Journal of Early Adolescence
2017, Vol. 37(8) 1093–1124
© The Author(s) 2016
Reprints and permissions:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/0272431616648454
journals.sagepub.com/home/jea
SAGE

# The Hidden Role of Teachers: Child and Classroom Predictors of Change in Interracial Friendships

**Elise Cappella[1], Diane L. Hughes[1], and Meghan P. McCormick[2]**

**Abstract**

Children in late elementary and middle school tend to form friendships with same-race peers. Yet, given the potential benefits of cross-race friendships, it is important to understand the individual and contextual factors that increase the likelihood of cross-race friendship over time. Guided by contact hypothesis and systems theory, we examine the student and classroom predictors of change in same-race friendships over 1 school year using a sample of 553 African American and European American students in 53 classrooms. Results suggest that same-race friendships increase over time, with greater increases among European American and older children. Youth externalizing behavior predicted a greater increase in same-race friendships; classroom support predicted less of an increase in same-race friendships from fall to spring. Lastly, African American students in classrooms with greater differential teacher treatment were more likely to engage in cross-race friendships over time. Findings are discussed in light of psychological and educational theories and prior research.

[1]New York University, New York, NY, USA
[2]MDRC, New York, NY, USA

**Corresponding Author:**
Elise Cappella, Department of Applied Psychology, New York University, 246 Greene Street, 8th Floor, New York, NY 10003, USA.
Email: elise.cappella@nyu.edu

**Keywords**
cross-race friendship, classroom support, psychosocial development, teacher differential treatment

## Introduction

Friendships play a unique role in children's lives, one that cannot be duplicated by parents or teachers (Asher & Coie, 1990; Berndt, 2002; J. R. Harris, 1995; Rubin, Bukowski, & Parker, 2006). In middle childhood and early adolescence, friendships are formed largely in classrooms (Gifford-Smith & Brownell, 2003). Although students in U.S. public schools often share classrooms with peers from varying backgrounds, children tend to develop friendships with peers of their own race or ethnicity (Aboud & Mendelson, 1996; Aboud, Mendelson, & Purdy, 2003; S. Graham, Taylor, & Ho, 2009). This tendency toward racial friendship *homophily* has been well-described in the sociology and social psychology literatures (Lazarsfeld & Merton, 1954; Zeng & Xie, 2008) and confirmed in descriptive, school-based studies (Hallinan & Williams, 1989; Haselager, Hartup, van Lieshout, & Riksen-Walraven, 1998; Shrum, Cheek, & Hunter, 1988). Yet, since the 1970s, educators and scholars have argued that intergroup friendship (or racial friendship *heterophily*) promotes psychosocial and academic adjustment (Pettigrew, 1998; Tropp, 2011). Indeed, laboratory experiments and correlational studies confirm associations between cross-race friendships and children's psychosocial and academic adjustment, including lower bias and victimization (Aboud et al., 2003; McGlothlin & Killen, 2010), and higher empathy and academic aspirations (Hallinan & Williams, 1990).

Given these findings, researchers have begun to examine factors at both individual and classroom levels that predict cross-race friendship (Hallinan & Teixeira, 1987a; Joyner & Kao, 2000). To date, however, few studies of racial friendship homophily consider both the classroom structure (i.e., the proportion of same/different-race students available to befriend) and social context (e.g., teacher support) in analysis. In addition, field-based studies rarely use analytic methods that allow for causal inference. The current study uses a multilevel framework to examine the contribution of demographic, psychosocial, and classroom characteristics to change in cross-race friendships from fall to spring of 1 school year (1996-1997).

### *Cross-Race Friendship and Child Development*

Peer relationships serve emotional and instrumental functions for youth (Berndt, 2002; B. B. Brown & Klute, 2003; Rubin et al., 2006). Social capital theory and social support literature suggest that friends can serve as psychosocial and academic resources (Stanton-Salazar, 2004) and protect children

from negative interactions and stress (Criss, Pettit, Bates, Dodge, & Lapp, 2002; Hodges, Malone, & Perry, 1997). Studies of social development indicate that friendships provide opportunities to build empathy and practice social skills (e.g., Ladd, 1990; Newcomb & Bagwell, 1995). The presence and quality of friendships relates to concurrent and subsequent emotional well-being, social competence, and academic outcomes (Berndt, Hawkins, & Jiao, 1999; Kindermann, 2007; Ladd, 1999; Ryan, 2003; Wentzel, Barry, & Caldwell, 2004; Wentzel, Battle, Russell, & Looney, 2010), with largely consistent findings across measurement methods (e.g., self-perceptions, peer nominations, reciprocal reports; Gifford-Smith & Brownell, 2003).

As social-psychological and sociological studies reveal, individuals tend to befriend peers with similar characteristics (McPherson, Smith-Lovin, & Cook, 2001). Yet, friendship across groups has been theorized to have positive effects on intergroup relations and individuals' own social and academic competence (Pettigrew & Tropp, 2006). Research in this area builds on Allport's (1954) contact theory, suggesting that intergroup contact successfully reduces bias between group members in interactions where group members have equal status, common goals, and cooperation—common characteristics of friendship (Pettigrew, 1998).

Empirical studies substantiate this perspective. Children's friendships across racial or ethnic groups are associated with positive intergroup attitudes (Crystal, Killen, & Ruck, 2008; McGlothlin & Killen, 2010), educational aspirations and performance (Hallinan & Williams, 1990; Newgent, Lee, & Daniel, 2007), and social adjustment (Kawabata & Crick, 2008, 2011). For example, Kawabata and Crick (2008, 2011) found that fourth grade students' intergroup friendships relate to social adjustment within time, and decreased relational victimization over time. In a sample of fourth, seventh, and tenth grade students, Crystal et al. (2008) reported positive relations between intergroup contact and negative judgments of race-based exclusion. In randomized trials of cooperative learning programs designed to increase positive intergroup contact in elementary and middle schools, researchers reported reduced out-group bias and improved academic achievement among participants (see Slavin & Cooper, 1999). Although some variation has been found by racial and ethnic group (Feddes, Noack, & Rutland, 2009; McGill, Way, & Hughes, 2012), the bulk of the evidence suggests cross-race friendships are related to and predict positive social-emotional and academic adjustment.

## *Child Predictors of Cross-Race Friendship*

Given the potential benefits of cross-race friendship, researchers have studied child characteristics that relate to cross-race friendship. Cross-sectional and longitudinal studies show decreases in interracial friendship across ages and

grades, as well as declines in the likelihood of a different-race peer moving into the category of "friend" over 1 academic year (Aboud et al., 2003; J. A. Graham, Cohen, Zbikowski, & Secrist, 1998; Hallinan & Teixeira, 1987b). This trend becomes pronounced in early adolescence, a developmental period when young people are increasingly aware of peers' perspectives, motivated to build a favorable identity, and sensitive to social rejection (Heilbron & Prinstein, 2008; Masten et al., 2009), all of which may reduce social interactions with dissimilar peers. In line with this theory, Hallinan and Smith (1985) found an increase in racial homophily from fourth to seventh grade, and Shrum and colleagues (1988) documented a curvilinear relationship between grade (3-12) and ethnic friendship homophily in a cross-sectional analysis. We re-examine these age/grade trends with more rigorous methods than what is present in the current literature: longitudinal change analysis and measures that account for the racial composition of the classroom setting (discussed in the following section).

Beyond age/grade differences, racial and ethnic group differences have been reported. Majority group members tend to be more segregated in comparison with minority group members and show a stronger homophily bias (Aboud et al., 2003; Howes & Wu, 1990; McGill et al., 2012; Strohmeier, Nestler, & Spiel, 2006). The bias may reflect social learning theory and social status research in schools, suggesting that individuals are socially reinforced for connections to high status peers (Bandura, 2006; Cillessen & Mayeux, 2004). Yet, it is important to note that few of these studies consider the proportion of same- or different-race peers in the settings where friendship is measured. Thus, the difference may not be related to the race of the student but instead to the differential opportunity for majority or minority group members to befriend dissimilar peers. The current study enables specification of whether racial group differences remain when accounting for the opportunity structure of the classroom.

The contribution of psychosocial factors to racial friendship homophily is an emerging area of focus. Social-cognitive theory suggests that children with higher social-emotional skills and lower emotional or behavioral problems may be better able to form and maintain friendships across groups (Aboud & Levy, 2000). Aligned with this prediction, some studies have found positive associations between students' cross-race friendships and their prosocial behaviors, social status, and leadership skills (e.g., Hunter & Elias, 2000; Kawabata & Crick, 2008; Lease & Blake, 2005). Yet other studies have not detected significant relations between social behavioral experiences (e.g., victimization) and cross-group friendships (Stefanek, Strohmeier, & van de Schoot, 2015). Most of the extant literature has examined cross-sectional associations or psychosocial outcomes of cross-race friendships. We extend

prior work and examine whether students with higher social skills or lower externalizing or internalizing problems increase their cross-race friendships over time. Also, given initial evidence that these associations may vary by race (McGill et al., 2012), we conduct exploratory analysis by racial group membership.

