Published in final edited form as:

Soc Sci Res. 2009 June ; 38(2): 279–295.

The friendship networks of multiracial adolescents

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Abstract

We investigate the friendship networks of multiracial adolescents through a comparison of the size and composition of the friendship networks of multiracial adolescents with single-race adolescents. We consider three hypotheses suggested by the literature on multiraciality and interracial friendships: (1) that multiracial adolescents have smaller friendship networks than single-race adolescents because they are more often rejected by their single-race peers, (2) that multiracial adolescents form more racially diverse friendship networks than single-race adolescents, and (3) that multiracial adolescents are especially likely to bridge (or socially connect) friendships among members of their single-race heritage background groups. Using data on adolescent friendship networks from the National Longitudinal Study of Adolescent Health (Add Health), we find that multiracial adolescents are as popular as non-white adolescents and have social networks that are as racially diverse as the single-race groups with the most diverse friendship networks. Biracial adolescents with black ancestry have an especially high rate of friendship bridging between black persons and persons of other races, relative to black or white adolescents. The results hold using both self-identified and parental race definitions.

Keywords

Multiracial; Mixed race; Social networks; Friendships

1. Introduction

The growth in the number and prominence of persons who identify with more than one racial group, the multiracial population, has led to increasing speculation about the consequences of this trend for American race relations. Some view the growing multiracial population as an indicator that racial divisions are weakening, and argue that a growing multiracial population is likely to contribute to a reduction in the salience of race (e.g. Lee and Bean, 2004; Alba and Nee, 2003). Others see the multiracial population as a group who, because of the rigidity of racial relations in the U.S., will not be accepted by their single-race counterparts and will have difficulty managing their racial identities (e.g. Stonequist, 1937; Gibbs, 1987; Brown, 1990).

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As these viewpoints suggest, multiraciality has implications for individuals, for social relations, and for society-wide understandings of race. Yet empirical research on multiracial persons has focused mostly on psychological well-being (e.g. Cooney and Radina, 2000) and racial identity (e.g. Harris and Sim, 2002; Brunsma, 2005; Hitlin et al., 2006), with only spotty attention to other topics. The little research there is on multiracial persons and social relations has generally approached these topics from the standpoint of individual psychology. While a well-established sociometric literature examines interracial friendship (e.g. Hallinan and Williams, 1989; Joyner and Kao, 2000; Moody, 2001; Quillian and Campbell, 2003; Mouw and Entwisle, 2006), these studies have generally excluded multiracial persons.

In this study, we examine the relatively neglected topic of the social relationships of multiracial persons, specifically the friendship networks of multiracial adolescents. We consider three hypotheses motivated by prior discussions of the multi-racial population and the structural factor of high racial friendship segregation: (1) that multiracial adolescents have smaller friendship networks because they are often socially rejected by single-race peers, (2) that multiracial adolescents have racially more diverse networks than single-race persons, and (3) that multiracial adolescents often bridge the social relationships of members of their single-race heritage backgrounds.

We do so through analyzing the friendship networks of multiracial adolescents in the National Longitudinal Study of Adolescent Health (Add Health), a large school-based study of students in grades 7–12. While several prior studies have used the Add Health data to examine multiraciality, most of these studies have focused on racial identity or psychological well-being. The Add Health data allows us to examine the friendship networks of a large number of multiracial adolescents using social networks measurement, which allows for more accurate measures of social relationships than possible using only self-reports from unrelated individuals.

2. Background

2.1. Social science studies of multiraciality

Few topics in social science have seen as rapid a growth in research and writing in recent years as multiraciality. The resulting literature is diverse and crosses multiple disciplines, but most of this work can be categorized as engaging one of three major topics: racial identity and identification, psychological well-being, and racial stratification. We discuss these themes briefly, then review past studies of the friendship networks of multiracial adolescents, and finally turn to our plan of analysis.

Unlike most single-race persons in America, the racial identification of persons of multiracial descent is not a given. Persons of multiracial descent may identify themselves as a member of one of their single-race heritage backgrounds or as multiracial. Indeed, studies find that the racial identification of persons of multiracial descent often shifts over time and that responses are sensitive to the context in which identification occurs (Perlmann and Waters, 2002; Harris and Sim, 2002; Hitlin et al., 2006; Brunsma, 2006). The fluidity and contested nature of multiracial identities is likewise evident in multiracial identity

development, which often develops gradually and is affected by contingent experiences. In interviews, multiracial persons cite experiences with racism, racial awareness in interactions with peers, and racial categorization norms of their social environment as key factors affecting their racial identification (Twine, 1996; Collins, 2000; Renn, 2000; Rockquemore, 2002a; Wallace, 2004; Miville et al., 2005).

