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Quality and Stability of Cross-Ethnic Friendships: Effects of Classroom Diversity and Out-of-School Contact

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Abstract

Cross-ethnic friendships are linked to a range of positive outcomes in adolescence, but have been shown to be lower quality and less stable than same-ethnic friendships. The current study examined how classroom diversity and out-of-school contact contribute to these relational differences between cross-and same-ethnic friendships. Multilevel analyses were conducted on a sample of 9,171 classroom-based friends nested within 4,333 ethnically diverse sixth grade students (54% female; 32% Latino, 20% White, 14% East/Southeast Asian, 12% African American, 14% Multiethnic, 8% Other ethnic). Consistent with the hypotheses, lower ethnic diversity in classes shared by friends and lack of home contact (as opposed to electronic) contributed to relational differences between cross- and same-ethnic friendships. The findings suggest that while diverse classrooms enable youth to bond across ethnic groups, connecting outside of school is critical for the relational quality and longevity of cross-ethnic friendships.

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Authors' Contributions

LL conceived of the current study, participated in its design, participated in analysis and interpretation of the data, and helped to draft the manuscript. KK conceived of the current study, participated in its design, participated in analysis and interpretation of the data, and helped to draft the manuscript. JJ conceived of the current study, participated in its design, participated in analysis and interpretation of the data, and helped to draft the manuscript, and was a principal investigator on the larger project from which the present analyses were conducted. All authors read and approved the final manuscript.

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

Data Sharing Declaration

The datasets generated and/or analyzed during the current study are not publicly available but are available from the corresponding author on reasonable request.

Ethical Approval

All procedures involving human participants in this study were in accordance with the ethical standards of the University's Institutional Review Board and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent

Informed consent was obtained from all participants included in this study.

Keywords

cross-ethnic friendships; friendship quality; friendship stability; ethnic diversity; middle school

Introduction

Friendships play a critical role in development across the life course and take on added significance during adolescence (Collins & Laursen, 2004) – a time of heightened orientation towards peers (Blakemore & Mills, 2014). Amidst multiple simultaneous changes (e.g., school transitions, puberty), stable and supportive friends are especially important facilitating adjustment across domains (Bagwell & Bukowski, 2018). Although similarity (i.e., homophily) is a powerful predictor of relationship stability and quality (Hartl, Laursen & Cillessen, 2015; Linden-Andersen, Markiewicz & Doyle, 2009), friendships characterized by dissimilarity contribute in unique ways to adolescent development. Cross-ethnic friendships, in particular, are important because they are related to lower outgroup prejudice (Davies, Tropp, Aron, Pettigrew & Wright, 2011), more positive psychosocial wellbeing (Benner & Wang, 2017) and greater academic engagement (Kawabata & Crick, 2015). However, some evidence indicates that compared to same-ethnic friendships, cross-ethnic friendships are lower in quality (McGill, Way, & Hughes, 2012) and less stable (Jugert, Noack, & Rutland, 2013). Although fewer opportunities for cross-ethnic contact frequently account for low rates of cross-ethnic friendships (Graham & Echols, 2018), little is known about whether contact is related to the development and maintenance of ties between ethnically dissimilar peers. Consistent with contextual frameworks that underscore the importance of considering the overlap of multiple contexts on development (Bronfenbrenner & Morris, 1998; Eccles et al., 1993), the present investigation is designed to shed light on differences in the quality and longevity of same-ethnic and cross-ethnic friendships by taking into account contact both in and outside of school. Capitalizing on an ethnically diverse sample of young adolescents from multiethnic schools, the current study specifically examines how daily school-based contact with diverse classmates and out-of-school contact with friends (electronic and home) contribute to the quality (i.e., supportiveness, trust) and stability of friendships between ethnically dissimilar youth.

Schools, and particularly classrooms, shape the types of friendships adolescents form as they provide shared spaces and opportunities for sustained contact and daily interaction (Mouw & Entwisle, 2006). Not surprisingly, classroom ethnic diversity is related to the formation of cross-ethnic friendships. Although friendships are typically more frequent among same-ethnic peers (McPherson, Smith-Lovin, & Cook, 2001), contexts with greater availability of cross-ethnic peers increase the prevalence of ties between ethnically dissimilar youth (Graham, Munniksma & Juvonen, 2014; Quillian & Campbell, 2003). According to contact theory (Allport, 1954; Pettigrew & Tropp, 2006), sustained cross-ethnic contact, such as opportunities afforded by shared classes, increases familiarity and liking that promote friendships (cf. Bornstein & Craver-Lemley, 2004). With daily contact in diverse classes, youth are more likely to learn about similar interests of ethnically dissimilar peers which can in turn facilitate the development of relationships across groups. However, the extent to

which ethnically diverse classrooms enable youth to form supportive and lasting cross-ethnic relationships likely depends also on the extent to which youth re-segregate once class ends. It is therefore critical to consider whether and how students maintain their relationships outside of school (Thijs & Verkuyten, 2014). Thus, in order to understand the quality and longevity of cross-ethnic friendships, both in-school ethnic context and out-of-school contact need to be taken into account.

A growing body of research suggests that any school-based friendship is likely to benefit from out-of-school contact. Communicating and getting together outside of school are important to facilitate emotional closeness and intimacy between friends (Radmacher & Azmitia, 2006). Studies of young adolescents suggest that school-based friendships supplemented with out-of-school contact, such as commuting to and from school together, are associated with greater emotional intimacy (Mathur & Berndt, 2006). Also, electronic communication between friends has been shown to enhance the quality of existing relationships (Baiocco et al., 2011), in part due to greater self-disclosure (Abeele, Schouten & Antheunis, 2017). Higher quality relationships are, in turn, more likely to endure over time (Poulin & Chan, 2010). In contrast, when school-based friendships do not extend outside the classroom, they may exist as a matter of convenience and lack deeper connection necessary to stand the test of time. Hence, connecting outside of school might help capture a critical voluntary and active process (as opposed to the often involuntary process of attending the same classes at school) that is necessary for supportive and enduring friendships.