### *Classroom Predictors of Cross-Race Friendship*

In middle childhood and early adolescence, the majority of students' friendships are formed in classrooms. Aligned with ecological and systems theories (Bronfenbrenner, 1979; Tseng & Seidman, 2007), classroom characteristics are expected to influence friendship formation across groups. At the structural level, classroom size and racial composition are relevant. Higher numbers of cross-ethnic friendships are reported in classrooms and schools with higher proportions of other-ethnic peers (Bellmore, Nishina, Witkow, Graham, & Juvonen, 2007; Quillian & Campbell, 2003) and smaller class sizes (Hallinan & Teixeira, 1987b). For example, in a longitudinal study of fourth to seventh grade classrooms, Hallinan and Teixeira (1987b) found that proportion of Black students was positively related to cross-race friendships for White students—particularly in small classes—and negatively related to cross-race friendships for Black students. This evidence aligns with the "opportunity hypothesis" in which children with greater access to diverse peers are more likely to form interracial friendships (J. A. Graham et al., 2009; Hallinan & Teixeira, 1987a). Studies may control for racial composition but rarely consider composition in the *measurement* of same- and cross-race friendships (see Freeman, 1978; Strohmeier, 2012), an approach that will yield more precise estimates of effects.

At the classroom process level, presence of support and absence of competition are theorized to foster cross-race friendship (Aronson & Patnoe, 1997; Blanchard, Weigel, & Cook, 1975). These hypotheses are aligned with two conditions of Allport's (1954) contact hypothesis: intergroup cooperation and support of legitimate authorities (i.e., teachers). From this perspective and aligned with social learning theory (Bandura, 2006), teachers who provide support and foster cooperation create classrooms where students feel motivated and able to befriend a wider array of individuals, including those who may seem dissimilar to them. However, only one study has systematically examined these factors in relation to students' cross-race friendship choices. Hallinan and Teixeira (1987b) found positive links between teacher support for students' learning and Black students' selection of a White best friend. The authors also found negative associations between classroom competition and White students' selection of a Black best friend. Isolated studies

have used experimental designs to assess the role of cooperation and competition on interracial interactions (Roseth, Johnson, & Johnson, 2008). Warring, Johnson, Maruyama, and Johnson (1985) randomly assigned fourth and sixth grade children to different learning groups, and found that children in cooperative groups engaged in more cross-ethnic relationships than did children in individualistic or competitive groups. These relationships, however, did not translate into real world friendships. Based on principles of intergroup contact and social learning theory, we examine whether teacher support predicts increases in cross-race friendships and classroom competition predicts decreases in cross-race friendships over time.

Finally, differential teacher treatment of students may relate to peer relationships (Mikami, Griggs, Reuland, & Gregory, 2012). As described in Weinstein (2002), students know when teachers favor high- over low-achievers, and teachers' practices deliver messages about students' value (Mikami, Lerner, & Lun, 2010). Initial evidence of differential teacher treatment predicting students' treatment of classmates was found in a sample of Caucasian elementary school students (Mikami et al., 2012). In this study, teachers who treated students differently based on their academic achievement in the fall had classrooms in which children were less socially preferred overall by their peers in the spring. Other studies with racially diverse samples show that teachers who display differential treatment are more likely to favor Caucasian over African American students (Casteel, 1998; McKown & Weinstein, 2008). Thus, it may be expected that differential treatment predicts differential changes in friendship selection depending on children's racial group membership. One cross-sectional analysis found just this: In classrooms with academic hierarchies, Black students were more likely to form friendships with White students (Hallinan & Teixeira, 1987a). We extend this work to examine whether both African American and European American students are more likely to befriend European American students in a high differential teacher treatment classroom.

In sum, theory and limited research suggest classroom processes play a role in friendship. Yet, little research tests associations between these factors and change in cross-race friendships over time. Moreover, few studies use friendship measures that account for the classroom context in which friendship takes place (i.e., its opportunity structure), which could bias results.

## *Current Study*

The current study examines the extent to which individual and contextual characteristics predict change in cross- and same-race friendships over 1 school year in late childhood and early adolescence, accounting for the

opportunity structure of the classroom when calculating cross- and same-race friendship. This approach enables more precise estimation than does controlling for classroom racial composition alone. In addition, we use a longitudinal research design and analytic methods that increase causal inference. Specifically, in multilevel models, we examine predictors of change in racial friendship homophily across 1 year by child demographic characteristics (race, age), psychosocial characteristics (internalizing, externalizing, sociability), and classroom context (support, competition, differential teacher treatment).

Building on prior research, we hypothesize that European American students and older students will show increases in racial friendship homophily after controlling for prior levels of homophily and other relevant child and classroom factors. Based in social-cognitive theory (Aboud et al., 2003) and aligned with initial evidence (Hunter & Elias, 2000), we expect that students with higher psychosocial adaptation will decrease their racial friendship homophily across the year. In addition, we examine whether higher teacher support and lower classroom competition predict decreases in homophily over time, as would be expected from social learning theory (Bandura, 2006) and contact hypothesis (Allport, 1954). Finally, we explore racial group differences in the results, specifically testing our hypothesis that the effect of differential teacher treatment on change in racial friendship homophily is different for African American and European American students. Our goal is to advance understanding of the cross-level factors that enable children to select and maintain interracial friendships during a time of developmental and school transition.

## Method

Data are from the Early Adolescent Development Study (EADS), a longitudinal study of school experiences and intergroup relations among elementary and middle school children in a racially diverse, middle-class, suburban school district (Hughes & Johnson, 2001). Participating children completed surveys at four waves in the fall and spring of 2 consecutive school years: 1996-1997 and 1997-1998. The current study uses data from the first two waves of this study.

### *Participants and Setting*

Data are drawn from a subset of EADS participants. We excluded students who did not report on friendships either in the fall of 1996 (T1) or spring of 1997 (T2). Students with complete data were included in homophily

calculations. For example, we counted a friendship between a European American student and an "Other race" student as a cross-race friendship. However, similar to Neal (2010), we excluded students who were not classified as African American or European American from analyses, as the percentage of "Other race" students was quite small (1-2 students/classroom). Among the 553 students included in analyses (63% of the original sample), 61% were European American and 39% were African American. Half the sample was male and the mean age was 9.06 (*SD* = .84, minimum = 8, maximum = 12). Third and fourth graders (24% and 46% of sample, respectively) were in elementary school, and fifth graders (30% of sample) were in middle school. Although all children were in racially integrated schools, the extent of diversity varied: 37% of children attended schools that were less than 50% European American, 55% attended schools that were 50% to 60% European American, and 8% attended schools that were more than 60% European American. No significant differences were found between the original sample and current study sample on key available variables.

Data were drawn from five elementary schools ($n$ = 34 classrooms) and two middle schools ($n$ = 19 classrooms). Children were nested in $n$ = 53 classrooms, with an average of 22.87 students (*SD* = 2.63, minimum = 18, maximum = 30). On average, classrooms were composed of 42.71% (*SD* = .13) African American students and 50.37% (*SD* = .14) European American students. Classrooms were, on average, 48.96% (*SD* = .07) female and 51.04% (*SD* = .14) male.

The majority of parent respondents were college-educated middle- to upper-middle-income mothers. In total, 21% of parent survey respondents were fathers. Educational attainment of parents ranged from ninth grade to completion of a professional degree; 77% of parents had at least a 4-year college degree. Annual household income ranged from under US$10,000 to more than US$200,000, with a median of US$78,000. In total, 86% of parents were married; the average parent worked 37.34 (*SD* = 12.78) hours per week.

## Procedures

*Child surveys.* At T1, the school district provided names and addresses of all children in the fourth and fifth grades within the district and the third graders in three schools. The research team sent information and consent forms to parents of eligible children. Field staff visited classrooms to collect consent forms and distribute reminders to send home in children's backpacks.

At T1 and T2, research staff collected data from children by way of self-administered surveys conducted in classrooms during regular school hours.

Research team members visited each classroom during survey administration; one member read surveys aloud and the others monitored understanding and answered questions. Field staff read assent procedures, explained procedures for confidentiality, and collected completed surveys.

*Parent surveys.* In the spring of 1997, surveys were mailed to parents of children with parental consent. Mailings to non-responding parents were re-sent 3 and 5 weeks later. The overall response rate was 54%. Youth whose parents returned surveys did not differ significantly from those with non-participating parents on any indicator (Hughes & Johnson, 2001). Parent surveys were used in the current study to ascertain family characteristics only.

## Measures

*Child demographic characteristics.* Schools provided administrative data on student race (*child African American* = 1, *child European American* = 0), gender (*female* = 1, *male* = 0), and age (in years). Parents reported their level of education, which served as a proxy for socioeconomic status in the current study. Four dummy variables (≤ *high school diploma, some college, 4-year college diploma*, and *graduate school*) were coded to represent educational levels.

*Child psychosocial characteristics.* At T1, children completed the Child Rating Scale (CRS; Hightower et al., 1987). Using a 4-point Likert-type scale (1 = *almost never*; 4 = *very often*), children self-reported the frequency of their behaviors along four subscales—School Adjustment, Externalizing Behavior, Internalizing Behavior, and Peer Sociability. The Externalizing Behavior (6 items), Internalizing Behavior (7 items), and Sociability (6 items) subscales serve as predictors in analyses. Sample items from the Externalizing Behavior scale include "I behave in school (reverse coded)" and "I get in trouble in class" (current study: $\alpha = .88$). Sample items from the Internalizing Behavior scale are "I worry about things" and "I feel really sad" (current study: $\alpha = .81$). Sample items from the Peer Sociability subscale are "I make friends easily" and "I play by myself (reverse coded; current study: $\alpha = .78$). Average subscale scores were computed using arithmetic means. Evidence for the reliability and validity of these subscales has been well-documented (Cillessen & Bellmore, 1999; Kaufmann, Wyman, Forbes-Jones, & Barry, 2007).

