Best Friends Forever?:
Race and the Stability of Adolescent Friendships

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March 3, 2009

* This paper has been prepared for presentation at the Population Association of America (PAA) 2009 Annual Meeting in Detroit, Michigan. Please do not cite or distribute without permission from the authors. We would like to thank Diane Felmlee, Eric Grodsky and Julie Siebens for their advice and comments on previous drafts.
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Abstract

Over the past thirty years, a large body of scholarship has emerged to explain racial patterns in friendship during childhood and adolescence. Most of these studies, however, do not explore whether racial difference has an impact on friendship stability. Drawing on Waves I and II of the National Longitudinal Study of Adolescent Health (Add Health), our research contributes to the scholarship on adolescent relationships by analyzing friendship dyads over time with nationally representative data. We use multilevel logistic regression models to examine adolescents' best friend nominations at two points in time. We identify several characteristics of dyads and social contexts as key predictors of relational stability. In particular, we show that racial difference is significantly associated with friendship instability. Racial difference remains a barrier to friendship stability, even when controlling for other demographic, personal and contextual characteristics (e.g., attitudes toward school, academic achievement, extracurricular interests, substance use). However, the effect of race is partially mitigated when the closeness of the relationship is taken into account. These findings have important implications for those interested in fostering lasting interracial ties in their schools, organizations, and communities.

Introduction

In the decades since the Supreme Court mandated school desegregation, scholars and school administrators have been searching for ways to promote interracial friendship among students. Much of this research is motivated by the idea that these friendships embody the equal-status contact that Allport (1954) hypothesized necessary for reducing racial prejudice (Damico & Sparks 1986, Hansell & Slavin 1981, Powers & Ellison 1985). In addition to improving racial attitudes, interracial friendships are believed to provide minority race individuals with greater access to the resources and opportunities of the majority. They may serve as a form of social capital on which racial minorities can draw to attain upward mobility in educational and occupational arenas historically dominated by whites (Wells & Crain 1994). Cross-race friendships can also function as "bridging ties" between disparate social networks and are thus essential for ensuring a degree of community cohesion in a society traditionally divided by race (Briggs 2007).

However, the positive impact that cross-race friendships provide to individuals and society at large may be limited if these relationships fail to persist over time. Allport's contact theory (1954), for example, stipulates that intergroup contact must be sustained in order to be effective for reducing prejudice. Arguably, the positive effects of an interracial friendship on racial attitudes could be felt after its dissolution, but contact theory suggests that the effects are more likely to be sustained with longer lasting friendships. Moreover, the dissolution of a cross-race tie could point to problems in the relationship that negate its positive effects on attitudes. That is, it may be that friendships which dissolve are less likely to embody the equal status, cooperation, and institutional

support that Allport hypothesized necessary for prejudice reduction. An interracial friendship that has lapsed into mere acquaintanceship can still serve as a source of social capital (Granovetter 1979), but severed ties are of little use to minorities seeking upward mobility or for the creation and maintenance of social cohesion within a community. One could even speculate that a person's past inability to sustain an interracial friendship could lead to an aversion to similar relationships in the future. For these reasons, we feel that greater attention to racial patterns in friendship stability is warranted. Drawing on the National Longitudinal Study of Adolescent Health (Add Health), we attempt to find out whether adolescents' relationships with their best friends are as stable when their partner is of another race, and if they are not, we seek to explain these differences.

Prior research has shown interracial friendships to be relatively rare, even among youth in desegregated school environments (DuBois & Hirsch 1990, Hallinan & Teixeira 1987, Quillian & Campbell 2003). For example, Moody's (2001) analysis of Add Health data indicates that an adolescent's odds of forming a same-race friendship are about 1.8 times those of forming a cross-race friendship. This racial pattern in friendship formation is evident, even when taking measures of interracial contact opportunity into account (Joyner & Kao 2000, Mouw & Entwisle 2005), and race remains a robust predictor of friendship formation net of socioeconomic status. In fact, Quillian and Campbell (2003, p. 550) report that the "common race influence on friendship is far greater than similarity in parental socioeconomic status: A 20-year difference in mother's education is not as great a barrier to friendship as race between black and white students."

Research on the stability of interracial friendships, on the other hand, is far less definitive. For instance, in their one-year study of youth at ten schools in California

(grades four to seven), Hallinan and Williams (1987, p. 662) conclude that students' cross-race friendships are nearly as stable as their same-race friendships. They posit that "this surprising result may be because interracial friendships are unlikely in the first place and are made only if there is a strong attraction between a black and white student that then sustains the relationship over time." Unfortunately, however, the authors do not go on to test this intriguing proposition; their data do not include measures of relationship strength.[1]

Thus far, relational stability has mainly been the purview of scholars of marriage and divorce. While scholarship on the stability of romantic relationships has begun to take race and ethnicity into account (Bratter & King 2008, Brown et al. 2008, Clark-Ibáñez & Felmlee 2004, Fu 2006, Orbuch et al. 2002), the role of race in friendship stability remains virtually unexplored. Most studies examining the fate of friendships over time do not draw on racially diverse samples and thus cannot address if or how racial difference has an impact on friendship stability (e.g., Ledbetter et al. 2007, Weisz & Wood 2005).

Our research contributes to the growing body of scholarship on interracial friendship in adolescence by adopting a longitudinal approach, predicting the stability of adolescents' best friends over a one-year period using a large, nationally representative dataset. While numerous studies explore the contexts and processes through which adolescents' interracial friendships form (Kubitschek & Hallinan 1998, Moody 2001, Quillian & Campbell 2003), very few ponder the stability of these relationships over time.

[1] Besides Hallinan and Williams (1987), very few studies of interracial friendship stability exist. Aboud and colleagues (2003) find a statistically significant difference in the stability of same- and cross-race friendships among students in their six-month study; however, it is unclear whether results from the study's small longitudinal sample of fifth-graders in Montreal (n=117) are applicable to American adolescents.