There is evidence suggesting that, compared to same-ethnic ties, cross-ethnic friendships involve less out-of-school contact. Based on the National Longitudinal Study of Adolescent Health (Add Health), cross-ethnic best friends are less likely to spend time at each others' homes, meet after school and talk on the phone (Kao & Joyner, 2004). While some of these findings may reflect residential racial segregation and lack of access to ethnically dissimilar friends (Warner & Settersten, 2017), some youth in ethnically diverse schools also express discomfort or feeling unwelcomed in the homes of their cross-ethnic friends (Wells, Holme, Revilla, & Atanda, 2004). Thus, findings suggesting lower quality and stability of cross-ethnic friendships, relative to same-ethnic friendships, might reflect in part a lack of contact outside of school. However, little is known about how in- and out-of-school opportunities for cross-ethnic contact might interact to foster both more supportive and lasting cross-ethnic friendships.

Current Study

To provide insights into relational differences between cross-ethnic and same-ethnic friendships, the present investigation examines the effects of classroom ethnic diversity and out-of-school contact. As mentioned earlier, while daily contact in ethnically diverse classrooms increases the formation of cross -ethnic friendships (Graham et al., 2014; Quillian & Campbell, 2003), such relationships may not develop into trusting and supportive bonds or last across grade levels unless friends keep also in contact outside of school (Thijs & Verkuyten, 2014). Thus, relational differences between same- and cross-ethnic friends may not be inevitable, but rather reflect opportunities to connect. It was therefore

hypothesized that differences in quality (i.e., trust, security, and supportiveness) and stability between cross- and same-ethnic friendships would be minimized when friends share ethnically diverse classrooms and connect outside of school (i.e., either electronically or at one another's homes). To test this hypothesis, three-way interactions between cross-ethnic friendship, classroom diversity, and out-of-school contact are examined.

Drawing on an ethnically diverse sample of students attending multiethnic urban middle schools, the current study sheds light on the conditions that foster the development of high quality and long lasting friendships following the middle school transition when youth increasingly rely on their friends for support (Collins & Laursen, 2005). Friendships are assessed at the end of the first year of middle school (i.e., sixth grade) using an unlimited peer nomination approach which enhances the ecological validity of friendship assessment (Cillessen & Marks, 2011). Reflecting the growing intimacy in friendships during the transition to adolescence, friendship quality is defined as the perceived support, trust, and security (Furman, 1996) of each nominated friend at sixth grade. Trust in particular has been shown to be fundamental for relationships between students from different ethnic groups (Grutter & Troop, 2018). Stability, in turn, is examined across the spring of sixth and eighth grades on the basis of re-nomination, or lack thereof.

To examine the effect of out-of-school contact, friends who go to each others' homes are distinguished from those who do not visit one another's homes, as well as friends who communicate electronically and those who do not engage in mutual texting or calling. Given that all predictors and outcomes are assessed separately for each friend, multilevel methods are used to capture friends nested within students. That is, in contrast to research predicting youth outcomes (e.g., depression, school achievement) as a function of their friendships, the current study focuses on relationship-specific outcomes. As such, the analyses model friend-level effects based on whether friends are same- or cross-ethnic, how ethnically diverse their shared classes are, and whether (and how) they keep in contact outside of school while accounting for individual differences between students (e.g., sex, ethnicity).

Methods

Participants

The current study relies on data from a large, longitudinal study of adolescents recruited from 26 public middle schools in California that varied systematically in ethnic composition (N= 5,991; 52% female). Based on self-reported ethnicity in the fall of sixth grade, the sample was 32% Latino/a, 20% White, 13% Asian, 12% African American, 14% Multiethnic or Biracial, and 9% from other ethnic groups (e.g., Middle Eastern). The proportion of students eligible for free or reduced price lunch (a proxy for school SES) ranged from 18% to 86% (M=47.6, SD=18.3) across schools. To be able to test the hypothesized effect of classroom diversity, the main analyses include only youth with at least one classroom-based friend in sixth grade (n=4,333; 54% female). Mirroring the ethnic diversity of the overall sample, the main analytic sample was 32% Latino/a, 20% White, 14% Asian, 12% African American, 14% Multiethnic or Biracial, and 8% from other ethnic groups. It should be noted that although prior publications based on other subsamples or shorter time-frames of this particular longitudinal study (e.g., Juvonen, Kogachi, & Graham,

2018) have been used to examine cross-ethnic friendships (mainly as predictors of intergroup attitudes; Chen & Graham, 2015; Knifsend & Juvonen, 2014), the current study is novel because it examines predictors of the quality and stability of specific friendships and relies on out-of-school contact data.

As with most longitudinal studies, not all participants had complete data at each wave. Of the main analytic sample, 81% of participants were retained at eighth grade. Although across the four pan-ethnic groups retention was slightly lower for African-American (75%) and Asian (76%) students compared to White (82%) and Latino (85%) students, all participation rates are better or comparable to other largely ethnic minority samples in urban school settings (e.g., Schwartz, Cappella, & Seidman, 2015).

Procedure

The study was approved by the relevant Institutional Review Board and school districts. During sixth grade recruitment, all students and families received informed consent and informational letters. Parental consent rates averaged 81% and student assent rates averaged 83% across schools. Only students who turned in signed parental consent and written assent participated. Data collection was conducted in schools. Surveys were read aloud by researchers, and students received $5 in sixth grade and $10 in eighth grade, for survey completion.

For the current study, friendship nominations are utilized from the spring of their first year of middle school (i.e., sixth grade), when students had already had several months to get to know each other. In addition to concurrent data in the spring of sixth grade (i.e., student-level demographics, friend-level quality, out of school contact and shared classroom diversity), friendship nominations at eighth grade are used to assess relationship stability two years later.