*Friendship nominations.* At T1, each child in the study was given four options in reporting on their relationships with every other child in the classroom—"best

friend," "friend," "know," and "don't know." Best friends were described as children students "feel closest to, spend time with, share things with, and help whenever they can." Friends were defined as students the study participants like to play with, but are not as close with as their best friends. There was no limit on the number of possible nominations. For the current study, we quantify a friendship as the presence of a child-reported best friendship *or* friendship.

Based on friendship report, we then used a directed adjacency matrix to determine the presence and absence of friendships. In these matrices, cells coded as 1 denote a unilateral friendship between participant *i* and *j*, whereas a 0 indicates the absence of a friendship. Given lack of complete participation in this study, and variation in participation between classrooms, the presence of a friendship was not dependent on a self-report being reciprocated. However, analyses of non-missing data suggest the average degree of reciprocity at T1 was 0.41 (*SD* = .15, range = .21-.89), and the average degree of reciprocity at Time 2 was 0.47 (*SD* = .18, range = .24-.88). Reciprocity rates between 0.40 and 0.60 for children in middle childhood and early adolescence are considered adequate (Vaquera & Kao, 2008).

*Racial friendship homophily.* We calculated racial homophily by linking information from the friendship nomination directed adjacency matrix with demographic information. When calculating homophily, we included all students who provided data for the study, regardless of race or gender. However, only African American or European American students were included in the predictive analyses. Our homophily calculation is similar to the one developed by Freeman (1978) and subsequently adapted by Neal (2010) for individual-level measurement. The measure uses direct ties to same-group peers to assess homophily, accounting for the opportunity structure of the network. The key difference in this calculation is we used ego-network reports to operationalize network ties rather than cognitive social structures (CSS; Krackhardt, 1987). Also, instead of accounting for a "hanging out network," we examined students' friendships.

Within each classroom, we first calculated the total number of friends each student reported, as well as the total number of same-race friends. As illustrated in Equation 1, we divided the total number of same-race friends for student *i* in classroom *j* by the total number of friends for student *i* in classroom *j*.

$$\frac{\sum \text{Same RaceFriends}_{ij}}{\sum \text{Friends}_{ij}}. \quad (1)$$

Second, based on the racial opportunity structure of the classroom, we calculated an index that described the expected number of same-race friendships for student *i* in classroom *j*. As illustrated in Equation 2, we created this

calculation by dividing the number of same-race classroom peers by the total class size minus 1.[1]

$$\frac{\sum \text{Same Race Classroom Peers}_{ij}}{\text{Class Size}_j - 1}. \tag{2}$$

Finally, as illustrated in Equation 3, these initial calculations were combined to operationalize an individual homophily score.

$$\frac{\sum \text{Same RaceFriends}_{ij} \; / \; \sum \text{Friends}_{ij}}{\left(\sum \text{Same Race Classroom Peers}_{\text{ij}} \; / \; \text{Class Size}_{\text{j}} - 1\right)}. \tag{3}$$

In this equation, the sum of the same-race friends for student *i* in classroom *j* was divided by the sum of the total number of friends for student *i* in classroom *j*. Then, that number was divided by the sum of the same-race peers for student *i* in classroom *j*, divided by the class size for classroom *j* minus 1. In order to make the meaning of the score intuitive to researchers and practitioners, we then centered the score around 0. In this paradigm, a score of 0 indicates that an individual forms same-race friendships as would be expected by random chance given the opportunity structure for forming same-race friendships in the classroom. Scores from −1 to 0 indicate a student is more likely to form friendships that are more heterophilous than would be expected by random chance, given the opportunity structure for forming same-race friendships in the classroom. Finally, scores above 0 (possibly extending to infinity) indicate an individual's tendency to form relationships that are more homophilous than would be expected given the opportunity structure in the classroom. A recent study provides evidence of validity and reliability for this operationalization of racial friendship homophily (McCormick, Cappella, Hughes, & Gallagher, 2015).

*Proportion of classroom friendships.* We calculated each child's *proportion of friends in class* by dividing the number of total reported friendships by the class size minus 1.

*Classroom structural characteristics.* Class size and racial composition were coded from school district information on the number of students in each participating class and the race of each student. *Proportion African American in class* was calculated by dividing the number of African American students in the class by the total class size.

*Perceived classroom climate.* Using a 4-point Likert-type scale (1 = *really true*, 4 = *not true at all*), students reported on 12 items related to their perceptions

of classroom climate. These items were developed by the EADS research team. An exploratory factor analysis was used to identify two dimensions of perceived climate: *classroom support* and *classroom competition*. These dimensions were calculated at the individual student level rather than aggregated to the classroom level. This decision was supported by results of a latent class analysis indicating little variability in classroom mean levels of support or competition.

Classroom support included six items related to student perceptions of teachers' warmth, respect, and trust. Examples include "My teacher pays attention to my feelings," and "My teacher helps children feel good about themselves." Data were collected at T1, and Cronbach's alpha for the scale demonstrates good internal consistency ($\alpha = .76$). The variable for classroom support was calculated with the mean from the six items. Because the mean distribution of the variable was negatively skewed, we used tertiles to code it categorically. High classroom support represented students with an average score of 4, moderate classroom support represented students with an average score above 3.5, and low classroom support represented students with an average score less than 3.5.

Classroom competition was composed of three items related to perceptions of academic competition among classmates (e.g., "Most kids in this class want their work to be better than everyone else's work," "Students in this class always try to see who can answer questions first"). Data on classroom competition were collected at T1, and Cronbach's alpha for the scale demonstrates adequate internal consistency ($\alpha = .63$). The variable for classroom competition was calculated with the mean from the three items.

*Classroom differential treatment.* At T1, students completed the Teacher Treatment Inventory (TTI; Weinstein & Middlestadt, 1979) where children rate the frequency of their teacher's behavior toward a hypothetical high- or low-achieving peer. On the low-achiever form, children were told to pretend that a child (with initials: J.B.) was "someone who does not do very well in school. In fact, the child always gets the lowest grade in class. Everyone thinks the child is not very smart." For the high-achiever form, children were told to pretend that a child (with initials: P.R.) was "someone who does really well in school. In fact, the child gets the best grades in the class. Everyone thinks the child is smart." On a 4-point scale, students then rated how often their teacher behaved in various ways toward the hypothetical child (e.g., "the teacher asks [J.B.] [P.R.] to lead activities"; "the teacher scolds [J.B.] [P.R.] for not trying"). Within each classroom, the aggregate mean of all responses was taken to operationalize differential treatment at the classroom level (McKown & Weinstein, 2008). Classroom differential treatment was

computed as the absolute sum of the difference between classroom means for high- and low-achiever forms.

## *Analytic Approach*

*Missing data.* For the child-level variables, there were 0% to 14% missing data across study variables. There were no missing data at the classroom level. In order to achieve maximum power given the sample size ($N = 553$), individual students who were missing data points were compared with students who were not missing data points on all baseline characteristics. Little's MAR test (Little & Rubin, 1987) was used to determine that data were missing at random. A multiple data imputation method was employed and 10 separate data sets were imputed by chained equations, using Statistical Analysis System (SAS) PROC MI in SAS version 9.3 (Yuan, 2011). All unconditional and conditional analyses were run 10 separate times using the SAS PROC MIANALYZE function, and final parameter estimates were generated by calculating the mean of these 10 estimates.

*Descriptive analyses.* We first examined basic means and standard deviations for racial friendship homophily across the full sample at T1 and T2. We used paired samples *t* tests to examine whether there were significant differences in racial homophily across the school year.

We then examined descriptive means, standard deviations, and ranges for the racial homophily measures at T1 and T2, by child race, gender, and age. After calculating the descriptive statistics at each time point, we used independent samples *t* tests to determine whether there were statistically significant differences in racial homophily by race (child African American, child European American) and gender (female, male). Then, after creating three age groups (8-9, 9-10, 10-11+), we used a one-way ANOVA to test whether racial homophily differed across ages. Second, to determine whether racial homophily scores differed across time by group, we used paired samples *t* tests to compare racial homophily means by race, gender, and age at T1 and T2. Using a series of two-way ANOVA analyses, we tested whether these changes differed significantly by race, gender, and age.

*Hierarchical linear models.* To simultaneously examine predictors at the individual and classroom levels, analyses for the current study were conducted within a multilevel modeling framework using hierarchical linear modeling in SAS PROC MIXED (Cohen, Cohen, West, & Aiken, 2003; Raudenbush & Bryk, 2002; Singer, 1998). In order to accurately estimate the contextual effect of classroom predictors on student behaviors, all continuous predictors

at the classroom and student levels were centered around their grand mean (i.e., between-person centering; Raudenbush, 2009). The dummy coded variables (child African American, child female, classroom support, and parent education) were not centered.

We created a change score to model the outcome by subtracting the racial homophily score at T1 from the score at T2. We also included racial homophily at T1 as a covariate in conditional analyses. This protects against a Lord's Paradox problem, which can emerge when comparing models that use a change score outcome with models that control for initial levels of the outcome (Cole & Maxwell, 2003; Wainer, 1991). All predictive effects are, thus, interpreted as the change in racial homophily from T1 to T2, over and above the initial level at T1.

