<tr>
<td>School 5</td>
<td>1567</td>
<td>19.5</td>
<td>14.1</td>
<td>42.0</td>
<td>0.3</td>
<td>24.1</td>
<td>.72</td>
<td></td>
</tr>
<tr>
<td>School 6</td>
<td>2065</td>
<td>15.9</td>
<td>10.5</td>
<td>26.1</td>
<td>1.3</td>
<td>46.2</td>
<td>.68</td>
<td></td>
</tr>
<tr>
<td>Cohort 2</td>
<td>School</td>
<td>Size</td>
<td>African American</td>
<td>Asian</td>
<td>Hispanic/Latino</td>
<td>Multi/Other/NR</td>
<td>White</td>
<td>Ethnic Diversity</td>
</tr>
<tr>
<td>School 7</td>
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<td>1.1</td>
<td>37.0</td>
<td>0.5</td>
<td>1.0</td>
<td>.52</td>
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<tr>
<td>School 8</td>
<td>706</td>
<td>28.0</td>
<td>2.4</td>
<td>62.5</td>
<td>0.4</td>
<td>6.7</td>
<td>.58</td>
<td></td>
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<tr>
<td>School 9</td>
<td>1897</td>
<td>25.5</td>
<td>7.8</td>
<td>64.7</td>
<td>0.7</td>
<td>1.2</td>
<td>.67</td>
<td></td>
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<tr>
<td>School 10</td>
<td>930</td>
<td>1.2</td>
<td>54.8</td>
<td>40.2</td>
<td>0.6</td>
<td>3.1</td>
<td>.63</td>
<td></td>
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<tr>
<td>School 11</td>
<td>1152</td>
<td>3.6</td>
<td>8.2</td>
<td>43.8</td>
<td>4.3</td>
<td>40.1</td>
<td>.51</td>
<td></td>
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<tr>
<td>School 12</td>
<td>904</td>
<td>58.7</td>
<td>5.5</td>
<td>22.3</td>
<td>0.7</td>
<td>12.7</td>
<td>.53</td>
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<tr>
<td>School 13</td>
<td>1945</td>
<td>9.9</td>
<td>13.2</td>
<td>27.7</td>
<td>0.9</td>
<td>48.3</td>
<td>.53</td>
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<tr>
<td>School 14</td>
<td>1760</td>
<td>12.3</td>
<td>12.2</td>
<td>59.3</td>
<td>0.4</td>
<td>15.8</td>
<td>.60</td>
<td></td>
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<tr>
<td>School 15</td>
<td>828</td>
<td>4.1</td>
<td>25.7</td>
<td>48.2</td>
<td>3.3</td>
<td>18.7</td>
<td>.60</td>
<td></td>
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<tr>
<td>School 16</td>
<td>979</td>
<td>2.7</td>
<td>71.1</td>
<td>16.4</td>
<td>2.7</td>
<td>7.1</td>
<td>.52</td>
<td></td>
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<tr>
<td>School 17</td>
<td>965</td>
<td>19.8</td>
<td>9.1</td>
<td>20.9</td>
<td>13.4</td>
<td>36.8</td>
<td>.44</td>
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<td>School 18</td>
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<td>8.7</td>
<td>67.4</td>
<td>14.1</td>
<td>3.1</td>
<td>6.7</td>
<td>.64</td>
<td></td>
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<tr>
<td>School 19</td>
<td>907</td>
<td>8.8</td>
<td>35.3</td>
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<td>3.1</td>
<td>39.2</td>
<td>.68</td>
<td></td>
</tr>
<tr>
<td>School 20</td>
<td>476</td>
<td>64.9</td>
<td>5.0</td>
<td>14.3</td>
<td>4.6</td>
<td>11.1</td>
<td>.43</td>
<td></td>
</tr>
</tbody>
</table>

Note: All values represent the percentage of students within each ethnic group based on California Department of Education Statistics. Multi = multiethnic; Other = Native American/American Indian, unspecified groups, NR = no response.

*School 1 was excluded from analyses due to inconsistencies in student class schedules.
Table 2

*Percentage of missing data in measures included in planned missing blocks A, B, or C prior to performing multiple imputation (N=3,738).*

<table>
<thead>
<tr>
<th>Measure</th>
<th># items</th>
<th>Missing all items</th>
<th>Missing 1-4 items</th>
<th>All items present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prosocial conduct</td>
<td>5</td>
<td>37.2%</td>
<td>1.2%</td>
<td>61.6%</td>
</tr>
<tr>
<td>School belonging</td>
<td>4</td>
<td>37.0%</td>
<td>0.3%†</td>
<td>62.7%</td>
</tr>
</tbody>
</table>

† missing 1-3 items.
Table 3

Exhaustive list of measures included in the data imputation model.