Measures

Friend-level Predictors.—Using an unlimited peer nomination procedure, students were asked to list the names of their good friends in their grade during the spring of sixth grade. Although reciprocity is regarded as a defining feature of friendship (Berndt & McCandless, 2009), the requirement of reciprocity is methodologically problematic when assessing relationship maintenance over time (e.g., attrition overestimates friendship dissolution) and is unrelated to friendship stability (Meter & Card, 2017). Thus, the present investigation relied on named friends (i.e., outgoing nominations) consistent with existing studies of friendship stability (e.g., Chan & Poulin, 2008; Lessard & Juvonen, 2018). For each nominated friend, students responded to questions regarding ethnic (dis)similarity, home contact, electronic contact and relationship quality (see below).

Cross-ethnic friendship for the main analyses was assessed through participant reports of whether “this friend is the same-ethnic group as me.” Responses to this question were coded such that same-ethnic friends (coded as 0) were used as a comparison for cross-ethnic friends (coded as 1). Subjective ratings of cross-ethnicity were used to maximize the sample size and specifically to retain participants (and their friends) who self-reported as

Multiethnic or of "other" ethnic groups. However, as explained later, participant self-reported ethnicity for a smaller sample (excluding Multiethnic students and those from other specific ethnic groups) is used to get a sense of the ethnic composition of cross-ethnic friend dyads and to test robustness of the main findings with the larger sample.

Home contact was assessed through self-reports for each nominated friend. Students responded whether they visit one another's homes (i.e., "go to each other's houses after school or on weekends") using a 3-point scale (1=no/hardly ever – 3=yes/almost always; skewness=1.10, kurtosis=−0.20). To consider the effect of any home contact versus none, responses were then dichotomously coded to reflect whether or not each friendship involved home contact or not (i.e., 1=home contact; 0=no home contact).

Electronic contact was similarly assessed for each nominated friend. Participants rated whether they "talk on the phone, text, email, video chat or IM each other," using a 3-point scale (1=no/hardly ever – 3=yes/almost always; skewness=0.14, kurtosis=−1.43). As with home contact, the responses were then dichotomously coded to reflect whether or not each friendship involved electronic contact or not (i.e., 1=electronic contact; 0=no electronic contact).

Shared classroom ethnic diversity was assessed for academic classes shared with each nominated friend. Each participant's unique course schedule was obtained from school records and was used to assess joint participation in academic classes (English, math, science, social studies). When there were multiple shared classes, the diversity scores were averaged across those classes. Using the self-reported ethnicity of classmates for shared classes with each nominated friend, Simpson's (1949) Diversity Index was computed:

$$D_S = 1 - \sum_{i=1}^{g} p_i^2$$

where p is the proportion of students in the school who are in ethnic group i. This proportion is squared (p_i^2), summed across g groups, and then subtracted from 1. D_S gives the probability that any two students randomly selected from a school will be from different ethnic groups. Values can range from 0 to approximately 1, where higher values indicate greater diversity (i.e., more ethnic groups that are relatively evenly represented with no clear numerical majority). Although there was a high rate of participation within schools (M=84%), some friends shared classrooms with too few participants to reliably calculate Simpson's Index. Nominated friends (n=315) who shared only one class that had less than seven students in the sample (2 SDs below the mean of 21 students; see Juvonen et al., 2018) were removed from the analyses. The diversity scores ranged from 0 to .90 (M=0.65, SD= 0.15), suggesting that the shared environments included ethnically homogenous as well as very diverse classes.

Student-level Covariates.—The current analyses controlled for self-reported *sex* (0=boy, 1=girl) and *ethnicity*, which was represented by five dummy variables (African American, Asian, White, Multiethnic, Other), using Latino students (the largest ethnic group in the

sample) as the reference group. It should be noted that students identifying as Filipino/Pacific Islander (2.7%), South Asian (1.8%), Middle Eastern (2.1%), or Other (2.1%) were collapsed into a combined category of "Other" given their low prevalence and to facilitate more parsimonious modeling. *Parent education level* (1=elementary/junior high school to 6=graduate degree) was reported by the parent or guardian who completed the parent consent form. In addition, the *number of nominated friends* was controlled for given that larger friendship networks are associated with greater instability (Chan & Poulin, 2008). Finally, the size of participants' ethnic group was taken into account by computing the *proportion of same-ethnic peers* in their grade at school as an index of relevant ethnic in-group representation.

Friend-level Outcomes.—*Perceived friendship quality* was measured at spring of sixth grade. Adapted from widely used measures in childhood and adolescence (see Furman, 1996), for each friend nominated, participants completed 3-items assessing the trust, security, and support of that relationship (e.g., "this friend helps me feel better when I'm upset"). Agreement with each item was indicated on a 3-point scale (1=*no/hardly ever* – 3=*yes/almost all the time*). Items were coded such that higher scores indicated stronger friendship quality (α=.75).

Friendship stability was assessed by comparing friendship nominations at sixth grade to friends hip nominations at eighth grade (cf. Aboud et al., 2003). Given that the majority of middle school friendships lasting one year dissolve a year later and that likelihood of dissolution drops significantly if friendships endure for two years (Hartl, Larsen & Cillessen, 2015), a more stringent two-year criteria was used to assess stability. Sixth grade friends who were re-nominated in the spring of eighth grade (i.e., two years later) were considered maintained and were compared to those friends who were not maintained (i.e., not re-nominated at eighth grade).

Analytic Plan

Data were analyzed using multilevel modeling in Mplus 8.0 to account for non-independence of observations, given that friends were nested within students (Raudenbush & Bryk, 2002). Multilevel modeling was used to simultaneously examine the effects of cross-ethnic friendship, shared classroom diversity and out-of-school contact (i.e., home, electronic), first for concurrent quality (i.e., sixth grade) and subsequently for stability two years later (i.e., eighth grade). Because stability is a dichotomous variable (1=stable, 0=unstable), a Bernoulli distribution with a logit link function was specified in order to predict the likelihood of friendship stability for each nominated friend. Full information maximum likelihood (FIML) estimation was used to address missing data, thus allowing data from all cases to be used for model estimations. FIML, a preferred strategy for handling missing data, is frequently utilized in longitudinal studies, as it uses all available data and allows for generalizing research findings to the sample population (Enders, 2010).