We then ran three-level unconditional models to determine whether there was significant between-classroom and between-school variation in change in homophily. We calculated intraclass correlations (ICC) to identify the amount of variation in racial homophily change attributed to classroom and school membership. The unconditional means model revealed a small but non-negligible level of between-classroom variation (intraclass correlation = .06). However, there was very little between-school variation in change in racial homophily (intraclass correlation = .003). As such, we used two-level models (students at Level 1, classrooms at Level 2) with school fixed effects in subsequent conditional analyses. A comparison of the log likelihoods of the two- and three-level models provided additional empirical support for this decision. Thus, in Model 1, a random effect was included at Level 2 to allow the intercept to vary for classroom nesting (Raudenbush, 2009). The equation for Model 1 is as follows:

$$\begin{aligned} &\text{Level 1}: \Delta\text{RaceHomophily}_{ij} = \beta_{0i} + \varepsilon_{ij.} \\ &\text{Level 2}: \beta_{0i} = \beta_0 + u_{0i}. \end{aligned} \tag{4}$$

The subscript *i* refers to student-level observations (Level 1 units) collected from classroom *j* (Level 2 units; Peugh, 2010). The model in Equation 1 is an unconditional means model: The change in racial homophily for student *i* in classroom *j* is modeled as a function of (a) a grand mean outcome score for all children ($\beta_{0i}$), (b) a term that represents deviations in a classroom's outcome mean around the grand outcome mean ($u_{0i}$), and (c) a time-specific residual term that demonstrates the differences between student *i* in classroom *j*'s observed and predicted outcome ($\varepsilon_{ij}$; Peugh, 2010).

Second, we examined a conditional model (Model 2) in which change in racial homophily is regressed onto child race and age. We adjusted for a number of Level 1 covariates: T1 racial homophily, T1 gender homophily, child

gender, parent education, and proportion of friends in class. In addition, we included Level 2 covariates—class size and classroom proportion of African American students—to adjust for classroom differences explaining change in racial homophily. Using a series of likelihood ratio tests, we tested the need for additional random effects, namely T1 racial homophily, T1 gender homophily, child African American, and child male. We found empirical support for the inclusion of T1 racial homophily as a random slope. Multilevel random effects models also assumed a correlation between the slope and intercept for racial homophily at T1.

We then included proposed predictors at Levels 1 and 2 to explain variation in change in racial homophily from T1 to T2. In Model 3, we added these Level 1 variables to build onto Model 2: externalizing behavior, internalizing behavior, sociability, and classroom competition. In addition, we added Level 1 dummy variables for classroom support (high support and moderate support were entered as predictors, and low support was the excluded reference group). Finally, we also included the classroom perception of teacher differential treatment at Level 2.

## Results

### *Descriptive Statistics*

The average level of racial friendship homophily across the sample was $\bar{X}$ = .05 (*SD* = .39) at T1 and $\bar{X}$ = .12 (*SD* = .41) at T2, indicating slightly higher than expected levels of racial friendship homophily given the opportunity structure in the classroom. Across the full sample, racial homophily at T2 was higher than racial homophily at T1, $t(551) = -3.49$, $p < .01$, suggesting that students reported fewer cross-race friendships at the end of the school year than at the start of the school year.

Table 1 presents descriptive statistics for racial homophily by race, gender, and grade. Descriptive statistics comparing rates of racial homophily by race suggest that African American children, on average, had lower levels of racial homophily than did European American children at both T1, $t(551) = -6.87$, $p < .01$, and T2, $t(551) = -6.37$, $p < .01$. There were no differences in racial homophily by gender. In addition, children in third grade had the lowest levels of homophily, fourth graders had moderate levels of racial homophily, and fifth graders had the highest levels of racial homophily at both T1, $F(2, 551) = 10.87$, $p < .01$, and T2, $F(2, 551) = 12.91$, $p < .01$. ANOVAs with subsequent post hoc tests suggested that these differences were all statistically significant.

*Model 1*. As mentioned earlier, the results of the unconditional means models demonstrated a small but non-negligible amount of variation in change in

**Table 1.** Descriptive Statistics for Racial Friendship Homophily by Race, Grade, and Gender.

| | Time 1 racial homophily | | | | Time 2 racial homophily | | | |
|---|---|---|---|---|---|---|---|---|
| | Child African American | | Child European American | | Child African American | | Child European American | |
| Variable | $\bar{X}$ | *SD* | $\bar{X}$ | *SD* | $\bar{X}$ | *SD* | $\bar{X}$ | *SD* |
| Grade 3 | −0.15 | 0.43 | 0.02 | 0.24** | −0.05 | 0.48 | 0.06 | 0.21** |
| Grade 4 | −0.10 | 0.26 | 0.14 | 0.42** | −0.05 | 0.30 | 0.20 | 0.45** |
| Grade 5 | 0.02 | 0.45 | 0.23 | 0.41** | 0.10 | 0.50 | 0.33 | 0.41** |
| Female | −0.07 | 0.35 | 0.14 | 0.39** | 0.02 | 0.41 | 0.21 | 0.40** |
| Male | −0.06 | 0.38 | 0.10 | 0.39** | 0.01 | 0.42 | 0.18 | 0.37** |

*Note.* Homophily is centered at 0 so 0 represents the percentage of same-race friends that would be expected by random chance. A value < 0 means fewer same-race friends than would be expected by random chance. A value > 0 means more same-race friends than would be expected by random chance. $N = 553$ students, $n = 53$ classrooms.
†$p < .10$. *$p < .05$. **$p < .01$.

racial homophily attributed to classroom-level variation (ICC = 5.87%). The results of the unconditional means model shown in Equation 1 revealed positive significant grand mean scores for change in racial homophily ($\gamma = .06$, $p < .01$; see Panel 1 of Table 2).

*Model 2.* As shown in the second panel of Table 2, the results of Model 2 revealed a statistically significant relationship between the initial level of racial friendship homophily and change in racial homophily from T1 to T2 ($\gamma = -.65$, $p < .01$), such that students with higher initial racial homophily showed less of an increase in homophily over time. In addition, African American students had lower levels of change in racial homophily than did European American children ($\gamma = -.08$, $p < .01$), increasing less over the school year. There was a statistically significant effect of age on change in racial homophily such that older students were more likely to befriend more same-race students over time, adjusting for student and classroom covariates ($\gamma = .05$, $p = .04$). The other variables were not statistically significant predictors of change in racial homophily.

As evident in the bottom portion of Table 2, there was a significant improvement in the log likelihood between Model 1 and Model 2, $\chi^2(2) = 149.48$, $p < .01$. In addition, the values for AIC and BIC decreased from Model 1 to Model 2. The residual variation was decreased from Model 1 ($\tau = .16$, $p < .01$) to Model 2 ($\tau = .10$, $p < .01$). The random effect for racial homophily at T1 was statistically significant ($\tau = .09$, $p < .01$), suggesting

**Table 2.** Hierarchical Linear Models Predicting Change in Racial Friendship Homophily From Child Characteristics and Classroom Factors.

| | Model 1 | | Model 2 | | Model 3 | |
|---|---|---|---|---|---|---|
| Fixed effects | γ | *SE* | γ | *SE* | γ | *SE* |
| Intercept | 0.06** | 0.02 | 0.15* | 0.07 | 0.21** | 0.07 |
| Homophily at T1 | | | −0.65** | 0.06 | −0.62** | 0.03 |
| Gender homophily at T1 | | | 0.04 | 0.04 | 0.02 | 0.04 |
| Child African American | | | −0.08** | 0.03 | −0.08* | 0.03 |
| Child male | | | −0.01 | 0.03 | −0.03 | 0.03 |
| Child age | | | 0.05* | 0.03 | 0.08* | 0.04 |
| Parent education, high school or less | | | −0.10 | 0.09 | −0.07 | 0.11 |
| Parent education, some college | | | 0.02 | 0.05 | −0.01 | 0.01 |
| Parent education, 4-year college | | | −0.02 | 0.04 | −0.03 | 0.04 |
| Middle school | | | −0.07 | 0.09 | −0.14 | 0.08 |
| Class size | | | −0.01 | 0.01 | −0.01 | 0.01 |
| Proportion of friends in class | | | −0.03 | 0.10 | 0.03 | 0.10 |
| Proportion African American in class | | | 0.01 | 0.14 | −0.06 | 0.16 |
| Externalizing behaviors | | | | | 0.06* | 0.03 |
| Internalizing behaviors | | | | | −0.01 | 0.03 |
| Child sociability | | | | | −0.01 | 0.03 |
| High classroom support | | | | | −0.10* | 0.04 |
| Moderate classroom support | | | | | −0.02 | 0.04 |
| Classroom competition | | | | | 0.01 | 0.02 |
| Classroom differential treatment | | | | | −0.03 | 0.06 |
| Random effects and fit statistics | | | | | | |
| Classroom variance | 0.01 | 0.00 | 0.01 | 0.00 | 0.01 | 0.01 |
| Homophily at T1 | | | 0.09** | 0.03 | 0.08** | 0.03 |
| Correlation, random slope/ intercept | | | .01* | .01 | .02* | .01 |
| Residual variance | 0.16** | 0.01 | 0.10** | 0.01 | 0.09** | 0.01 |
| Log likelihood | 314.30 | | −164.82 | | −132.70 | |
| AIC | 634.60 | | 373.63 | | 319.39 | |
| BIC | 647.77 | | 466.83 | | 430.76 | |

*Note.* $N$ = 553 students, $n$ = 53 classrooms. T1 = Time 1 (fall 1996).
AIC = Akaike information criterion; BIC = Bayesian information criterion.
$^{\dagger}p < .10$. $^{*}p < .05$. $^{**}p < .01$.

significant variation around the initial level of racial homophily predicting change in racial homophily. The correlation between the intercept and slope was statistically significant ($\tau = .01$, $p = .03$), suggesting that racial homophily at T1 was related to the change in homophily across the school year.

*Model 3.* Similar to the results of Model 2, the initial level of racial homophily was related to change in racial homophily ($\gamma = -.62$, $p < .01$). African American students had lower levels of change in racial homophily than did European American students, indicating they increase their homophily less over the course of the year ($\gamma = -.08$, $p = .03$). Moreover, the coefficient for age in this model was statistically significant, such that older students showed greater increases in homophily compared with younger students, adjusting for student and classroom covariates ($\gamma = .08$, $p = .04$).