Those studies that do exist (Aboud et al. 2003, Hallinan & Williams 1987) do not adequately control for the quality of these relationships, and given the racial discrepancies others have found (Kao & Joyner 2004, Way & Chen 2000) we feel it is critical to include measures of quality in our models.

Dyadic Characteristics

Scholars operating from a social psychological or developmental perspective typically demonstrate the importance of dyad-level characteristics for predicting friendship stability. Some have argued that many of the features that bring two individuals together as friends can also serve to keep them together over a sustained period of time (Berndt 1995). For example, Heider's (1958) theory of cognitive organization and Newcomb's (1961) balance theory (sometimes jointly referred to as the cognitive consistency approach) maintain that relationships in which individuals' attitudes and beliefs are in alignment are more likely to be sustained over time. Dyads with significant differences, on the other hand, experience strain and are susceptible to dissolution. According to another perspective, friends who are similar along salient dimensions of their social identities may provide each other with "identity support" and are thus motivated to maintain close ties over time (Weisz & Wood 2005). Regardless of the precise mechanisms, the real or perceived similarity between two individuals, what Lazarsfeld and Merton (1954) termed homophily, has been demonstrated to promote sustained attraction and interaction (McPherson et al. 2001).

Friendship researchers have examined multiple domains of homophily for predicting dyadic stability. For example, Werner and Parmelee (1979) show that

engaging in mutually pleasurable activities, such as common intellectual or athletic pursuits, strongly motivates young people to maintain their friendships over time. Likewise, Shapiro (1977) uses balance theory to demonstrate in a quasi-experiment how adolescents of "highly similar orientations" (attitudes and values) are more apt to maintain ties, even when physically separated. In a longitudinal analysis of college student friendships, a scale measure of status similarity (incorporating friends' perceived similarities in physical attractiveness, intellect, social skills, physical coordination, spiritual maturity, and financial resources) was a significant predictor of relationship closeness for males' same-sex friends four years after the initial survey (Griffin & Sparks 1990).

Applying the homophily effect to our research question, we hypothesize that adolescents of the same racial background will be more likely to sustain a relationship with their best friend over time:

H_1: *Same-race friendships will be more stable than cross-race friendships*

However, it may not be racial difference *per se* that accounts for the instability of cross-race friendships. Racial difference may correlate with a number of other differences in background characteristics, attitudes and statuses that have a significant impact on the fate of the relationship. We hypothesize that differences in salient dyadic characteristics will at least partially mitigate the association between race and friendship stability:

H_2: *Shared interests, attitudes, achievement levels, behaviors, and background characteristics will result in greater friendship stability as well as explain stability differences between same- and cross-race friendships*

Another branch of social psychological scholarship on relationship stability has characterized friendship as an intersection of individual personalities (Altman & Taylor 1973, Levinger & Snoek 1972). According to this view, as individuals interact, they disclose more personal information and their relationship attains a greater level of closeness. Individuals involved in closer friendships may feel more committed or invested in the relationships and thus less likely to give them up (Rusbult 1980). Several empirical studies support this view. For example, Oswald and Clark (2003) find that high school students whose best friendships continued into their first year of college reported engaging in more maintenance behaviors of positivity, supportiveness, self-disclosure, and interaction than those whose best friends were downgraded to close or casual friendships.

A number of researchers find that cross-race friendships are less likely to be rated highly in terms of closeness compared to same-race friendships (Aboud et al. 2003, Damico et al. 1981, Kao & Joyner 2004, Vaquera & Kao 2008). Add Health does not include standard measures of friendship quality, such as the Network of Relationship Inventory scale (see Phillipsen 1999). However, Kao and Joyner (2004) demonstrate that the survey's measures of shared activity within the past seven days (e.g., met with friend after school, talked about a problem) correspond closely with friendship rankings (i.e., first- through fifth-ordered friend) and can thus serve as proxies for friendship closeness or quality. Their study shows that, with few exceptions, interracial friends are much less likely to engage in these activities than same-race friends.

Sociometric data also suggest that cross-race friends are less likely to be reciprocated, that is, to nominate each other as friends. In a recent study of Add Health

data, Vaquera and Kao (2008) report that same-race friends are almost twice as likely to be reciprocated as cross-race friends. According to Hallinan and Williams (1987), reciprocity is one of the strongest influences on friendship stability. Their study shows reciprocity to be highly associated with friendship retention over time for both same- and cross-race friendships.

Reciprocity aside, measures of friendship quality have not yet been applied to the question of interracial friendship stability. Because same- and cross-race friendships appear to differ in their level of closeness, we anticipate that measures capturing this difference (i.e., reciprocity and the number of shared activities in the past week) may offset the effect of race on friendship stability:

> H_3: *More reciprocity and closeness in a friendship will be associated with greater stability as well as explain stability differences between same- and cross-race dyads*

Contextual Characteristics

Past researchers have typically highlighted the impact of environmental or contextual characteristics on the likelihood of interracial friendship formation. For instance, Blau (1977) explains that, for mathematical reasons, intergroup contact is necessarily greater for numerically smaller groups within a given context. With increased numbers of one's own group, the opportunity for intergroup contact (and thus friendship) decreases. Indeed, Joyner and Kao (2000) demonstrate that a student's probability of having a friend of a different race dramatically decreases as the proportion of same-race students in a school increases.

Yet how might interracial contact opportunity affect the stability of same- and cross-race friendships? Hallinan and Smith (1985) report that the proportion of black students in a classroom has a significant negative effect on whether black students' nominations of whites change from "friend" to "best friend" within the school year; the effect is less clear for white students' nominations of blacks. In the aforementioned study by Hallinan and Williams (1987), whites' friendship nominations of blacks are shown to be more stable with increasing numbers of black students in a classroom; however, proportion black does not appear to have a similar effect on the stability of black-white friendships (where blacks are the nominators).