All analyses controlled for student-level gender (1=girl, 0=boy), ethnicity (five dummy coded variables with Latino as reference group), parental education level, number of friend nominations given, as well as proportion of same-ethnic peers at school. For stability

analyses, the initial relationship quality at the friend-level was controlled for. All continuous variables included in the multilevel analyses were grand-mean centered. Because the cross-ethnic friendship (1=cross-ethnic, 0=same-ethnic) as well as the home (1=home contact, 0=no home contact) and electronic (1=electronic contact, 0=no electronic contact) contact variables were dichotomous, the regression coefficients represent the difference between cross- versus same-ethnic friends, home versus no home contact and electronic versus no electronic contact.

The multilevel models were built in a two-stage process. First, main effects models were estimated to examine the effects of student-level covariates and friend-level predictors (i.e., cross-ethnic friendship, home contact, electronic contact, and shared classroom diversity) on friendship quality and stability, respectively. Second, to test the hypothesized three-way interactions (i.e., whether the effect of classroom diversity on the quality and stability of cross-ethnic friendships varied as a function of out-of-school contact), all two- and three-way interactions between the friend-level predictors were subsequently added to the model. As such, significant three-way interactions were decomposed by examining the two-way interactions between ethnic diversity and cross-ethnic friendship among friendships involving home/electronic contact versus those without such contact. For statistically significantly interactions, tests of simple slopes were conducted to examine the quality and stability of friends sharing classrooms one standard deviation below and one standard deviation above the mean of classroom ethnic diversity.

Results

The results are divided into three main sections. First, the analytic sample (i.e., friends sharing at least one academic class) is placed in the context of the larger sample by comparing the relationship features of friends who do, versus do not, share an academic class. Second, focusing on friends who share at least one academic class, cross-ethnic and same-ethnic friends are then compared. Third, turning to the main hypotheses, the multilevel regression models are presented examining the effects of shared classroom diversity and out-of-school contact concurrently on friendship quality, and friendship stability two years later (i.e., at eighth grade). Finally, supplemental analyses relying on participant self-reported ethnicity are reported using a smaller subsample. For these analyses testing the robustness of the main findings, Multiethnic students and those from other specific ethnic groups (for whom assessment of cross-ethnic or same-ethnic friendships would be problematic) are excluded. This smaller subsample provides a sense of the ethnic pairings of cross-ethnic friendships.

Classroom Based Versus Non-Classroom Based Friends

At spring of sixth grade, students nominated on average 3.66 friends (*SD*=2.52). Of all nominated friends (*n*=18,463), about half (52%) shared at least one academic class with the nominator. Multilevel (within-person) logistic regressions were used first to compare classroom-based friends (i.e., friends that shared at least one academic class) to non-classroom based friends. Consistent with the diversity of the schools sampled, the nominated friends sharing an academic class were more likely to be cross-ethnic (54%) than non-

classroom friends (50%; b=.19, SE=.04, p<.001) at sixth grade. Compared to friends not sharing any classes, those sharing at least one class were less likely to communicate electronically (b=−.17, SE=.04, p<.001) and go to each other's homes (b=−.50, SE=.04, p<.001). Classrooms friends were also rated lower in quality (b=−.18, SE= .04, p<.001) and they were less likely to be maintained two years later (b=−.29, SE=.05, p<.001) than friends who did not share any classes together. Taken together, compared to non-classroom friends, those who shared classes were not connecting as much out of school, were less supportive and also less likely to last across middle school. Thus, friendships that might largely be based on shared space and class content are particularly interesting as they are less robust than other friendships (e.g., those based on extracurricular activities). To test the hypothesis regarding the ethnic diversity of shared classes, the subsequent analyses include only friends that were enrolled together in at least one academic class.

Cross-Ethnic Classroom Friends at Sixth Grade

Table 1 reports the means and standard deviations of the friend-level predictor and outcome variables for the main analytic sample of 4,333 students with 9,171 friends. As mentioned above, of the friends who shared at least one class together at sixth grade, 54% were cross-ethnic (n=4,963), reflecting the diversity of the classroom contexts. Cross-ethnic friendships were less likely to involve home (M=.28, SD=.45) and electronic (M=.60, SD=.49) contact compared to same-ethnic friendships (home: M=.35, SD=.48; electronic: M=.64, SD=.48). Multilevel (within-person) logistic regressions revealed no sex differences in the likelihood of cross-ethnic friendship (b=.01, SE=.07, p=.939). There were, however, ethnic differences. Specifically, relative to Latino students, Asian students were less likely to report their friends as cross-ethnic (b=−.25, SE=.12, p=.035), whereas Multiethnic students (b=.44, SE=.13, p=.001) and those from other specific ethnic groups (b=1.45, SE=.17, p<.001) were more likely to report cross-ethnic friendships. In addition, students with parents who had higher levels of education (b=.07, SE=.03, p=.020) were more likely to report cross-ethnic friendships, whereas those with a greater proportion of same-ethnic peers at school were less likely to report cross-ethnic friendships (b=−3.62, SE=.26, p<.001). Finally, as expected, higher levels of classroom diversity increased the likelihood of cross -ethnic friendship (b=2.91, SE=.31, p<.001).