The results of Model 3 revealed a significant negative effect of high perceived classroom support on change in racial friendship homophily relative to low support ($\gamma = -.10$, $p = .02$; see Panel 3 of Table 2). In other words, students who perceive their teachers to be highly supportive exhibit lesser increases in homophily across the school year. Externalizing behaviors had a positive and statistically significant effect on change in racial friendship homophily across the school year ($\gamma = .06$, $p = .04$), with students with externalizing behaviors more likely to increase their same-race friendships over the year. Significant relations were not found for other child (internalizing, sociability) or classroom (differential treatment) variables.

As evident in the bottom portion of Table 2, there was a significant reduction in the log likelihood between Model 2 and Model 3, $\chi^2(2) = 32.12$, $p < .01$. In addition, the values for AIC and BIC decreased from Model 2 to Model 3. The residual variation decreased between Model 2 ($\tau = .10$, $p < .01$) and Model 3 ($\tau = .09$, $p < .01$). The random effect for racial homophily at T1 was statistically significant ($\tau = .08$, $p < .01$), suggesting significant variation around the initial level of racial homophily predicting change in racial homophily. The correlation between the intercept and slope was statistically significant ($\tau = .02$, $p = .04$), suggesting that racial homophily at T1 was related to the change in homophily across the school year.

*Model 3:African American and European American subgroups.* Given these findings, and prior theory and research on potential racial differences in the classroom process variables, particularly differential teacher treatment, we conducted analyses that considered the same predictive models *separately* for African Americans and European Americans. Doing so improves the interpretability of effects and allows us to understand the relative importance of classroom support and teacher treatment for cross-race friendships within

each racial group. This approach may also increase our power to determine whether predictive effects vary by race. Indeed, we had limited power to detect statistically significant interactions in Model 3.

Interestingly, in the models predicting change in cross-race friendships separately for African American and European American students, we found that high perceived classroom support was significant for African Americans ($\gamma = -.11$, $p < .05$; see Table 3) and trend-level significant for European Americans ($\gamma = -.10$, $p < .10$; see Table 3). This effect did not differ significantly across groups, $\chi^2(2) = 1.01$, $p = .62$. In these models, we also found that the effect of teacher differential treatment on change in cross-race friendship was significant for African American students ($\gamma = -.21$, $p < .01$; see Table 3), but not for European American students such that African Americans in classrooms with greater differential teacher treatment were more likely to engage in cross-race friendships over time. Finally, though not the focus of the current study, this analysis revealed significant differences between European American ($\gamma = .13$, $p < .01$; see Table 3) and African American students ($\gamma = .01$, $p = .84$; see Table 3) in the role of externalizing behaviors on change in homophily, $\chi^2(2) = 7.53$, $p < .01$, such that this association was driven largely by the European American students in the sample.

## Discussion

This study builds on theory and prior research to examine the contribution of demographic, psychosocial, and classroom characteristics to change in cross-race friendships from the beginning to the end of 1 school year. We used an index of racial friendship homophily (i.e., same-race friendships) that accounted for the opportunity structure in the classroom (i.e., access to same- or cross-race peers) and tested predictors of change accounting for the multilevel structure of the data. We found that same-race friendships increased over 1 year, with greater increases among European American and older children. Externalizing behavior predicted a greater increase in same-race friendships over time, particularly for European American students, whereas perception of classroom support predicted less of an increase in same-race friendships. Finally, African American students in classrooms with greater levels of differential teacher treatment were more likely to engage in cross-race friendships across the school year. Findings confirm existing scholarship and offer new information about the psychosocial and classroom conditions under which African American and European American children in racially integrated elementary and middle schools engage in same- and cross-race friendships over time.

**Table 3.** Hierarchical Linear Models Predicting Change in Racial Friendship Homophily From Child Characteristics and Classroom Factors, by Child Race.

| | African American students | | European American students | |
|---|---|---|---|---|
| Fixed effects | γ | *SE* | γ | *SE* |
| Intercept | 0.22** | 0.10 | 0.21 | 0.08 |
| Homophily at T1 | −0.68** | 0.12 | −0.62** | 0.08 |
| Gender homophily at T1 | −0.02 | 0.04 | −0.02 | 0.05 |
| Child male | 0.01 | 0.05 | 0.02 | 0.04 |
| Child age | 0.08* | 0.04 | 0.08* | 0.04 |
| Parent education, high school or less | −0.22† | 0.12 | −0.03 | 0.14 |
| Parent education, some college | 0.02 | 0.08 | −0.02 | 0.06 |
| Parent education, 4-year college | 0.04 | 0.07 | −0.02 | 0.05 |
| Middle school | −0.11 | 0.08 | −0.02 | 0.33 |
| Class size | 0.02 | 0.02 | 0.01 | 0.01 |
| Proportion of friends in class | 0.02 | 0.12 | 0.01 | 0.01 |
| Proportion African American in class | −0.03 | 0.11 | 0.02 | 0.17 |
| Externalizing behaviors | 0.01 | 0.03 | 0.13** | 0.04 |
| Internalizing behaviors | −0.02 | 0.03 | 0.01 | 0.04 |
| Child sociability | −0.04 | 0.03 | −0.04 | 0.04 |
| High classroom support | −0.11* | 0.05 | −0.10† | 0.05 |
| Moderate classroom support | −0.03 | 0.05 | −0.07 | 0.05 |
| Classroom competition | 0.01 | 0.02 | −0.01 | 0.03 |
| Classroom differential treatment | −0.21* | 0.10 | 0.02 | 0.03 |
| Random effects and fit statistics | | | | |
| Classroom variance | 0.02† | 0.01 | 0.01 | 0.01 |
| Homophily at T1 | 0.36* | 0.15 | 0.08* | 0.03 |
| Covariance | 0.02 | 0.03 | 0.01 | 0.01 |
| Residual variance | 0.07** | 0.01 | 0.10** | 0.01 |
| Log likelihood | −54.59 | | −82.64 | |
| AIC | 145.19 | | 213.27 | |
| BIC | 204.47 | | 300.42 | |

*Note.* T1 = Time 1 (fall 1996).
AIC = Akaike information criterion; BIC = Bayesian information criterion.
†$p < .10$. *$p < .05$. **$p < .01$.

## *Racial Friendship Homophily: Average Levels and Change Over Time*

On average, same-race friendships were more common than expected given access to same- and cross-race classmates. Although other studies report positive associations between classroom racial or ethnic composition and

students' interracial or interethnic peer relationships (e.g., Bellmore et al., 2007), few studies incorporate the classroom opportunity structure directly into the index of racial friendship homophily. This method enabled us to determine with specificity that the homophily tendency (McPherson et al., 2001) extends beyond simple access to cross-race peers.

Same-race friendships also increased from fall to spring. In a sample of 8 to 12 year olds, it is not uncommon to see increases in racial homophily over time (e.g., Hallinan & Smith, 1985; Shrum et al., 1988). In addition, cross-race friendships may be somewhat less stable over a 6- to 8-month period than same-race friendships due, perhaps, to lower levels of intimacy in cross-race friendships (Aboud et al., 2003). But given some findings showing similar levels of loyalty and emotional security in same- and cross-race friendships (e.g., Aboud et al., 2003), other explanations should be considered as well. It may be that same- and cross-race friendships have similar *initial* levels of quality, but same-race friendships deepen over time (e.g., due to perceptions of shared characteristics; Linden-Andersen, Markiewicz, & Doyle, 2009), leading to more friendship nominations for same-race classmates in the spring of the school year. Measures of friendship quality and quantity are needed to test this empirically.

### *Demographic Predictors: Race and Age*

Our analysis of child demographic differences in racial friendship homophily within and across time confirmed prior research. Descriptive analysis revealed that African American children and younger children, on average, had lower levels of racial friendship homophily than European American and older children in both the fall and the spring. Multilevel models with child and classroom covariates showed that older students and European American students increased more in their same-race friendships over the school year than did younger students and African American students. This finding is not surprising given studies indicating majority group members and middle grade students show a stronger homophily bias in friendship choices than minority group members and younger grade students (e.g., Hallinan & Teixeira, 1987b; Howes & Wu, 1990; McGill et al., 2012; Shrum et al., 1988). We can be confident these findings are not spurious as they are present in a rigorous change model that accounts for both child characteristics and the composition, structure, and process of the classroom environment.

### *Psychosocial Predictors: Externalizing Behaviors*

Child externalizing behaviors predicted an increase in same-race friendships across the school year beyond child and classroom covariates. In other words,

students reporting greater externalizing behaviors also reported greater increases in same-race friendships over time. No significant effects were found for internalizing or sociability. Yet social-cognitive theory applied to cross-race friendships (Aboud & Levy, 2000) suggests children with greater social skills and/or fewer social problems might be better able to form and maintain friendships with diverse peers. This theory has been supported in cross-sectional research on prosocial skills, positive leadership, and friendliness (e.g., Hallinan & Teixeira, 1987b; Hunter & Elias, 2000; Kawabata & Crick, 2008; Lease & Blake, 2005). The current study moves beyond social skills to internalizing and externalizing behaviors and tests predictive associations in a longitudinal change design.