<table>
<thead>
<tr>
<th>Demographic variables</th>
<th>Wave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>1</td>
</tr>
<tr>
<td>Ethnicity (as dummy vectors; African American, Asian, White)</td>
<td>2</td>
</tr>
<tr>
<td>Cohort</td>
<td>1</td>
</tr>
<tr>
<td>Parent’s highest level of education</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Focal variables</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Extensiveness of teaming</td>
<td>1, 2</td>
</tr>
<tr>
<td>Exposure to ethnic diversity</td>
<td>2</td>
</tr>
<tr>
<td>Proportion of cross-ethnic friendships</td>
<td>2</td>
</tr>
<tr>
<td>Prosocial conduct</td>
<td>2</td>
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<tr>
<td>Perceived prosocial norms</td>
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<td>Ethnic stereotypes of Latinos</td>
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<td>Ethnic behaviors with African Americans</td>
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<td>Ethnic behaviors with Whites</td>
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<td>Ethnic identity</td>
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<td>Total number of cross-ethnic friendships</td>
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<td>Stereotypes of Boys</td>
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<td>Stereotypes of Girls</td>
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<td>California Standards Test (Language Arts, 6th grade scaled score)</td>
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Table 4
Descriptive statistics for predictors, mediators, and outcome variables by school.

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<th>Exposure to Ethnic Diversity</th>
<th>School Safety</th>
<th>School Belonging</th>
<th>Perceived Prosocial Norms</th>
<th>Proportion of Cross-ethnic Friendships</th>
<th>Prosocial Conduct</th>
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<td>SD</td>
<td>M</td>
<td>Var.</td>
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<td>.0087</td>
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<td>4.33</td>
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<td>139</td>
<td>.92</td>
<td>.0236</td>
<td>.154</td>
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<td>.135</td>
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<td>.061</td>
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<td>.0033</td>
<td>.057</td>
<td>.58</td>
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<td>15</td>
<td>112</td>
<td>.89</td>
<td>.0366</td>
<td>.191</td>
<td>.65</td>
<td>.0224</td>
<td>.149</td>
<td>4.24</td>
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<td>144</td>
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<td>.087</td>
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<td>.0147</td>
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<td>17</td>
<td>160</td>
<td>.99</td>
<td>.0032</td>
<td>.056</td>
<td>.73</td>
<td>.0027</td>
<td>.052</td>
<td>4.29</td>
</tr>
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<td>.94</td>
<td>.0151</td>
<td>.123</td>
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<td>.0436</td>
<td>.209</td>
<td>3.87</td>
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<td>.94</td>
<td>.0174</td>
<td>.132</td>
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<td>.0042</td>
<td>.066</td>
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<td>.44</td>
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<td>.147</td>
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<td>.280</td>
<td>.63</td>
<td>.0255</td>
<td>.159</td>
<td>4.18</td>
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</table>

Note: All descriptive statistics were calculated for each school using the 20 imputed data sets.
Table 5

*Breakdown of same-sex, reciprocated cross-ethnic friendship nominations in the current sample.*

<table>
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<tr>
<th>Same-sex reciprocated cross-ethnic friendships</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1,172&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1,172</td>
</tr>
<tr>
<td>1</td>
<td>856</td>
<td>259&lt;sup&gt;d&lt;/sup&gt;</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>1,115&lt;sup&gt;b&lt;/sup&gt;</td>
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<tr>
<td>2</td>
<td>510</td>
<td>243</td>
<td>79&lt;sup&gt;d&lt;/sup&gt;</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>832&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>3</td>
<td>231</td>
<td>106</td>
<td>64</td>
<td>19&lt;sup&gt;d&lt;/sup&gt;</td>
<td>0</td>
<td>0</td>
<td>420&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>4</td>
<td>79</td>
<td>38</td>
<td>25</td>
<td>6</td>
<td>1&lt;sup&gt;d&lt;/sup&gt;</td>
<td>0</td>
<td>149&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>5</td>
<td>21</td>
<td>7</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>0&lt;sup&gt;d&lt;/sup&gt;</td>
<td>37&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>6</td>
<td>8</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>11&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td>2&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Total</td>
<td>2,878</td>
<td>656&lt;sup&gt;c&lt;/sup&gt;</td>
<td>174&lt;sup&gt;c,e&lt;/sup&gt;</td>
<td>27&lt;sup&gt;c,f&lt;/sup&gt;</td>
<td>2&lt;sup&gt;c,f&lt;/sup&gt;</td>
<td>1&lt;sup&gt;c,f&lt;/sup&gt;</td>
<td>3,738</td>
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</tbody>
</table>