Multilevel Models

Concurrent Friendship Quality.—The results of the final multilevel analyses predicting friendship quality at sixth grade are displayed in Table 2. First, the main effects of the student-level covariates and friend-level predictors are estimated. Mirroring the lower order effects shown in Table 2, girls rated their friends as higher quality compared to boys. In addition, compared to Latinos, African American and Asian students rated their friends as higher quality. Finally, students with parents who had higher levels of education and those who gave a greater number of friend nominations rated their friends as higher quality. At the friend-level, there was no difference in the quality of same-ethnic (M=2.59, SD=.49) and cross-ethnic (M=2.60, SD=.50) friendships. In addition, all friendships benefitted from out-of-school contact. Specifically, students reported higher quality relationships with friends that go to each others' homes (M=2.64, SD=.51) compared to those that did not (M=2.56, SD=.49). Similarly, friends who communicate electronically were rated higher in quality

(*M*=2.65, *SD*=.47) than those who did not communicate electronically (*M*=2.49, *SD*=.52). Finally, shared classroom diversity was unrelated to the quality of same-ethnic friendships.

To test the hypothesized interaction effects, interaction terms were included capturing the two- and three-way interactions between cross-ethnic friendship (1=cross-ethnic, 0=same-ethnic), shared classroom diversity, and out-of-school contact (home as well as electronic contact). By including these interaction effects, the lower-order effects of the predictors are now interpreted as conditional effects. As shown in Table 2, the three-way interaction with *electronic* contact was non-significant. When removed, the two-way interactions remained non-significant, suggesting that the effect of electronic contact does not vary between same- and cross-ethnic friendships or as a function of contextual diversity.

The hypothesized three-way interaction emerged between cross-ethnic friendship, classroom diversity and *home* contact. To probe the three-way interaction, the two-way interaction between cross-ethnic friendship status and classroom diversity is examined for friends with and without home contact to test whether the effect of greater classroom diversity on cross-ethnic friendship depends on home contact. Given that home contact is dichotomous and that classroom diversity is continuous in nature, Figure 1 presents the findings with diversity on the x-axis. For friends *with no* home contact, the interaction between cross-ethnic friendship and classroom diversity was non-significant (*b*=.18, *SE*=.12, *p*=.133), suggesting that classroom diversity was unrelated to friendship quality when cross- and same-ethnic friends did not get together at each others' homes. However, for friends *with* home contact, there was a significant interaction between cross-ethnic friendship and classroom diversity (*b*=.57, *SE*=.19, *p*=.002). Tests of simple slopes revealed that while cross-ethnic friends were rated as lower in quality than same-ethnic friends when they shared less diverse classrooms (i.e., −1SD: *b*=−.27, *SE*=.09, *p*=.004), there was no difference in the quality of same- and cross-ethnic friends who shared classrooms with greater diversity (i.e., +1SD; *b*=−.09, *SE*=.08, *p*=.250). That is, higher levels of classroom diversity eliminated differences in the reported emotional closeness and support of same- and cross-ethnic friends who connected out-of-school at one another's homes.

Friendship Stability.—The results of the multilevel logistic analyses predicting friendship stability at eighth grade (1=stable, 0=unstable) are displayed in Table 3. First, the main effects of the student-level covariates and friend-level predictors were estimated. Consistent with the lower order effects shown in Table 3, girls were less likely to re-nominate their sixth grade friends at eighth grade, while no ethnic differences emerged in friendship stability. Students whose parents had higher levels of education and those who nominated more friends at sixth grade were more likely to maintain their friendships. Additionally, a greater proportion of same-ethnic peers at school was related to decreased friendship stability.

At the friend-level, capturing the instability of adolescent friendships, most nominated friends (81%) at sixth grade were not re-nominated as friends at eighth grade. Cross-ethnic friends were even more unstable, with only 17% maintained from sixth to eighth grade compared to 21% for same-ethnic friends. Higher quality friendships at sixth grade were more likely to be maintained two years later. In addition, out-of-school contact increased the likelihood of maintenance for all friendships. Specifically, the odds of friendship stability

increased by 116% when friends went to each others' homes and by 19% when friends communicated electronically. Finally, shared classroom diversity, on average, was unrelated to friendship stability.

Turning to the interactions, the interactive effects of cross-ethnic friendship, shared classroom diversity and out-of-school contact were estimated while controlling the student-level covariates (i.e., sex, ethnicity, parental education, friend nominations and ethnic in-group size) and friendship quality (see Table 3). In line with the friendship quality analyses, the three-way interaction with *electronic* contact was non-significant. When removed, the two-way interactions remained non-significant, suggesting that the effect of electronic contact on relationship stability did not vary between same- and cross-ethnic friendships or as a function of contextual diversity.

Consistent with the friendship quality models, a significant three-way interaction again emerged between cross-ethnic friendship, classroom diversity and home contact. The interaction was probed by examining the two-way interaction between cross-ethnic friendship and classroom diversity for friends with and without home contact. For friends *with no* home contact, the interaction between cross-ethnic friendship and classroom diversity was non-significant (b=−.49, SE=.31, p=.114), suggesting that cross-ethnic friends were less likely to be re-nominated two years later, regardless of classroom diversity. However, for friends *with* home contact, there was a significant interaction between cross-ethnic friendship and classroom diversity. Specifically, as shown in Figure 2, while cross-ethnic friends were less likely to be maintained two years later compared to same-ethnic friends when sharing classrooms with less ethnic diversity (−1 SD; b=−.53, SE=.18, p=.003), there was no difference in the stability of cross- and same-ethnic friendships when sharing classes with greater diversity (+1 SD; b=−.08, SE=.16, p=.623).

Supplemental Analyses

To test the robustness of the main findings and to get a sense of the ethnic composition of most cross -ethnic friend dyads, supplemental analyses relying on participant self-reported ethnicity were conducted on a smaller sample of friendship nominations excluding Multiethnic students and those from other specific ethnic groups (64% of analytic sample; n=5,871). By matching students' self-report ethnicity with that of each nominated friend, the ethnic breakdown of cross-ethnic friendships between those in the four pan ethnic groups was 20% African American-Latino, 19% Asian-Latino, 19% White-Latino, 15% Asian-White, 14% African American-White, 13% African American-Asian. In addition, using the same objective indicator of cross-ethnic friendship (i.e., defined as a match, or mismatch between the nominator and nominees' self-reported ethnicities), the main analyses were re-run. Although this objective ethnicity criteria reduced the sample size by almost 40% (i.e., students or friends identifying as Multiethnic or other ethnic could not be matched), the trends were similar for friendship quality and the stability analyses replicated. Specifically, consistent with the main analyses, all interactions with electronic contact were non-significant and the main effects were significant for quality (b=.08, SE=.02, p<.001) and stability (b=.30, SE=.10, p=.003). In addition, the three-way interaction between home contact, classroom diversity, and cross-ethnic friendship replicated for the stability of

friendships (*b*=2.16, *SE*=.95, *p*=.022) and, although trending in the same direction, became non-significant for friendship quality (*b*=.31, *SE*=.19, *p*=.105).