The lack of a significant association between internalizing behaviors and change in cross-race friendship may be related to the nature of these behaviors. Sadness and anxiety are often invisible to the broader peer group (Epkins & Meyers, 1994) and may relate to quality of friendship (McGill et al., 2012) more than prevalence of same or cross-group friendship (Stefanek et al., 2015). Externalizing behaviors (e.g., fighting, name-calling, getting in trouble) are visible to the peer group; in contexts where externalizing is nonnormative, these behaviors relate to negative peer reputations that form and harden over time (M. J. Harris, Milich, Corbitt, Hoover, & Brady, 1992; Hoza et al., 2005). Such behaviors may create increasing barriers to forming friendships with diverse peers as the school year progresses. Interestingly, this finding was driven by European American students: European American students with externalizing behaviors were particularly likely to increase their same-race friendships across the school year. It may be that European American students with externalizing behaviors exhibit aggressive acts perceived to be discriminatory (Brewer & Kramer, 1985), thus decreasing their cross-race friendships over time. Or, this finding may relate to community or societal norms (Tseng & Seidman, 2007) around differential acceptability of aggressive behavior and cross-race friendships for different groups. Given that this was not a focus of the current study, we are cautious in our interpretation; future research is needed to confirm and extend it.

### *Contextual Predictors: Classroom Support and Differential Teacher Treatment*

After controlling for child and classroom characteristics, high perceived classroom support was significantly related to lower increases in same-race friendships over time. No effects were found for classroom competition. The lack of significant effects for competition may reflect the nature of the

sample: students from highly educated families in a school district in which academic competition is fairly normative. Yet, the overall finding for classroom support is important. In prior research, teachers' support for student enjoyment of learning was related to African American students' selection of European American best friends (Hallinan & Teixeira, 1987b). The current study's subgroup analysis revealed slightly stronger findings for African American than European American students; however, this difference was not significant, indicating that classroom support mattered for all students. This association was present in models predicting change over time and controlling for a host of multilevel covariates, which increases our confidence in its robustness.

Applications of social learning theory to schools (Bandura, 2006) and related research (Donohue, Perry, & Weinstein, 2003; Mikami et al., 2012) suggest that teacher-student interactions characterized by support, trust, cooperation, and respect create contexts for positive peer relationships. Perceptions of teachers as highly supportive to oneself and classmates may trickle down to selection of friendships. Scholars have highlighted the "invisible role" of teachers in children's peer relationships (Cappella & Neal, 2012; Farmer, Lines, & Hamm, 2011; Donohue et al., 2003; Wentzel et al., 2010), noting that teachers play a role in students' social status and social competence. Isolated correlational and experimental studies of children in late childhood and early adolescence find that contexts in which supportive and cooperative practices are prevalent (or perceived) increase the likelihood of cross-race interactions (Warring et al., 1985) or friendship (Hallinan & Teixeira, 1987b). However, no prior research has examined the role of classroom support in change in interracial friendships over time; thus, this study is critical in suggesting that teacher and classroom support may stem the tide of increasing within-group friendship in the middle years.

Finally, as expected, African American students in classrooms with high teacher differential treatment were more likely to increase their cross-race friendships over the year. Teachers' differential treatment sends messages regarding the value of different groups (Mikami et al., 2010). We do not know whether the teachers in this sample who were seen to treat students differently were also seen to favor one racial group over another. However, prior research suggests teachers may be more likely to favor Caucasian over African American students (Casteel, 1998; McKown & Weinstein, 2008). If this is the case for the current sample, it is not surprising for African American students to nominate more European American classmates as their friends at the end of the school year, as they begin to internalize the higher value their teachers place on the European American students. It was not the case that high differential teacher treatment classrooms predicted increases in

homophily among European American students. This may be due to ceiling effects as there were high baseline levels of same-race friendships among European American students and increases in homophily across the school year. Still, this finding for the African American subgroup is aligned with a handful of prior studies on differential treatment (Mikami et al., 2012; Weinstein, 2002) and academic hierarchies (e.g., Hallinan & Teixeira, 1987a), and informs future research on the role of teacher instruction in students' friendships.

## *Limitations and Conclusion*

Several limitations must be noted. First, due to moderate levels of consent, we used individual perceptions of friendship rather than reciprocated nominations. Individual perceptions have been used in other studies (McGill et al., 2012; Munniksma & Juvonen, 2012), and perceptions reflect one's personal reality. In addition, subgroup analysis with the consented sample indicated adequate reciprocity rates. Yet, these results should be replicated with alternative measurement approaches, including reciprocated friendship nominations. Second, we limited our analysis to the African American and European American participants. Although only a small number of students was excluded, this means we do not account for all friendships (though we do control for proportion of friends in all analyses). In addition, researchers increasingly conduct studies in schools where the students represent multiple ethnic groups (Munniksma & Juvonen, 2012; Quillian & Campbell, 2003), including recent immigrants and native born students (Strohmeier, 2012). The age of the data set and the study setting (suburban, upper-middle class) means access to this diversity was limited. However, our sample of African American and European American students comes from families with relatively similar economic and educational resources; thus, race and class are not confounded. Still, we suggest caution in interpreting and generalizing the findings.

Third, our psychosocial and ecological measures are student reports. Student reports about their classrooms are highly correlated with teacher observations (Mihaly, McCaffrey, Staiger, & Lockwood, 2013). Yet, additional reporters and newer measures of classroom context (e.g., Pianta, La Paro, & Hamre, 2008) would yield a more complete picture of the classroom. A related limitation is our inability to analyze the classroom support measure at the classroom level. Use of systematic observations of teacher support and cooperation or classroom aggregated student-report data (by mean or variance) would illuminate whether this finding holds when modeled as a quality of the classroom rather than the perceptions of the student. Finally, this study was not sufficiently powered to test school differences (which were

controlled via fixed effects). Some students in our sample (third and fourth graders) attended elementary school whereas others (fifth graders) attended middle school. The fifth graders were similar to the younger students in that they spent the majority of their school day with one set of peers in heterogeneous groups and with one main teacher. In addition, classrooms rather than schools are the critical space for friendship formation, and teachers remain the primary non-kin adult with whom students spend time. Yet, prior scholarship indicates school-level differences that should be explored in future studies (Khmelkov & Hallinan, 1999; Tseng & Seidman, 2007).

Overall, the current study moves our understanding forward in ways that may have implications for policy and practice. As suggested by Allport's (1954) contact hypothesis and subsequent scholarship, cross-race interactions reduce bias when the interactions occur in the context of friendship (Landis, Hope, & Day, 1984; Pettigrew, 1998). Friendship with racially or ethnically diverse peers may create opportunities for academic and social learning different from the opportunities afforded by within-group friendships (Kawabata & Crick, 2008, 2011; Newgent et al., 2007). Most elementary and middle school students' friendships are formed in classrooms in schools, and increases in school ethnic and racial diversity lead to increased access to a diverse set of peers.

But access alone does not appear to be sufficient. As Thijs and Verkuyten (2014) argued and our findings suggest, contextual variation plays a role in how students respond to the ethnic and racial diversity around them. We find that perceptions of classroom support and differential treatment predict changes in same-race friendships over time, indicating that teachers may make a difference in how students select and maintain friendships. This finding, taken in tandem with other work, may point toward the need for schools and districts to not only create access to a diversity of students but also for teachers to develop classrooms in which "cooperative independence" (Blanchard et al., 1975) is normative. When students give and receive support to and from one another and their teacher, and hierarchies (e.g., social, academic) are not dominant (Aronson & Patnoe, 1997), interracial friendships may be more likely to develop and be maintained during early adolescence and school transitions.

## Acknowledgments

The authors appreciate the efforts of the researchers and the participation of the students, families, teachers, and schools.

## Authors' Note

The opinions expressed are those of the authors and do not represent the views of the funding organizations. The study was approved by New York University's Institutional Review Board.

## Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The research reported here was supported by grants to the second author from the Carnegie Corporation of New York's Initiative on Improving Intergroup Relations Among Youth and the William T. Grant Foundation. Additional financial support was provided by the Institute of Education Sciences, U.S. Department of Education, through Grant R305B080019 to New York University (NYU), and from the NYU Steinhardt School of Culture, Education, and Human Development.

## Note

1. It is important to subtract 1 from the class size as the reporter should not be included in the total.

## References

Aboud, F. E., & Levy, S. R. (2000). Interventions to reduce prejudice and discrimination in children and adolescents. In S. Oskamp (Ed.), *Reducing prejudice and discrimination* (pp. 269-293). Mahwah, NJ: Lawrence Erlbaum.

Aboud, F. E., & Mendelson, M. J. (1996). Determinants of friendship selection and quality: Developmental perspectives. In W. M. Bukowski, A. F. Newcomb, & W. W. Hartup (Eds.), *The company they keep: Friendships in childhood and adolescence* (pp. 87-112). New York, NY: Cambridge University Press.

Aboud, F. E., Mendelson, M. J., & Purdy, K. T. (2003). Cross-race peer relations and friendship quality. *International Journal of Behavioral Development*, *27*, 165-173.

Allport, G. W. (1954). *The nature of prejudice*. Oxford, UK: Addison-Wesley.

Aronson, E., & Patnoe, S. (1997). *The jigsaw classroom*. New York, NY: Longman.

Asher, S. R., & Coie, J. D. (Eds.). (1990). *Peer rejection in childhood*. Cambridge, UK: Cambridge University Press.

Bandura, A. (2006). Toward a psychology of human agency. *Perspectives on Psychological Science*, *1*, 164-180.

Bellmore, A. D., Nishina, A., Witkow, M. R., Graham, S., & Juvonen, J. (2007). The influence of classroom ethnic composition on same- and other-ethnicity peer nominations in middle school. *Social Development*, *16*, 720-740.