Given social psychological theories suggesting that relationship instability occurs when "attractive alternatives" are readily available (Levinger 1976, Thibaut & Kelley 1959), we should not be surprised to find that the proportion of same-race peers in a given setting would have an impact on interracial friendship stability. As network scholars have made clear, dyadic relationships do not form in isolation – they are subject to the stabilizing and destabilizing influences of their wider circle of peers (Felmlee 2001). However, the unexplained differences between black and white nominators in the above studies are intriguing and warrant further exploration. In general, we expect that a higher proportion of same-race peers in a school could provide attractive alternatives and work to destabilize cross-race friendships:

H_4: *Cross-race friendships will be less stable in settings where same-race peers are more available*

Further, we expect the relationship between stability and proportion of same-race peers to hold, net of other contextual factors (e.g., community urbanicity, school size, and region).

Methods

Data

The National Longitudinal Study of Adolescent Health (Add Health) provides the data necessary to test the hypotheses outlined above. As its name implies, the study focuses primarily on the health issues of American youth; however, its surveys and interviews also capture a great deal of social psychological data and include contextual measures from students' schools and communities. To ensure that the data would be generalizable to the entire population of American adolescents, study designers selected a nationally representative sample of U.S. high schools from a list stratified by region, urban location, school type, grade span, percent white, and school size. In each of the 80 sampling strata, the investigators recruited one to two schools spanning grades seven through 12 (Chantala 2001).[2]

Add Health administrators collected the first wave of data in 1994-95, using an in-school questionnaire. Over 90,000 middle and high school students in 132 schools in 80 U.S. communities completed the survey. The second wave of Add Health re-interviews a sample of the in-school respondents in their homes in 1996. Wave II contains data for over 14,700 adolescents including their friendship nominations. The current study relies on data from the Wave I in-school and Wave II in-home samples.

Sample

The Wave I survey asks all respondents to identify their five closest male and female friends. Many of the ten selected friends also completed the survey, allowing us to

[2] To obtain Add Health data or to find out more about the survey design and data collection procedures, contact Add Health, Carolina Population Center, 123 West Franklin Street, Chapel Hill, NC 27516-2524 (http://www.cpc.unc.edu/addhealth), email: addhealth@unc.edu.

link ego and alter responses and focus on a sample of dyads, rather than individuals.[3] From the combined ego and alter survey responses we can construct a number of dyad-level variables for use in prediction of friendship retention over time.

Friendship nominations were collected again in Wave II, but only a small sub-sample of respondents were asked to identify ten friends.[4] Most respondents were asked to name only one male and one female best friend. As a result, we focus our analysis on whether the best friendship identified on the in-school survey (time 1) maintains its status in Wave II (time 2). The unbalanced number of usable nominations across the two time periods forces us to take this approach.[5] Focusing on best friendship allows every dyad the same number of opportunities to be retained at time 2.

We are able to construct both same-sex and cross-sex best friendships through our sample generation procedure. However, with cross-sex dyads we are unable to determine if there is a romantic aspect to the relationship. Add Health does not ask respondents to distinguish between romantic and platonic friendships of the other gender. With our focus on best (first-listed) friendships, the potential is especially high for a romantic component. This possibility sets male-female dyads apart from same-sex friendships in many aspects and could drive the likelihood of retention. Since we cannot distinguish between romantic and non-romantic cross-sex friendships, we follow Quillian and Campbell (2003) in

[3] With our ego-alter linking procedure it is possible for friendships to be counted twice. A single ego-alter observation can be repeated and reversed with the alter nominating the same ego. This would result in two identical observations. We drop one of the repeats, a total of 160 observations, to ensure that no friendship is counted more than once. There are also 24 instances of individuals nominating themselves as their best friend, which we exclude from the analysis.

[4] This amounts to 18.52 percent of the Wave II sample and occurs in only 16 schools.

[5] This limitation of the data underestimates the total number of retained friendships because even if a best friend at time 1 is not nominated at time 2, he or she may have been nominated had the respondent been given the opportunity to list more than one same-sex alter. We assume, however, that this bias is randomly distributed across the sample, affecting all dyads equally.

choosing to focus on same-sex best friendships.[6] This approach results in a sample with only one nomination per ego, avoiding a violation of the assumption of independence.

Our final sample consists of egos who completed both the Wave I in-school and Wave II in-home surveys and nominated a usable best friend of the same sex who also completed the in-school survey. We drop respondents who nominate an unusable alter[7] because there is no way to determine if the friendship was retained. Those with alters not completing the in-school survey were also dropped because their information was needed to calculate dyad-level variables. We also drop respondents who are missing sample weights. After replacing missing observations through multiple imputation, our final sample consists of 5,494 same-sex best friend dyads.

Dependent Variable

Friendship retention between waves I and II constitutes our outcome of interest. We measure retention with a dummy variable indicating whether a best friendship existing at time 1 also exists at time 2. Friendships are coded as not retained if at time 2 the ego nominated someone different as their best friend or failed to nominate anyone. We include dyads constructed from egos nominating ten friends[8] but focus only on whether the best friend at time 1 was nominated as the best friend at time 2. In these cases, if the best friend at time 1 was nominated as the second, third, fourth or fifth friend, it is considered not retained. We control for a dummy variable indicating whether the

[6] We estimated a series of parallel cross-sex models predicting friendship retention, which are available upon request. Generally, the effect of the two dyad members being of a different race is stronger and more stable in the same-sex friendship models.

[7] These include classmates whose names were not on a sample school roster or students attending schools outside of the sample. These individuals were coded generically making it impossible to determine if the nominations were retained at time 2 or to match ego and alter data.