Taken together, the results suggest that all classroom-based friendships benefit from out-of-school contact, including getting together at each others' homes and communicating electronically (e.g., texting). In particular, those friendships that extend outside of the classroom are more likely to be high quality and longer-lasting relationships. Additionally, despite past research suggesting relationships between ethnically dissimilar peers to be less emotionally intimate and stable (e.g., Aboud et al., 2003; Jugert et al., 2013), the results suggest that greater classroom ethnic diversity promotes better quality and higher stability when friends' visit one another' homes.

Discussion

Cross-ethnic friendships contribute in unique ways to adolescents' social, emotional and academic adjustment (Benner & Wang, 2017; Graham et al., 2014; Kabawata & Crick, 2015) and have been causally linked to improved intergroup attitudes (Davies et al., 2011). Guided by contextual frameworks (e.g., Bronfenbrenner & Morris, 1998; Eccles et al., 1993), the goal of the current study was to shed light on how contact in overlapping contexts contribute to relational (i.e., quality and stability) differences between cross- and same-ethnic friendships. Although past research has suggested that same-ethnic friendships may be better positioned to provide socioemotional resources and meet adolescents' needs for support and security, the results of the current study suggest that this is not necessarily the case. Specifically, in the present ethnically diverse sample, ties with cross-ethnic peers provided just as much security, trust, and emotional support as same-ethnic ties. Moreover, differences in friendship stability based on ethnic (dis)similarity were eliminated when the friends shared more diverse class(es) and visited one another's homes. These findings are the first to demonstrate that ethnic diversity provides not only a fertile context for the formation of cross-ethnic friendships (e.g., Graham, et al., 2014; Thijs & Verkuyten, 2014), but also contributes to relational quality and especially longevity when ethnically dissimilar friends connect at one another's homes in the beginning of middle school.

Extending past research showing that ethnic diversity increases cross-ethnic friendship formation (e.g., Graham et al., 2014; Van Houtte & Stevens, 2009), the current findings highlight the critical role of out-of-school contact. Prior research has shown that in multiethnic contexts children focus more on shared interests than ethnicity when judging the likelihood of friendships (McGlothlin & Killen, 2005). Thus, greater diversity may encourage youth to befriend peers, regardless of ethnic (dis)similarity, based on factors more strongly linked to friendship quality and longevity, such as similar interests and shared sociobehavioral characteristics (Echols & Graham, 2013; McDonald et al., 2013). It could also be that ethnic diversity cultivates a unique context that promotes the strength of cross-ethnic relationships through increased peer support that manifests itself in home contact. When classroom-based friends did not go to each others' homes, the diversity of their shared classrooms was unrelated to the quality or stability of friendships.

Parents and community members are likely to play a central role in the way students experience ethnic diversity in their schools. Without the support of adolescents' community or family (Wells et al., 2004), cross-ethnic friendships may be especially difficult to maintain, even when schools provide opportunities to form them. Evidence indeed suggests that perceived parental ethnic attitudes play an important role in whether adolescents bring cross-ethnic friends home (Edmonds & Killen, 2009). Moreover, as cross-ethnic relationships become closer, adolescents often perceive greater parental discomfort and disapproval (Edmonds & Killen, 2009), suggesting that lack of parent/guardian support may constrain the strength of cross-ethnic friendships. Also, youth who have had little exposure to positive cross-ethnic relationships within their families or community lack important models for such relationships (Hamm, 2001; Thijs & Verkuyten, 2014). Thus, supportive attitudes and cross-ethnic connections of parents/guardians are likely to encourage cross-ethnic home contact, and in turn facilitate the development of more intimate and long-lasting cross-ethnic ties.

Whereas getting together at one another's homes was particularly important for the quality and maintenance of cross-ethnic friendships, electronic communication proved to be equally beneficial for all friendships. Despite being physically apart, the relational proximity engendered by mobile chitchat may provide youth with a sense of companionship and facilitate relational intimacy (e.g., greater self-disclosure, support seeking), which helps to account for the close affective bonds among friends who communicate electronically (Vanden Abeele et al., 2017). Thus, although over 81% of parents worry about their teens' online use (Madden, Cortesi, Gasser, Lenhart, & Duggan, 2012), it should be recognized also as an important avenue for the strengthening of adolescent friendships, particularly cross-ethnic ties given the relative ubiquity of electronic communication across teens from different ethnic groups (Lenhart, 2012).

There are a number of methodological strengths in the current s tudy. Perhaps most importantly, the study models multiple friends nested within students. This analysis strategy allows for comparisons of cross- and same-ethnic friendships, and friendships with and without the two types of out-of-school contact across shared classrooms that ranged in ethnic diversity. Second, the analyses focused on early adolescence, not only because cross-ethnic friendships have been least studied during this developmental phase, but also because opportunities for cross -ethnic friendships are likely to increase as several neighborhood elementary schools feed into larger middle schools. By capitalizing on a large ethnically diverse sample, the findings also extend studies comparing only two ethnic groups (e.g., White and non-White students; Graham & Echols, 2018). Finally, given that ethnic diversity exposure in academic classes does not necessarily correspond to school-level diversity (Juvonen et al., 2018), possibly due to instructional practices such as academic tracking, the current study focused on the diversity of specific classrooms in which youth share with their friend.