Berndt, T. J. (2002). Friendship quality and social development. *Current Directions in Psychological Science*, *11*, 7-10. doi:10.1111/1467-8721.00157

Berndt, T. J., Hawkins, J. A., & Jiao, Z. (1999). Influences of friends and friendships on adjustment to junior high school. *Merrill-Palmer Quarterly*, *45*, 13-41.

Blanchard, F. A., Weigel, R. H., & Cook, S. W. (1975). The effect of relative competence of group members upon interpersonal attraction in cooperating interracial groups. *Journal of Personality and Social Psychology*, *32*, 519-530. doi:10.1037/h0077084

Brewer, M. B., & Kramer, R. M. (1985). The psychology of intergroup attitudes and behavior. *Annual Review of Psychology*, *36*, 219-243.

Bronfenbrenner, U. (1979). Contexts of child rearing: Problems and prospects. *American Psychologist*, *34*, 844-850. doi:10.1037/0003-066X.34.10.844

Brown, B. B., & Klute, C. (2003). Friendships, cliques, and crowds. In G. R. Adams & M. D. Berzonsky (Eds.), *Blackwell handbook of adolescence: Blackwell handbooks of developmental psychology* (pp. 330-348). Malden, MA: Blackwell.

Cappella, E., & Neal, J. W. (2012). A classmate at your side: Teacher practices, peer victimization, and social network affiliations. *School Mental Health*, *4*, 81-94.

Casteel, C. A. (1998). Teacher-student interactions and race in integrated classrooms. *The Journal of Educational Research*, *92*, 115-120.

Cillessen, A. H. N., & Bellmore, A. D. (1999). Accuracy of social self-perceptions and peer competence in middle childhood. *Merrill-Palmer Quarterly*, *45*, 650-676.

Cillessen, A. H. N., & Mayeux, L. (2004). From censure to reinforcement: Developmental changes in the association between aggression and social status. *Child Development*, *75*, 147-163.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Cole, D. A., & Maxwell, S. E. (2003). Testing mediational models with longitudinal data: Questions and tips in the use of structural equation modeling. *Journal of Abnormal Psychology*, *112*, 558-577. doi:10.1037/0021-843X.112.4.558

Criss, M. M., Pettit, G. S., Bates, J. E., Dodge, K. A., & Lapp, A. L. (2002). Family adversity, positive peer relationships, and children's externalizing behavior: A longitudinal perspective on risk and resilience. *Child Development*, *73*, 1220-1237.

Crystal, D. S., Killen, M., & Ruck, M. (2008). It is who you know that counts: Intergroup contact and judgments about race-based exclusion. *British Journal of Developmental Psychology*, *26*, 51-70. doi:10.1348/026151007X198910

Donohue, K. M., Perry, K. E., & Weinstein, R. S. (2003). Teachers' classroom practices and children's rejection by their peers. *Journal of Applied Developmental Psychology*, *24*, 91-118.

Epkins, C. C., & Meyers, A. W. (1994). Assessment of childhood depression, anxiety, and aggression: Convergent and discriminant validity of self-, parent-, teacher-, and peer-report measures. *Journal of Personality Assessment*, *62*, 364-381.

Farmer, T. W., Lines, M. M., & Hamm, J. V. (2011). Revealing the invisible hand: The role of teachers in children's peer experiences. *Journal of Applied Developmental Psychology*, *32*, 247-256.

Feddes, A. R., Noack, P., & Rutland, A. (2009). Direct and extended friendship effects on minority and majority children's interethnic attitudes: A longitudinal study. *Child Development*, *80*, 377-390. doi:10.1111/j.1467-8624.2009.01266.x

Freeman, L. C. (1978). Segregation in social networks. *Sociological Methods & Research*, *6*, 411-429. doi:10.1177/004912417800600401

Gifford-Smith, M. E., & Brownell, C. A. (2003). Childhood peer relationships: Social acceptance, friendships, and peer networks. *Journal of School Psychology*, *41*, 235-284.

Graham, J. A., Cohen, R., Zbikowski, S. M., & Secrist, M. E. (1998). A longitudinal investigation of race and sex as factors in children's classroom friendship choices. *Child Study Journal*, *28*, 245-266.

Graham, S., Taylor, A., & Ho, A. (2009). Race and ethnicity in peer relations research. In K. Rubin, W. Bukowski, & B. Laursen (Eds.), *Handbook of peer interactions, relationships, and groups* (pp. 394-413). New York, NY: Guilford Press.

Hallinan, M. T., & Smith, S. S. (1985). The effects of classroom racial composition on students' interracial friendliness. *Social Psychology Quarterly*, *48*, 3-16.

Hallinan, M. T., & Teixeira, R. A. (1987a). Opportunities and constraints: Black-White differences in the formation of interracial friendships. *Child Development*, *58*, 1358-1371.

Hallinan, M. T., & Teixeira, R. A. (1987b). Students' interracial friendships: Individual characteristics, structural effects, and racial differences. *American Journal of Education*, *95*, 563-583.

Hallinan, M. T., & Williams, R. A. (1989). Interracial friendship choices in secondary schools. *American Sociological Review*, *54*, 67-78.

Hallinan, M. T., & Williams, R. A. (1990). Students' characteristics and the peer-influence process. *Sociology of Education*, *63*, 122-132. doi:10.2307/2112858

Harris, J. R. (1995). Where is the child's environment? A group socialization theory of development. *Psychological Review*, *102*, 458-489.

Harris, M. J., Milich, R., Corbitt, E. M., Hoover, D. W., & Brady, M. (1992). Self-fulfilling effects of stigmatizing information on children's social interactions. *Journal of Personality and Social Psychology*, *63*, 41-50.

Haselager, G. J., Hartup, W. W., van Lieshout, C. F., & Riksen-Walraven, J. M. A. (1998). Similarities between friends and nonfriends in middle childhood. *Child Development*, *69*, 1198-1208. doi:10.1111/j.1467-8624.1998.tb06167.x

Heilbron, N., & Prinstein, M. J. (2008). A review and reconceptualization of social aggression: Adaptive and maladaptive correlates. *Clinical Child and Family Psychology Review*, *11*, 176-217.

Hightower, A. D., Cowen, E. L., Spinell, A. P., Lotyczewski, B. S., Guare, J. C., Rohrbeck, C. A., & Brown, L. P. (1987). The Child Rating Scale: The development of a socioemotional self-rating scale for elementary school children. *School Psychology Review*, *16*, 239-255.

Hodges, E. V. E., Malone, M. J., & Perry, D. G. (1997). Individual risk and social risk as interacting determinants of victimization in the peer group. *Developmental Psychology*, *33*, 1032-1039. doi:10.1037/0012-1649.33.6.1032

Howes, C., & Wu, F. (1990). Peer interactions and friendships in an ethnically diverse school setting. *Child Development*, *61*, 537-541. doi:10.1111/j.1467-8624.1990.tb02798.x

Hoza, H., Gerdes, A. C., Mrug, S., Hinshaw, S. P., Bukowski, W. M., Gold, J. A., . . . Wigal, T. (2005). Peer-assessed outcomes in the Multimodal Treatment Study of children with attention deficit hyperactivity disorder. *Journal of Clinical Child & Adolescent Psychology*, *34*, 74-86.

Hughes, D., & Johnson, D. J. (2001). Correlates in children's experiences of parents' racial socialization behaviors. *Journal of Marriage and the Family*, *63*, 981-995.

Hunter, L., & Elias, M. J. (2000). Interracial friendships, multicultural sensitivity, and social competence: How are they related? *Journal of Applied Developmental Psychology*, *20*, 551-573. doi:10.1016/S0193-3973(99)00028-3

Joyner, K., & Kao, G. (2000). School racial composition and adolescent racial homophily. *Sociology Science Quarterly*, *81*, 810-825.

Kaufmann, D. R., Wyman, P. A., Forbes-Jones, E. L., & Barry, J. (2007). Prosocial involvement and antisocial peer affiliations as predictors of behavior problems in urban adolescents: Main effects and moderating effects. *Journal of Community Psychology*, *35*, 417-434.

Kawabata, Y., & Crick, N. R. (2008). The role of cross-racial/ethnic friendships in social adjustment. *Developmental Psychology*, *44*, 1177-1183.

Kawabata, Y., & Crick, N. R. (2011). The significance of cross-racial/ethnic friendships: Associations with peer victimization, peer support, sociometric status, and classroom diversity. *Developmental Psychology*, *47*, 1763-1775. doi:10.1037/a0025399

Khmelkov, V. T., & Hallinan, M. T. (1999). Organizational effects on race relations in schools. *Journal of Social Issues, 55*, 627-645.

Kindermann, T. A. (2007). Effects of naturally existing peer groups on changes in academic engagement in a cohort of sixth graders. *Child Development*, *78*, 1186-1203.

Krackhardt, D. (1987). Cognitive social structures. *Social Networks*, *9*, 109-134.

Ladd, G. W. (1990). Having friends, keeping friends, making friends, and being liked by peers in the classroom: Predictors of children's early school adjustment? *Child Development*, *61*, 1081-1100. doi:10.1111/j.1467-8624.1990.tb02843.x

Ladd, G. W. (1999). Peer relationships and social competence during early and middle childhood. *Annual Review of Psychology*, *50*, 333-359.

Landis, D., Hope, R. O., & Day, H. R. (1984). Training for desegregation in the military. In N. Miller & M. Brewer (Eds.), *Groups in contact: Psychological approaches to desegregation* (pp. 257-278). New York, NY: Academic Press.