[8] There are no statistically significant ($p<.05$) differences between any of our variables across the two-friend and ten-friend samples, suggesting that including the best friendships from the ten-friend sample does not bias our results.

respondent named two or ten friends at Wave II. Roughly 25 percent of all best friendships are coded as retained.

Independent Variables

Whether friendship members share a common race is our main independent variable. The manner in which Add Health measures race leads to a multi-stage process in constructing our *different races* measure. We first determine both ego and alter race from the in-school survey. Following the 2000 U.S. Census, respondents were permitted to select multiple racial classifications resulting in several multiracial respondents.[9] We develop our classification by first placing individuals into mutually exclusive white, black, Asian, Native American, other and multiracial categories. We then add Hispanic identification separately, allowing the category to contain individuals of any race or combination of races.

Next, we classify dyads as sharing races if both the ego and alter are mono-racial and share either the white, black, Native American, Asian or Hispanic category. Non-Hispanic multiracial respondents are also classified as race matches if they shared at least one racial classification with the other dyad member. Therefore a black-white multiracial would be considered a race-match with either a black or white respondent. Since we code Hispanics as being of any race or combination of races, they are considered race-matches only if they share the mutually exclusive Hispanic category. This procedure avoids overestimating the number of same-race friendships when considering Hispanics as a separate category. Finally, if a dyad member selected "other" as her race, the dyad was coded as a non race-match. It is unclear what is meant by this category making it

[9] 7.98 percent of the in-school sample.

impossible even to tell if an other-other friendship is a match.[10] The final different races measure is a dummy variable based on this classification indicating that the ego and alter have different racial backgrounds. We illustrate our race matching classifications in Table 1.

[Table 1 about here]

We attempt to explain the effects of having different races on friendship retention by controlling for a series of dyad-level variables. We control for similarity in demographic characteristics, starting with *gender* which is represented by a dummy variable indicting that the friendship is female-female. *Age difference* is measured by taking the absolute value of the difference in ages between dyad members. *Parents' education difference* is measured similarly, taking the absolute value of the difference of the highest level of education achieved by the parents of the dyad members. We also construct a *family type difference* item, which is a three-category ordinal variable measuring whether both friendship members have two-parent families, one-parent families or different family types. Similarly, we construct a three-category ordinal variable *(immigrant generation difference)*, indicating whether ego and alter are both first- or second-generation Americans, if they belong to the third (or later) generation, or if they belong to different immigrant generations (one and two versus three or later). The last-listed categories serve as our reference groups.

We measure the *school achievement difference* by calculating approximate grade point averages (GPAs) for the ego and alter and taking the absolute value of the

[10] We also ran parallel models where we assigned every respondent to a mutually exclusive mono-racial based on the races chosen. Black or Asian identification took precedence in most cases given American racial norms. White was given precedence only when the respondent chose Native or Other as their other racial category. These models generally followed the patterns of those presented below.

difference. We measure *school attitudes difference* similarly. We construct a mean scale of four different attitudes toward school for each friendship member. These include feeling like one is a part of the school, feeling close to people in school, being happy to be in school and feeling socially accepted. We use the absolute value of the difference in ego and alter scale values.

We control for common participation in socially approved activities through two items measuring whether the ego and alter participated in any of the *same clubs* or *same sports*. We control for common participation in deviant activities with two items measuring the frequency with which the ego and alter *drink alcohol* or *smoke cigarettes*. We take the absolute value of the difference of the frequencies across egos and alters.

We also account for two measures of friendship quality. *Reciprocity* is a dummy variable measuring whether the alter also nominated the ego in any of his or her ten in-school nominations at time 1. Our *friendship closeness* variable is a mean scale of five separate items measuring whether in the past seven days the ego has been to the alter's house, spent time with alter after school, spent time with alter over the weekend, talked to alter about a problem or has talked to alter on the phone.

Our final individual-level variable measures the proportion of same-race students in the respondent's school. We construct this item utilizing our full in-school sample and mutually exclusive racial categories. The *proportion same-race* item is the number of students in a school sharing the respondent's race, divided by the total number of students in the school. We transform it into an ordinal variable indicating whether ego attends a

school with less than one-third, one- to two-thirds, or more than two-thirds same-race peers.[11]

Finally, in an effort to explain school-level variation in friendship retention we control for three school-level factors at level-2. *Urbanicity* measures whether the school is urban, suburban or rural. *School size* measures whether the school is small (1-400 students), medium (400-1001 students) or large (1001-4001 students). *Region* measures whether the school is located in the South, West, Midwest or Northeast. In our models urban, large, and South serve as our reference categories.

Results

Descriptive Analyses

[Table 2 about here]

Before addressing the question of friendship stability, we should note that our findings are generally consistent with previous work on interracial friendship formation (Joyner & Kao 2000, Moody 2001, Quillian & Campbell 2003). In our analytic sample, roughly 23 percent of the friendships are between students of different races (a number that parallels earlier work, despite our novel approach to multiraciality). As predicted, we find that same- and cross-race friendships differ from each other along a number of dimensions (see the left-hand columns of Table 2). For example, relative to same-race friendships, cross-race friends are significantly less likely to be similar in terms of family structure, immigrant generation, and attitudes toward school. However, differences are generally larger in cross-race friendships in terms of age, parents' education, GPA, and

[11] We also included proportion same-race as a continuous measure, as a dummy variable indicating over 50 percent same-race and as a four-category ordinal variable. All operationalizations yield similar results.

alcohol and cigarette use. Consistent with previous research (Kao & Joyner 2004, Vaquera & Kao 2008), we find that cross-race friends are also significantly less likely to be reciprocated. Only 57.1 percent of cross-race friends are reciprocated, compared with 68.5 percent for same-race friends. Another notable racial difference is that, on average, respondents in a same-race best friendship attend a school where 66.2 percent of their peers are the same race as they are, while those in a cross-race best friendship attend a school where only 33.8 percent of their peers share their racial background. Yet, do these differences between same- and cross-race friendships translate into differences in relational stability?