There are also several limitations to this study. First, self-report data was relied on. Although unidirectional friendship nominations minimize overestimation of friendship dissolution (due to attrition) and help retain students (and their friends) who identify as Multiethnic, it is important for future studies to also consider friends' reports of relationship quality and use

analytic approaches that account for potential dependencies within friendship dyads such as actor-partner interdependence modeling (e.g., Popp, Laursen, Kerr, Stattin & Burk, 2008). In addition, while the supplementary analyses provided important insights into the ethnic pairings of cross -ethnic friendships and the robustness of the stability findings, additional research will be needed to replicate the current findings for friendship quality with more extensive measures of the qualitative aspects of friendships than the one used in the current study.

Second, the current analyses were limited to friends who shared classes in order to be able to examine the effects of daily ethnic diversity exposure (i.e., robust data were available for the greatest number of participants on the ethnic composition of classes). However, the descriptive analyses indicated that friendships not sharing any classes were rated as higher quality and were more likely to endure until the end of middle school. The question then is how these friendships develop and are maintained. Extracurricular activities, in particular, may be an especially important setting for cross-ethnic contact insofar as they provide opportunity and foster equal status between ethnic groups (Knifsend & Juvonen, 2017). Whereas involuntary contact through shared classes may contribute to lower quality and stability, the voluntary nature of extracurricular activities where youth come together based on shared interests may foster stronger bonds between friends across ethnic groups (Moody, 2001). Future work should examine whether the quality and stability of extracurricular-based cross-ethnic friendships also benefit from the same type of out-of-school contact.

Additionally, between-school differences were not controlled for in the present analyses given that the variance explained for each of the outcomes at the school-level was low (ICCs: .009–.022). However, it is possible that the degree to which ethnically dissimilar friends are able to maintain contact outside of school depends not only on individual socioeconomic status (SES) or individual experiences of the ethnic context, but also by school factors not accounted for in this study. Relatedly, although measures of neighborhood ethnic diversity were not available, prior research demonstrates that cross-ethnic friendships are affected by proximity between friends' homes and the racial segregation of neighborhoods (Mouw & Entswile, 2006). Future work examining whether and how neighborhood ethnic diversity affects cross-ethnic friendship quality and stability, and whether diversity has an effect above and beyond convenience (proximity of friends' homes) would be an important next step. It is expected that ethnically diverse neighborhoods would provide a supportive context to strengthen school-based cross-ethnic friendships.

Finally, although beyond the scope of the current study, there could be quality and stability differences based on the particular pairing of adolescents' own ethnicity and the ethnicity of their friend. Norms of social distance between groups have been shown to affect types of contact with different ethnic groups (Joyner & Kao, 2000). Although in the current diverse sample there was little difference in the prevalence of different cross-ethnic friendship pairings, it could be that some cross-ethnic friendships have greater social distance and are faced with greater resistance based on the local histories of race relations or current political context. Hence, other external factors that may limit the strength and stability of cross-ethnic friendships should be explored especially for cross-ethnic ties between groups with greater social distance.

Conclusion

The current results call into question prior findings suggesting that cross -ethnic friendships are qualitatively weaker and less stable than same-ethnic friendships. In the present sample of youth attending multiethnic schools, there were no differences in the supportiveness and trust of cross-and same-ethnic friendships. Moreover, differences in friendship stability were eliminated when the conditions allowed for regular sustained contact at school as well as at least some contact at home. While ethnically diverse classrooms provide a foundation for cross-ethnic ties, such relationships cannot cease with the sound of the dismissal bell. Spending time together outside of school at one another's homes was particularly important for fostering stable cross-ethnic friendships. Although in urban contexts practical obstacles (e.g., transportation) may hinder such home visits, it is critical to recognize also the role of families and communities in welcoming and supporting inclusive relationships (Hamm, 2001; Loyd & Gaither, 2018). Based on the current evidence, cross-ethnic friendships are not inherently different from same-ethnic friendships but reflect in part unique contextual experiences both in and out of school.

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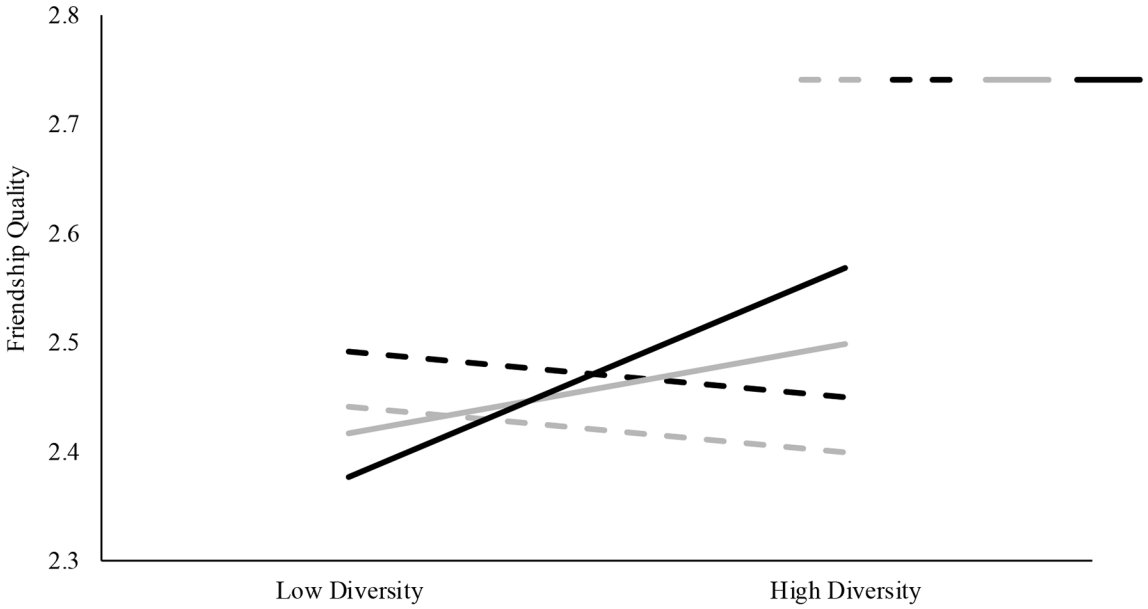

Figure 1.
Friendship quality at sixth grade as a function of cross- and same-ethnic friendship, classroom diversity and home contact.