Lazarsfeld, P. F., & Merton, R. K. (1954). Friendship as a social process: A substantive and methodological analysis. In M. Berger, T. Abel, & C. H. Page (Eds.), *Freedom and control in modern society* (pp. 18-66). Princeton, NJ: Van Nostrand.

Lease, A. M., & Blake, J. J. (2005). A comparison of majority-race children with and without a minority-race friend. *Social Development*, *14*, 20-41.

Linden-Andersen, S., Markiewicz, D., & Doyle, A. B. (2009). Perceived similarity among adolescent friends: The role of reciprocity, friendship quality, and gender. *Journal of Early Adolescence*, *29*, 617-637. doi:10.1177/0272431608324372

Little, R. J. A., & Rubin, D. B. (1987). *Statistical analysis with missing data*. New York, NJ: John Wiley.

Masten, C. L., Eisenberger, N. I., Borofsky, L. A., Pfeifer, J. H., McNealy, K., Mazziotta, J. C., & Dapretto, M. (2009). Neural correlates of social exclusion during adolescence: Understanding the distress of peer rejection. *Social Cognitive and Affective Neuroscience*, *4*, 143-157.

McCormick, M. P., Cappella, E., Hughes, D. L., & Gallagher, E. K. (2015). Feasible, rigorous, and relevant: Validation of a measure of friendship homophily for diverse classrooms. *Journal of Early Adolescence*, *35*, 817-851. doi:10.1177/0272431614547051

McGill, R. K., Way, N., & Hughes, D. (2012). Intra- and interracial best friendships during middle school: Links to social and emotional well-being. *Journal of Research on Adolescence*, *22*, 722-738. doi:10.1111/j.1532-7795.2012.00826.x

McGlothlin, H., & Killen, M. (2010). How social experience is related to children's intergroup attitudes. *European Journal of Social Psychology*, *40*, 625-634. doi:10.1002/ejsp.733

McKown, C., & Weinstein, R. S. (2008). Teacher expectations, classroom context, and the achievement gap. *Journal of School Psychology*, *46*, 235-261.

McPherson, M., Smith-Lovin, L., & Cook, J. (2001). Births of a feather: Homophily in social networks. *Annual Review of Sociology*, *27*, 415-444.

Mihaly, K., McCaffrey, D. F., Staiger, D. O., & Lockwood, J. R. (2013). *A composite estimator of effective teaching*. Arlington, VA: RAND.

Mikami, A. Y., Griggs, M. S., Reuland, M. M., & Gregory, A. (2012). Teacher practices as predictors of children's classroom social preference. *Journal of School Psychology*, *50*, 95-111.

Mikami, A. Y., Lerner, M. D., & Lun, J. (2010). Social context influences on children's rejection by their peers. *Child Development Perspectives*, *4*, 123-130.

Munniksma, A., & Juvonen, J. (2012). Cross-ethnic friendships and sense of social-emotional safety in multi-ethnic middle school: An exploratory study. *Merill-Palmer Quarterly*, *58*, 489-506. doi:10.1353/mpq.2012.0023

Neal, J. W. (2010). Hanging out: Features of urban children's peer social networks. *Journal of Social and Personal Relationships*, *27*, 982-1000. doi:10.1177/0265407510378124

Newcomb, A. F., & Bagwell, C. L. (1995). Children's friendship relations: A meta-analytic review. *Psychological Bulletin*, *117*, 306-347. doi:10.1037/0033-2909.117.2.306

Newgent, R. A., Lee, S. M., & Daniel, A. F. (2007). Interracial best friendships: Relationship with 10th graders' academic achievement level. *Professional School Counseling*, *11*, 98-104.

Pettigrew, T. F. (1998). Intergroup contact theory. *Annual Review of Psychology*, *49*, 65-85.

Pettigrew, T. F., & Tropp, L. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology*, *90*, 751-783.

Peugh, J. L. (2010). A practical guide to multilevel modeling. *Journal of School Psychology*, *48*, 85-112. doi:10.1016/j.jsp.2009.09.002

Pianta, R., La Paro, K., & Hamre, B. K. (2008). *Classroom Assessment Scoring System*. Baltimore, MA: Brookes Publishing.

Quillian, L., & Campbell, M. E. (2003). Beyond Black and White: The present and future of multiracial friendship segregation. *American Sociological Review*, *68*, 540-566.

Raudenbush, S. W. (2009). The Brown legacy and the O'Connor challenge: Transforming schools in the images of children's potential. *Educational Researcher*, *38*, 169-180.

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods*. Thousand Oaks, CA: Sage.

Roseth, C. J., Johnson, D. W., & Johnson, R. T. (2008). Promoting early adolescents' achievement and peer relationships: The effects of cooperative, competitive, and individualistic goal structures. *Psychological Bulletin*, *134*, 223-246.

Rubin, K. H., Bukowski, W. M., & Parker, J. G. (2006). Peer interactions, relationships, and groups. In N. Eisenberg (Ed.), *The handbook of child psychology* (6th ed., pp. 571-645). New York, NY: John Wiley.

Ryan, A. M. (2003). The peer group as a context for the development of young adolescent motivation and achievement. *Child Development*, *72*, 1135-1150.

Shrum, W., Cheek, N., & Hunter, S. (1988). Friendship in school: Gender and racial homophily. *Sociology of Education*, *61*, 227-239. doi:10.2307/2112441

Singer, J. D. (1998). Using SAS PROC MIXED to fit multilevel models, hierarchical models, and individual growth models. *Journal of Educational and Behavioral Statistics*, *23*, 323-355.

Slavin, R., & Cooper, R. (1999). Improving intergroup relations: Lessons learned from cooperative learning programs. *Journal of Social Issues*, *55*, 647-663.

Stanton-Salazar, R. D. (2004). Social capital among working-class minority students. In M. A. Gibson, P. Gándara, & J. P. Koyama (Eds.), *School connections: U.S. Mexican youth, peers, and school achievement* (pp. 18-38). New York, NY: Teachers College Press.

Stefanek, E., Strohmeier, D., van de & Schoot, R. (2015). Individual and class room predictors of same-cultural friendship preferences in multicultural schools. *International Journal of Behavioral Development*, *39*, 255-265.

Strohmeier, D. (2012). Friendship homophily among children and youth in multicultural classes. In M. Messer, R. Schroeder, & R. Wodak (Eds.), *Migrations: Interdisciplinary perspectives* (pp. 99-109). Vienna, Austria: Springer Science and Business Media.

Strohmeier, D., Nestler, D., & Spiel, C. (2006). Friendship pattern, friendships quality and aggressive behavior of immigrant children in primary school. *Discourse of Childhood and Youth Research*, *1*, 21-37.

Thijs, J., & Verkuyten, M. (2014). School ethnic diversity and students' interethnic relations. *British Journal of Educational Psychology*, *84*, 1-21.

Tropp, L. R. (2011). Intergroup contact theory. In D. Christie (Ed.), *Encyclopedia of peace psychology* (pp. 254-259). Hoboken, NJ: Wiley-Blackwell.

Tseng, V., & Seidman, E. (2007). A systems framework for understanding social settings. *American Journal of Community Psychology*, *39*, 217-228.

Vaquera, E., & Kao, G. (2008). Do you like me as much as I like you? Friendship reciprocity and its effects on school outcomes among adolescents. *Social Science Research*, *37*, 55-72.

Wainer, H. (1991). Adjusting for differential base rates: Lord's paradox again. *Psychological Bulletin*, *109*, 147-151. doi:10.1037/0033-2909.109.1.147

Warring, D., Johnson, D. W., Maruyama, G., & Johnson, R. T. (1985). Impact of different types of cooperative learning on cross-ethnic and cross-sex relationships. *Journal of Educational Psychology*, *77*, 53-59. doi:10.1037/0022-0663.77.1.53

Weinstein, R. S. (2002). *Reaching higher: The power of expectations in schooling*. Cambridge, MA: Harvard University Press.

Weinstein, R. S., & Middlestadt, S. E. (1979). Student perceptions of teacher interactions with male high and low achievers. *Journal of Educational Psychology*, *71*, 421-431.

Wentzel, K. R., Barry, C. M., & Caldwell, K. A. (2004). Friendships in middle school: Influences on motivation and school adjustment. *Journal of Educational Psychology*, *96*, 195-203. doi:10.1037/0022-0663.96.2.195

Wentzel, K. R., Battle, A., Russell, S. L., & Looney, L. B. (2010). Social support from teachers and peers as predictors of academic and social motivation. *Contemporary Educational Psychology*, *35*, 193-202. doi:10.1016/j.cedpsych.2010.03.002

Yuan, Y. C. (2011). Multiple imputation using SAS software. *Journal of Statistical Software*, *45*, 1-25.

Zeng, Z., & Xie, Y. (2008). A preference-opportunity-choice framework with applications to intergroup friendship. *American Journal of Sociology*, *114*, 615-648.

## Author Biographies

**Elise Cappella**, PhD, is an associate professor of applied psychology in the Steinhardt School of Culture, Education, and Human Development at New York University and co-director of the Institute of Human Development and Social Change. She received her undergraduate degree from Yale University and her doctorate in clinical and community psychology from the University of California, Berkeley.

**Diane L. Hughes**, PhD, is a professor of applied psychology in the Steinhardt School of Culture, Education, and Human Development at New York University and co-director of the Center for Research on Culture, Development, and Education. She received her undergraduate degree from Williams College and her doctorate from the University of Michigan.

**Meghan P. McCormick** is a research associate at MDRC. She received her doctoral degree in psychology and social intervention at the Steinhardt School of Culture, Education, and Human Development at New York University. She received her AB in public and international affairs from Princeton University.