<sup>a</sup> The number of students whose friendships did not meet the criteria of being reciprocated by a same-sex peer. (n=1,172)

<sup>b</sup> Sum of these values equals the number of students whose friendships met the criteria of being reciprocated by a same-sex peer. (n=2,566)

<sup>c</sup> Sum of these values equals the number of students who have at least one same-sex, reciprocated cross-ethnic friendship (n=860).

<sup>d</sup> Sum of these values equals the number of students whose same-sex reciprocated friendships are all cross-ethnic (n=358).

<sup>e</sup> Total number of students with two same-sex, reciprocated cross-ethnic friendships (n=174)

<sup>f</sup> Sum of these values equals the number of students who had three or more same-sex, reciprocated cross-ethnic friendships (n=30)
Table 6
*Correlations between gender, predictors, mediators, and prosocial conduc*

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2. Extensiveness of teaming</td>
<td>.012</td>
<td>---</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3. Exposure to ethnic diversity</td>
<td>.008</td>
<td>-.099**</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. School safety</td>
<td>.059**</td>
<td>.001</td>
<td>.127**</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5. School belonging</td>
<td>.102**</td>
<td>.003</td>
<td>.037</td>
<td>.388**</td>
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<td></td>
<td></td>
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<tr>
<td>6. Perceived prosocial norms</td>
<td>.034*</td>
<td>-.021</td>
<td>-.042*</td>
<td>.206**</td>
<td>.388**</td>
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<tr>
<td>7. Proportion of cross-ethnic friendships</td>
<td>-.018</td>
<td>.020</td>
<td>.177**</td>
<td>.050**</td>
<td>.026</td>
<td>-.019</td>
<td>---</td>
</tr>
<tr>
<td>8. Prosocial conduct</td>
<td>.128**</td>
<td>-.014</td>
<td>.040*</td>
<td>.10**</td>
<td>.344**</td>
<td>.369**</td>
<td>.037*</td>
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</table>

Note: **p < .01, *p < .05
Table 7

Coefficient estimates from models testing the indirect effect of extensiveness of teaming on students’ prosocial conduct via sense of school belonging and perceived prosocial norms.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Sense of School Belonging (β_{a1})</th>
<th>Perceived Prosocial Norms (β_{a2})</th>
<th>Outcome being predicted (path)</th>
<th>Prosocial conduct (β_{b1}, β_{b2})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-1.141 (.093)</td>
<td>-1.142 (.073)</td>
<td>3.25 (.065)</td>
<td>50.23***</td>
</tr>
<tr>
<td>Gender</td>
<td>.161 (.029)</td>
<td>.049 (.026)</td>
<td>.186 (.03)</td>
<td>6.21***</td>
</tr>
<tr>
<td>Elementary/Junior High</td>
<td>.094 (.056)</td>
<td>.101 (.053)</td>
<td>.056 (.052)</td>
<td>1.09</td>
</tr>
<tr>
<td>Some HS/HS grad/GED</td>
<td>.148 (.053)</td>
<td>.075 (.044)</td>
<td>.013 (.041)</td>
<td>1.15</td>
</tr>
<tr>
<td>Some college</td>
<td>.080 (.045)</td>
<td>.076 (.041)</td>
<td>.044 (.039)</td>
<td>1.15</td>
</tr>
<tr>
<td>Graduate degree</td>
<td>.002 (.050)</td>
<td>-.008 (.045)</td>
<td>.007 (.043)</td>
<td>0.17</td>
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<tr>
<td>African American</td>
<td>.050 (.050)</td>
<td>-.050 (.041)</td>
<td>.046 (.045)</td>
<td>1.03</td>
</tr>
<tr>
<td>Asian</td>
<td>-.225 (.048)</td>
<td>-.061 (.042)</td>
<td>-.129 (.042)</td>
<td>-3.07***</td>
</tr>
<tr>
<td>White</td>
<td>-.090 (.053)</td>
<td>.003 (.041)</td>
<td>.235 (.04)</td>
<td>5.86***</td>
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<td>.001 (.001)</td>
<td>.001 (.001)</td>
<td>1.00</td>
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<td>Cohort</td>
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<td>.111 (.075)</td>
<td>.059 (.063)</td>
<td>0.95</td>
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<td>Extensiveness of teaming</td>
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<td>-.100 (.079)</td>
<td>-.044 (.077)</td>
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<td>Sense of school belonging</td>
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<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Perceived prosocial norms</td>
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<td>---</td>
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<td>---</td>
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<tr>
<td>Variance components</td>
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<td>---</td>
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Notes: *p<.05, **p<.01, ***p<.001; † marginally significant, p<.10.