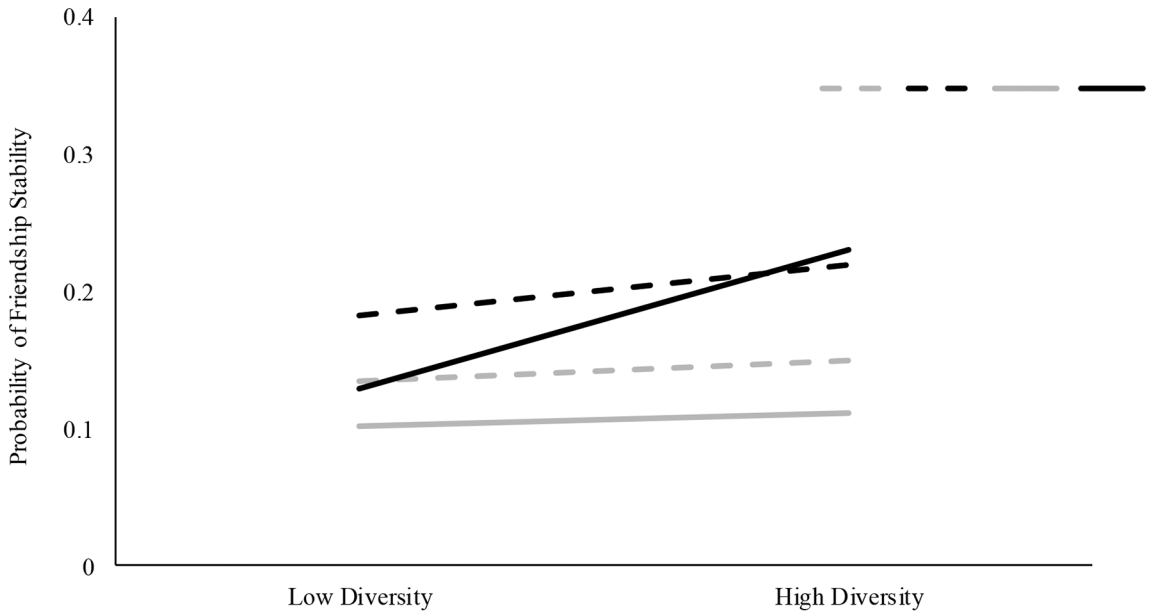

Figure 2.
Friendship stability at eighth grade as a function of cross- and same-ethnic friendship, classroom diversity and home contact.

Table 1.

Means and standard deviations of friend-level predictor and outcome variables for analytic sample.

	Cross-Ethnic Friends (*n*=4,963)		Same-Ethnic Friends (*n*=4,208)	
Variable	***M***	***SD***	***M***	***SD***
Shared Classroom Diversity	0.69	0.12	0.62	0.16
Home Contact	0.28	0.45	0.35	0.48
Electronic Contact	0.60	0.49	0.64	0.48
Quality	2.60	0.50	2.59	0.49
Stability	0.17	0.37	0.21	0.41

Table 2.

Final multilevel models predicting friendship quality at sixth grade.

Variable	Coefficient (SE)
Friend-level	
Cross-ethnic	0.035* (.02)
Electronic Contact	0.109*** (.02)
Home Contact	0.050** (.02)
Shared Classroom Diversity	−0.132 (.09)
CE × Diversity	0.388** (.13)
CE × Electronic Contact	−0.033 (.02)
CE × Home Contact	−0.035 (.02)
Diversity × Electronic Contact	0.111 (.10)
Diversity × Home Contact	−0.178 (.09)
CE × Diversity × Electronic Contact	−0.257 (.14)
CE × Diversity × Home Contact	0.347* (.15)
Student-level	
Sex	0.150*** (.01)
African American	−0.047* (.02)
As ian	−0.062** (.02)
W hite	0.016 (.02)
Multi	0.002 (.02)
Other	0.025 (.03)
Parental Education	0.012* (.01)
Friend Nominations	0.021*** (.003)
Ethnic In-group Size	−0.072 (.05)

Note. Sex reference group=Boys, Ethnicity reference group=Latino; CE=Cross-ethnic friend

* p<.05,

** p<.01,

*** p<.001

Table 3.

Final multilevel logistic regression models predicting friendship stability at eighth grade.

Variable	Coefficient (SE)
Friend-level	
Cross-ethnic	−0.345*** (0.07)
Quality	0.311*** (0.07)
Shared Classroom Diversity	0.668 (0.36)
Electronic Contact	0.123* (0.06)
Home Contact	0.406*** (0.07)
CE × Diversity	−0.390 (0.53)
CE × Electronic Contact	−0.054 (0.08)
CE × Home Contact	0.155 (0.10)
Diversity × Electronic Contact	−0.596 (0.98)
Diversity × Home Contact	0.685 (0.75)
CE × Diversity × Electronic Contact	−0.695 (1.49)
CE × Diversity × Home Contact	1.595* (0.77)
Student-level	
Girl	−0.172* (0.07)
African American	−0.115 (0.13)
As ian	−0.062 (0.11)
W hite	−0.109 (0.13)
Multi	−0.187 (0.11)
Other	−0.212 (0.11)
Parental Education	0.071** (0.03)
Friend Nominations	0.040** (0.01)
Ethnic In-group Size	−0.516 (0.27)

Note. Sex reference group=Boys, Ethnicity reference group=Latino; CE=Cross-ethnic friend

* p<.05,

** p<.01,

*** p<.001