The traditional rule of racial identification for persons of white–nonwhite heritage was hypodescendency, by which white–nonwhite persons were identified with their nonwhite heritage background (Davis, 1991). Studies find the rule of hypodescent still holds in racial identification to some degree, especially for multiracial persons with an African–American parent, but that a larger number of racial identities are now available (Rockquemore, 2002a; Rockquemore and Arend, 2002; Qian, 2004; Brunsma, 2005; for a review, see Lee and Bean, 2004, pp.229–234; Roth, 2005). Among factors related to the racial identities of persons of multiracial descent are phenotype (Brunsma and Rockquemore, 2001; Herman, 2004; Khanna, 2004), the local racial context (Twine, 1996), race of friends in school (Rockquemore and Brunsma, 2002; Herman, 2004), and cultural knowledge of their heritage groups (Khanna, 2004).

A second extensive literature on multiraciality examines the psychological well-being of multiracial persons focusing on outcomes such as self-esteem, depression, and subjective measures of social adjustment (see Shih and Sanchez, 2005 for a review). These studies explore concerns first raised in the “marginal man” theory of Robert Park and Everett Stonequist from the 1930s, which holds that multiracial persons occupy a marginal position between their single-race groups and that this marginal position had profound and often negative psychological consequences (Park, 1928, 1931; Stonequist, 1937). Studies of the psychological well-being of multiracial persons are mixed in their findings, finding greater psychological and self-adjustment problems for multiracial persons contrasted to single-race persons for some but not most measures (Cooney and Radina, 2000; Milan and Keiley, 2000; Cooney and Radina, 2000; Bracey et al., 2004; Campbell and Eggerling-Boeck, 2006). Studies refute the view, however, that there are consistent, major psychological adjustment problems for multiracial persons.

Finally, several recent studies examine the position of multiracial persons in racial stratification hierarchies. These studies contrast the educational attainment and socioeconomic attainment of multiracial persons relative to single race persons. Most studies find that multiracial persons have socioeconomic status that is intermediate between the groups composing their monoracial identities (Kao, 1999; Hill, 2000; Harris and Thomas, 2002; Campbell, 2004).

Considered with reference to the field of race and ethnic relations, what is missing from past work is the position of the multiracial population on measures of what Telles (2004) aptly refers to as “horizontal” measures of race relations: the extent of interracial segregation or integration in areas of life like personal relations, intimate unions, and residence. Segregation on these dimensions is high among members of single-race groups in the U.S., and historically this segregation has played an important role in contributing to racial inequality. The relatively small number of multiracial persons and the fact that multiracial

children are usually the product of unions between single-race parents implies that residential segregation of multiracial persons from single-race persons must be low. The extent of racial segregation of personal relationships and intimate unions, however, is unclear from theory or past empirical studies. Studies of multiracial persons often mention sociability and friendship networks, but few studies consider these topics in depth. The main purpose of our article is to address this gap with respect to multiracial friendships.

2.2. Racial friendship segregation and multiracial adolescents

A consistent finding of studies of U.S. racial relations is that race is an especially strong basis of segregation in social life. Studies find high levels of continuing segregation on the basis of race in residence (Massey and Denton, 1993; Fischer et al., 2004), schooling (Orfield, 2003), friendships (Marsden, 1987; Hallinan and Williams, 1989), and marriage and intimate relationships (Joyner and Kao, 2005; Qian and Lichter, 2007). Indeed, segregation on the basis of race is significantly higher than segregation on the basis of class or gender (Fischer et al., 2004; Quillian and Campbell, 2003). Among adolescents, even among those who share contact in social context—residing in the same neighborhood or attending the same school—racial segregation in friendship remains high (Joyner and Kao, 2000; Moody, 2001; Quillian and Campbell, 2003; Mouw and Entwisle, 2006). In short, more so than other major social categories, the social worlds of members of different racial groups often fail to intersect in a meaningful way.

Persons of multiracial background face a potentially problematic social and personal situation because multiracial persons lack a clear place among the traditional racial groups in a racially divided society. Many accounts, including the classic “marginal man” theory, emphasize this problematic as a potential source of stress in their self-understanding and social lives because multiracial persons do not automatically fit in with any single-race group (Stonequist, 1937; Gibbs, 1987; Korgen, 1998; Root, 2001). If severe, social rejection by single race peers could result in high rates of social isolation for multiracial persons.