The right-hand columns of Table 2 describe the relationship between best friendship retention and our independent variables. As predicted by our first hypothesis, interracial best friendships are less likely to be retained: 26.4 percent of same-race friendships are sustained until time 2, compared with 20.5 percent of cross-race friendships. We also find a small but statistically insignificant gender difference in retention: 26.4 percent of male-male best friends versus 24 percent of female-female best friends are retained.

In addition to racial homophily, similarity in age appears to be an important demographic predictor of friendship retention for adolescents. A full 90 percent of best friends are within one year of age, and over one-fourth of these friendships are retained. For friends with a difference in age of two years, the retention rate drops to about 20.7 percent, and only about seven percent of dyads with a three-year age gap are retained at time 2. Several other dyadic factors seem to correspond with stability. For instance, retained best friendship dyads are more likely to have members who are involved in the

same clubs, come from two-parent households, and belong to the same immigrant generation; however, these differences are not statistically significant. Significant differences in retention do exist among best friends who report dissimilar experiences with alcohol and cigarettes. Retained friendships resemble each other far more in terms of their members' experiences with drinking and smoking.

Friendship quality appears to be a good indicator of whether best friendships remain intact. On average, students in retained friendships reported engaging in 3.13 activities associated with closeness over the past week (e.g., talked to friend over the phone) at time 1, compared with the 2.66 activities reported by non-retained friends. Nearly two-thirds of all best friendships are reported as reciprocal (ego and alter nominate each other), and unsurprisingly there is a considerable difference between reciprocated and non-reciprocated friendships in terms of retention: 29 percent versus 17.5 percent.

[Figure 1 about here]

To examine the possible relationship between schools' racial composition and the stability of same- and cross-race friendships, we looked at the proportion of same-race students in schools. Generally, we find that as proportion same-race approaches the middle ranges (40 to 50 percent), cross-race best friendships become less stable relative to same-race friendships. We suspect that this effect is due to the greater availability of same-race alternatives. As proportion same-race surpasses the middle ranges, this trend reverses itself among cross-race dyads. This effect, we believe, is due to the fact that as same-race alternatives grow for one dyad member, same-race alternatives for the other member necessarily diminish. Thus, at the extremes, the stability effects of having (and

not having) many same-race alternatives may cancel each other out for cross-race dyads (see Figure 1).[12]

Multivariate Analyses

[Table 3 about here]

A series of nested hierarchical linear models[13] (see Table 3) illustrates the relationship between the dyadic and contextual measures and friendship stability, our dependent variable of interest. Model 1, a bivariate regression of cross-race friendship on the log-odds of best friendship survival, provides the simplest test of our first hypothesis. Contrary to the conclusion reached by Hallinan and Williams (1987) that same- and cross-race dyads do not differ in their stability, our analysis finds that the odds[14] of friendship retention for adolescents' cross-race best friendships are about .27 times less than those of their same-race friendships. This difference is statistically significant at the $p<.01$ level; therefore, Hypothesis 1 is supported.

In Models 2, 3, 4 and 5, we attempt to account for this difference in retention by successively adding in dyad-level measures of similarity: demographic characteristics, extracurricular activities, school achievement and attitudes, and experiences with drinking and smoking. With the initial introduction of our demographic similarity variables, we see that only age difference reaches statistical significance at the $p<.05$ level. We find that the greater the difference between the ages of the ego and alter, the less likely it is for the friendship to be retained at time 2. This effect holds net of other

[12] We also examined the relationship between a school's racial heterogeneity (the probability that two randomly chosen students are of different races) and same- and cross-race friendship stability. Consistent with the findings above, we found that higher levels of heterogeneity are associated with relatively less stability for cross-race dyads.

[13] All models are weighted, estimated with full maximum likelihood and presented with robust standard errors. We estimate all level-1 coefficients as fixed and do not include any cross-level interactions.

[14] The odds ratios are obtained by exponentiating the logits associated with cross-race friendship: exp -.318 = .727.

demographic factors and shared clubs and sports (introduced in Model 3), none of which have significant effects on friendship retention. With only an age difference effect, it is not surprising that the demographic and shared clubs and sports effects do a poor job of mediating the effects of race difference. Only about 6.6 percent of the race difference effect is explained.

School achievement and attitude differences between ego and alter, added in Model 4, have marginally significant, negative effects on retention, controlling for demographic factors and shared extracurricular activities. These findings indicate that the farther apart ego and alter are in terms of their grades and their attitudes toward school, the less likely it is that their friendship will be retained. In addition, after controlling for GPA and attitude differences, a significant and negative female-female effect emerges. All else being equal, the odds of retention for a female-female best friendship are .17 times less likely than for a male-male best friendship.

The addition of differences in experience with alcohol and cigarettes in Model 5 explains some of the significant effects of age difference, GPA difference, and school attitudes difference. An older member of the friendship may be more likely to have experience with either alcohol or cigarettes, while a higher achieving member may have less. However, in the end it is the difference in experience with these types of substances that appears to drive the likelihood of retention rather than age or GPA differences. We find that the differences in the consumption of alcohol (and cigarettes, to a lesser extent) significantly influence friendship retention. Net of other factors, we predict that for every unit increase in the difference of our scale of alcohol use, the odds of retaining a best friend are .09 times less likely.

These data demonstrate that Hypothesis 2 is only partially supported. While a few dyad-level measures of similarity are predictive of best friendship stability (particularly gender, age difference, GPA difference and experiences with alcohol), collectively these measures explain very little of the effect of racial difference in friendship stability: the effect of racial difference remains large and statistically significant in Model 5 with its magnitude reduced by only about nine percent from the bivariate model.