Demographic reference groups: Male (Gender), four-year college/university degree (SES), Latino (Ethnicity), Cohort 1 (Cohort).
Table 8

Coefficient estimates from models testing the indirect effects of exposure to ethnic diversity on students’ prosocial conduct via sense of school safety and proportion of cross-ethnic friendships

<table>
<thead>
<tr>
<th>Variables</th>
<th>Sense of School Safety</th>
<th>Proportion of Cross-ethnic Friendships</th>
<th>Prosocial Conduct</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$ (SE)</td>
<td>$t$</td>
<td>$\beta$ (SE)</td>
</tr>
<tr>
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<td>-0.070 (.085)</td>
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<td>-0.072 (.030)</td>
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<tr>
<td>Gender</td>
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<td>-0.014 (.010)</td>
</tr>
<tr>
<td>Elementary/Junior High</td>
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<td>-0.024 (.021)</td>
</tr>
<tr>
<td>Some HS/HS grad/GED</td>
<td>-0.019 (.037)</td>
<td>-0.51</td>
<td>-0.028 (.018)</td>
</tr>
<tr>
<td>Some college</td>
<td>-0.024 (.035)</td>
<td>-0.69</td>
<td>0.004 (.017)</td>
</tr>
<tr>
<td>Graduate degree</td>
<td>0.026 (.038)</td>
<td>0.69</td>
<td>0.003 (.019)</td>
</tr>
<tr>
<td>African American</td>
<td>0.054 (.036)</td>
<td>1.51</td>
<td>0.036 (.017)</td>
</tr>
<tr>
<td>Asian</td>
<td>-0.157 (.036)</td>
<td>-4.30***</td>
<td>0.032 (.017)</td>
</tr>
<tr>
<td>White</td>
<td>-0.105 (.035)</td>
<td>-2.98***</td>
<td>0.005 (.016)</td>
</tr>
<tr>
<td>School size</td>
<td>0.001 (.001)</td>
<td>0.99</td>
<td>0.001 (.001)</td>
</tr>
<tr>
<td>Cohort</td>
<td>0.044 (.089)</td>
<td>0.49</td>
<td>0.018 (.026)</td>
</tr>
<tr>
<td>Exposure to ethnic diversity</td>
<td>0.213 (.087)</td>
<td>2.45*</td>
<td>0.315 (.040)</td>
</tr>
<tr>
<td>Sense of school safety</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Proportion of cross-ethnic friendships</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Variance components</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>0.0193 (.0079)</td>
<td>2.46*</td>
<td>0.0014 (.0007)</td>
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<tr>
<td>Residual</td>
<td>4.299 (.0101)</td>
<td>42.71***</td>
<td>0.0974 (.0022)</td>
</tr>
</tbody>
</table>

Notes: *p<.05, **p<.01, ***p<.001; † marginally significant, p<.10.
Demographic reference groups: Male (Gender), four-year college/university degree (SES), Latino (Ethnicity), Cohort 1 (Cohort).
Figure 1. The overall conceptual model of the current research.
Figure 2a. Multiple mediation model in which students’ feelings of school belonging and perceptions of prosocial norms are tested as mediators of the association between extensiveness of teaming and students’ prosocial conduct.

Figure 2b. Coefficient and standard error estimates for the model in which sense of school belonging and perceived prosocial norms as dual mediators of the association between extensiveness of teaming and prosocial conduct.

*p<.05; **p<.01.
Figure 3a. Multiple mediation model in which students’ sense of school safety and proportion of cross-ethnic friendships are tested as mediators of the association between exposure to ethnic diversity and students’ prosocial conduct.

Figure 3b. Coefficient and standard error estimates for the model students’ sense of school safety and proportion of cross-ethnic friendships are tested as mediators of the association between exposure to ethnic diversity and students’ prosocial conduct.

*p<.05, **p<.01, †p<.10.
References