Model 6 examines the effects of relationship quality on dyadic stability, as measured by reciprocity and closeness (activities reported within the past week). Both of these measures appear to be robust predictors of retention, but reciprocity is particularly salient. Everything else being equal, the odds of retention for reciprocated best friendships are .70 times higher than non-reciprocated friendships, and every unit increase in closeness is associated with a .18 times greater odds of retention. In other words, the closer the relationship between the ego and alter, the more likely it is that the friendship will be retained. Interestingly, with the addition of these measures, the effect of the racial composition of the dyad sees a reduction in significance and magnitude. This small change corresponds with the descriptive findings presented above (indicating that same- and cross-race friends differ in their level of closeness) and suggests that some of the differences in same- and cross-race friendship stability can be explained through these measures. The race difference in the friendship remains a significant predictor of friendship retention even after controlling for all other predictors. Nevertheless, this model lends credence to Hypothesis 3, that relationship closeness is associated with greater stability and helps explain some of the stability differences between same- and cross-race friends.

Models 7, 8 and 9 tackle the question of social context: whether or not increased opportunities for same-race friendship decrease the odds of cross-race friendship retention, as predicted by Hypothesis 4. In Model 7, we first test this prediction by adding an ordinal measure of the proportion of same-race peers in the respondent's school (less than one-third and greater than two-thirds same-race versus one- to two-thirds same-race). We do not see a significant effect with either of these measures, but the race difference coefficient increases in magnitude from the previous model. In other words, the proportion same-race does not directly drive friendship retention, but it does drive the likelihood of forming a cross-race best friendship. Since cross-race best friendships are less likely to be retained to begin with, giving all students the same likelihood of forming such a friendship heightens the effect of racial difference.

Next, in Model 8 we add race difference and proportion same-race interaction terms. Despite the apparent relationship demonstrated in Figure 1 above, the interactions fail to reach statistical significance (although again the coefficient for racial difference increases in magnitude). This finding casts doubt on whether school racial composition plays a role in (de)stabilizing cross-race friendships.[15] Likewise in Model 9, we note that none of our school-level controls (e.g., urbanicity, school size, and region) have a significant ($p<.05$) effect on best friends' stability; although dyads in Western and Midwestern schools are marginally less likely to be retained relative to those in Southern schools. In sum, Hypothesis 4 is not supported by our multivariate analysis.

[15] In separate analyses (available upon request), we controlled for the various proportion same-race operationalizations described in footnote 11 and found no effect for the variable or its interaction. We also repeated all versions of the proportion same-race variable with school-level racial heterogeneity on friendship retention. None of our heterogeneity operationalizations nor their interactions with our measure of dyadic racial difference attain statistical significance.

Discussion

The findings presented here point foremost to the continuing significance of race for structuring interpersonal relationships. Prior research has demonstrated that in the half-century following the abolition of *de jure* racial segregation in the United States even purportedly integrated schools and communities remain divided by race on the interpersonal level. The present study contributes to this body of literature by showing that even when interracial friendships do manage to form, they are still significantly less likely than their same-race counterparts to remain intact over time. This conclusion stands in contrast to Hallinan and Williams's (1987) observation that children's same- and cross-race friendships do not differ significantly in their stability. Moreover, the effect of race on friendship stability holds even when controlling for a myriad of dyadic similarities and differences, measures of relational closeness, and the racial composition of the school.

For those interested in promoting lasting bonds between persons of different racial groups, our research highlights three features of friendship stability worthy of further consideration. First, dyads in this study who reported greater similarities in terms of certain demographic characteristics (age and gender) and experiences were more likely to remain friends over time. Our analysis confirms that the odds of friendship retention are increased, for instance, when individuals have comparable experiences with alcohol. As suggested by the simultaneous reduction of the effect of age, GPA difference, and school attitudes difference, alcohol use may correspond with a host of behaviors and orientations that dyad members have in common and affect the likelihood of their relationship's survival. The measures included in this study do not appear to mitigate the

effect of racial difference on friendship stability. Nevertheless, the relative effectiveness of dyadic similarity measures lend support to scholars who advocate balance theory (Newcomb 1960) or other theories of homophily in explaining why some friendships succeed while others fail.

Second, our study reveals how the friendship quality or closeness gap between same- and cross-race friends partially drives the gap in retention. As previous scholars have noted (Kao & Joyner 2004, Vaquera & Kao 2008), interracial friendships are less likely to be reciprocated or close, and as we show here, this difference at time 1 accounts for some of the difference in retention at time 2. The implication of this finding is that efforts aimed at strengthening an interracial bond (e.g., by encouraging more shared activity) may significantly increase the likelihood that the bond remains intact over time. To this end, future inquiries should seek to delineate the micro- and macro-sociological factors that encourage relational closeness and reciprocity across racial boundaries. Subsequent research may show, for example, that residential segregation – a prominent feature of the American social landscape – hinders the ability of cross-race dyads to bond outside of institutional settings, which in turn contributes to their greater instability.

Third and finally, this research went beyond the dyad to consider what we hypothesized to be a key contextual effect—schools' racial compositions. Interestingly, our descriptive and multivariate analyses tell two separate stories. While the percentage of same-race peers in a school correlates with the stability of same- and cross-race friendships in visibly different ways (see Figure 1), these effects do not show up in regression models, and thus our findings on this matter are inconclusive. With richer contextual measures the relationship between same-race peer availability and interracial

friendship stability may become clearer. However, it may simply be the case that racial difference operates independently of social context and thus school districts' emphasis on achieving particular racial compositions in schools and classrooms may be misplaced – at least for the creation of cross-race friendships that hold up over time.

In summary, scholars typically analyze friendships as nominations of one person by another at a single point in time, and prior research on interracial friendship relies almost exclusively on this method. Failure to account for the temporal dimension of relationships, however, ignores an important social reality: not all friendships are created equal. Some blossom into personally or professionally valuable contacts that supply individuals with years of intrinsic and extrinsic rewards. Others falter or fade, and thereby cease to provide such rewards. To the extent that we (as social scientists, policymakers, or community leaders) regard interracial friendships as rewarding for individuals or for society in general, we should seek to understand the mechanisms that promote their stability, not simply their formation.

Friendship stability may in fact serve as a more meaningful index of the nation's racial divide than friendship formation. While the rarity of cross-race friendships can be partially explained by the sheer lack of contact between groups, the present study shows that even among those with ample opportunities for contact, close interracial friendships can be difficult to sustain. In this regard, we hope that we have advanced the discussion of interpersonal segregation in a productive direction. By taking both dyadic and contextual factors into account and by demonstrating the salience of relationship quality, our research shows that the color line is a far more complex and resilient barrier to friendship than is typically acknowledged.

Tables and Figures

Table 1: Construction of the Racial Difference Variable

	Ego Race	*Alter Race*	*Same Race*	*Different Race*
Standard Monoracials	White	White	X	
	Black	Black	X	
	Asian	Asian	X	
	Native	Black		X
	White	Asian		X
	Black	Asian		X
	White	Black		X
Multiracials	White-Black	White	X	
	White-Black	Black	X	
	White-Black	White-Black	X	
	White-Black	Asian		X
	Native-White	Native-Black	X	
	White-Black	Asian-Native		X
Hispanics	Hispanic	Hispanic	X	
	Hispanic	Black		X
	Hispanic	White-Asian		X
Others	Other	Other		X
	White-Other	Other		X
	White-Other	White	X	

Table 2: Descriptive Comparisons of Independent Variables across Values of Racial Difference and Retention

	Racial Difference		Retention	
	Same Race	**Diff. Race**	**Retained**	**Not Retained**
Racial Difference				
Same Race			**26.43%**	**73.56%**
Different Race			**20.52%**	**79.48%**
Gender Difference				
Female-Female	78.94%	21.06%	23.95%	76.05%
Male-Male	74.51%	25.49%	26.38%	73.62%
Age Difference (years)	0.58	0.7	0.52	0.63
Parents' Education Diff. (years)	1.06	1.16	1.06	1.09
Family Structure Difference				
Two Parents	**81.35%**	**18.65%**	26.34%	73.66%
One Parents	72.16%	27.84%	23.09%	76.91%
Different Family Structure	66.89%	33.11%	24.50%	75.50%
Different Immigrant Generation				
Both 3rd or Later Gen.	80.56%	19.43%	25.32%	74.68%
Both 1st or 2nd Gen.	85.11%	14.89%	24.08%	75.92%
Different Generations	**58.20%**	**41.80%**	24.14%	75.86%
Sharing a Club				
No Shared Clubs	76%	24%	24.21%	75.79%
At Least 1 Shared Club	79.70%	20.30%	27.71%	72.29%
Sharing a Sport				
No Shared Sports	76.49%	23.51%	24.40%	75.60%
At Least 1 Shared Sport	77.52%	22.48%	26.06%	73.93%
GPA Difference (points)	0.73	0.79	0.69	0.76
School Attitude Difference	**0.8**	**0.96**	0.78	0.86
Alcohol Difference	1.03	1.08	**0.88**	**1.09**
Cigarette Difference	1.06	1.16	**0.87**	**1.15**
Reciprocity				
Not Reciprocated	**70.97%**	**29.03%**	**17.47%**	**82.53%**
Reciprocated	**79.98%**	**20.02%**	**29.01%**	**70.99%**
Closeness (activities in 7 days)	2.79	2.73	**3.13**	**2.66**
Proportion Same-Race in School	**66.14%**	**32.53%**	59.94%	57.87%

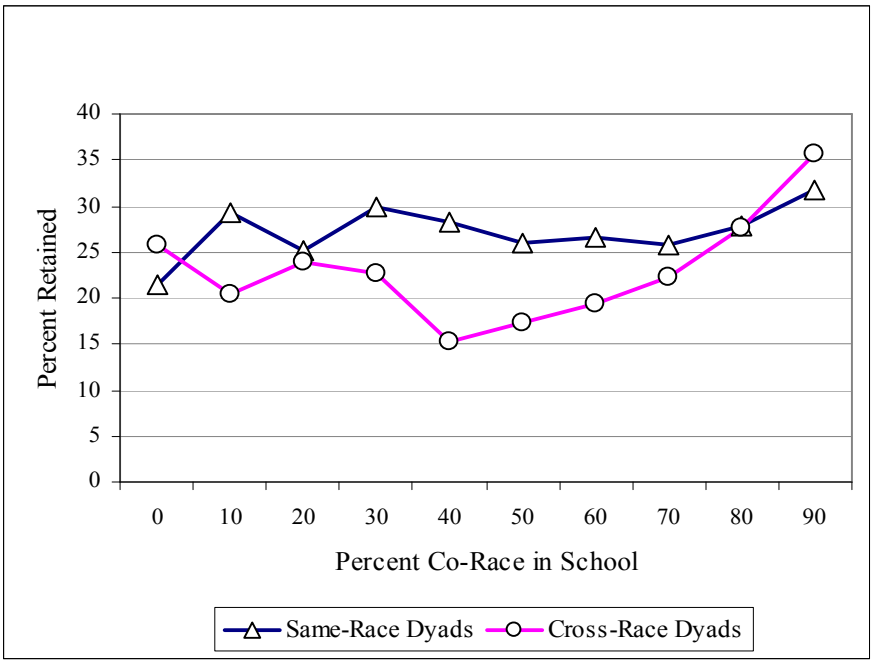
Statistically significant ($p<.05$) differences are indicated in bold.
Sample interpretations: On average, 26.3 percent of dyads where both ego and alter reside in two parent households are retained. Same-race friends have, on average, a 0.8 unit difference in attitudes toward school, compared with a 0.96 difference among cross-race friends.

Table 3: Weighted Multi-Level Logistic Regression Models Predicting Friendship Retention for Same-Sex Best Friendships (Uncentered)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Racial Difference	**-0.318****	**-0.300****	**-0.299****	**-0.284****	**-0.288****	**-0.269****	**-0.321***	**-0.485***	**-0.482***
	0.091	**0.1**	**0.1**	**0.098**	**0.097**	**0.103**	**0.134**	**0.245**	**0.237**
Demographic Characteristics									
Female-Female		**-0.156†**	**-0.184†**	**-0.196***	**-0.237***	**-0.388****	**-0.388****	**-0.386****	**-0.384****
		0.091	**0.099**	**0.1**	**0.101**	**0.109**	**0.11**	**0.11**	**0.109**
Age Difference		**-0.189***	**-0.183***	**-0.171***	**-0.163†**	**-0.144†**	**-0.145†**	**-0.145†**	**-0.149†**
		0.08	**0.078**	**0.079**	**0.086**	**0.084**	**0.082**	**0.082**	**0.077**
Parents' Education Difference		-0.028	-0.029	-0.025	-0.026	-0.013	-0.014	-0.014	-0.015
		0.053	0.053	0.052	0.053	0.053	0.052	0.052	0.052
Family Structure Difference									
Both Single-Parent		-0.125	-0.128	-0.135	-0.133	-0.128	-0.118	-0.115	-0.098
		0.145	0.146	0.146	0.148	0.16	0.16	0.158	0.159
Both Two-Parent		0.018	0.005	-0.011	-0.034	-0.054	-0.041	-0.04	-0.011
		0.149	0.147	0.148	0.152	0.158	0.154	0.152	0.15
Immigrant Status Difference									
Both 3rd Generation or Later		-0.03	-0.04	-0.039	-0.037	-0.077	-0.068	-0.071	-0.103
		0.148	0.146	0.144	0.146	0.144	0.141	0.141	0.132
Both1st or 2nd Generation		-0.133	-0.137	-0.14	-0.171	-0.169	-0.188	-0.199	-0.213
		0.291	0.296	0.301	0.306	0.293	0.29	0.288	0.283
Extracurricular Activities									
Shared Clubs			0.178	0.158	0.13	0.074	0.074	0.076	0.052
			0.125	0.124	0.128	0.125	0.125	0.126	0.128
Shared Sports			0.034	0.013	-0.003	-0.063	-0.065	-0.068	-0.047
			0.097	0.097	0.1	0.094	0.093	0.093	0.094
Achievement and Attitudes									
GPA Difference				**-0.138†**	-0.11	-0.076	-0.078	-0.077	-0.073
				0.076	0.077	0.08	0.08	0.081	0.081
School Attitudes Difference				**-0.116†**	**-0.102†**	-0.077	-0.076	-0.08	-0.077
				0.062	**0.063**	0.063	0.064	0.065	0.063
Substance Use									
Alcohol Use Difference					**-0.100****	**-0.119****	**-0.120****	**-0.121****	**-0.124****
					0.035	**0.041**	**0.04**	**0.04**	**0.039**
Cigarette Use Difference					**-0.059†**	**-0.058†**	**-0.058†**	**-0.057†**	**-0.061***
					0.032	**0.032**	**0.032**	**0.032**	**0.031**
Friendship Quality									
Reciprocity						**0.532*****	**0.530*****	**0.529*****	**0.539*****
						0.102	**0.102**	**0.103**	**0.102**
Closeness (shared activities in past 7 days)						**0.167*****	**0.167*****	**0.167*****	**0.166*****
						0.03	**0.03**	**0.03**	**0.03**
Proportion Same-Race in School									
Less than 1/3 Same-Race							0.178	0.182	0.161
							0.18	0.218	0.204
More than 2/3 Same-Race							0.075	0.038	-0.005
							0.177	0.178	0.142
Race Diff X >1/3 Same-Race								0.109	0.103
								0.326	0.316
Race Diff X <2/3 Same-Race								0.317	0.326
								0.302	0.293
School-Level Variables									
Urbanicity									
Suburban									-0.077
									0.127
Rural									0.11
									0.111
School Size									
Small (1-400 Students)									-0.087
									0.134
Medium (401-1000 Students)									-0.125
									0.095
Region									
West									**-0.352†**
									0.198
Midwest									**-0.183†**
									0.103
Northeast									0.094
									0.129
Intercept	**-1.061*****	**-0.783*****	**-0.811*****	**-0.594****	**-0.430***	**-1.163*****	**-1.251*****	**-1.223*****	**-1.002*****
	0.066	**0.169**	**0.174**	**0.192**	**0.203**	**0.22**	**0.263**	**0.267**	**0.265**
Level-2 Variance Component	**0.037*****	**0.035*****	**0.030*****	**0.026*****	**0.033*****	**0.016*****	**0.016*****	**0.015*****	**0.003*****
Level-1 Observations	5494	5494	5494	5494	5494	5494	5494	5494	5494
Level-2 Observations	123	123	123	123	123	123	123	123	123
Log Likelihood	-7833.462	-7827.952	-7824.827	-7818.03	-7830.725	-7814.741	-7813.497	-7809.864	-7793.547

*** $p<0.001$; ** $p<0.01$; * $p<0.05$; † $p<0.10$

Figure 1: Best Friendship Retention by Percent Same-Race in School



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