On the other hand, much evidence suggests that the acceptance of multiraciality has significantly increased since the civil rights movement (Jones and Smith, 2001; Lee and Bean, 2004). Alba and Nee (2003), in a discussion of racial and ethnic boundaries, suggest that multiracial persons may increasingly occupy an interstitial position between their single-race identities. The diverse racial background of multiracial persons suggests that they may form more racially diverse friendship networks than their single-race peers, perhaps helping to bridge typically racially segregated adolescent friendship networks.

How do multiracial adolescents fit into adolescent friendship relations, which are highly segregated by race? To answer this question we consider two major aspects of social relations. Initially we focus on the size of social networks, addressing the concern that multiracial adolescents may tend to have systematically smaller social networks because they tend to be rejected by their single-race peers. We then turn to the issue of the racial composition of the friendship networks of multi-racial students. In our remaining review, we discuss each of these questions in turn and the extant literature relating to each.

2.3. Social rejection or social acceptance?

A common concern resulting from racial segregation in friendship relations is that multiracial persons will be socially marginalized by single-race persons because they fail to fit in with any single-race crowd. This concern is widely expressed in both the popular and academic literature on multiracial persons. Despite the extensive speculation, few empirical studies have directly examined the social acceptance of multiracial persons, and those that have are limited and inconclusive.

In popular discussions, concerns regarding the social acceptance of multiracial children are often raised in the context of discussion of interracial unions. Childs (2006) and Nakashima (1992) report that concerns about acceptance and social adjustment of children were “a central concern and reason to question and/or oppose interracial unions” among families from several racial backgrounds. Other interview studies reveal a similar sentiment. Majete’s (1999) study of black–white couples reports that more than half of interracial black–white couples report their parents were hesitant about their relationship because of concerns about rejection of children arising from the union.

In the academic literature, concerns regarding the possible social exclusion of multiracial children and adolescents are also commonly raised. Based on a review of the psychological and psychiatric literature, Cooney and Radina (2000) conclude that “peer acceptance is considered a particularly pervasive problem for multiracial children, especially teens” (p. 434).¹ Gibbs (1987) provides an especially detailed discussion grounded in psychological practice with multiracial children and adolescents. She argues that in response to race-based peer rejection, multiracial children commonly either socially isolate themselves or overconform to peer pressure to find acceptance (see also Brown, 1990). Indeed, concern about the social acceptance of multiracial persons is reasonable given high levels of friendship segregation among single-race students found in previous studies of adolescent friendship, suggesting the possibility of rejection by single-race peer groups.

While the concern about the social acceptance of multiracial children and adolescents is a commonly raised one, fewer studies have examined the validity of these ideas in a systematic fashion. Studies that address the social position of multi-racial persons are overwhelmingly based on either in-depth interviews conducted with multiracial persons or on small clinical samples of multiracial persons receiving psychiatric treatment. A recent, comprehensive review by Shih and Sanchez (2005) reviewed 25 qualitative studies (based mostly on semi-structured interviews) and 15 quantitative studies (based mostly on surveys) of the implications of multiple racial identities. They find that the issue of peer relations is raised in most qualitative interview studies (17 of 25 studies), but is present in only a few quantitative survey studies (2 of 15 studies).

The interview and qualitative studies mentioning social acceptance report mixed findings. Korgen (1998), for instance, interviewed 40 black–white biracial individuals in a semi-

¹In their own data analysis, Cooney and Radina (2000) find that there are differences on some but not most measures of psychological adjustment and school success between single-race and multiracial persons. They do not examine measures of social acceptance or popularity.

structured format, supplemented with previously published interview materials. Several but not all of her respondents recounted instances of rejection from either whites or blacks because of their biracial heritage, including some who recounted experiences of rejection from members of both groups (p. 76). A number of other interview studies likewise document instances of rejection of multiracial persons by their single-race peers (Tizard and Ann, 1993; Williams, 1996; Twine, 1996; Christian, 2000; Dalmage, 2000; Root, 2001; Miville et al., 2005). At the same time, interview studies also document instance of social acceptance, and none paint multiracial persons as universally isolated socially. That is, most interview studies document instances of social rejection and acceptance (Shih and Sanchez, 2005).

While the interview studies provide important information about how multiracial persons view their own situation, it is not possible from these studies to determine whether the instances of social rejection lead to higher rates of social isolation among multiracial persons than single-race persons, or whether multiracial persons overcome these instances to develop friendship networks equal in size to single-race persons. One limiting factor is that interview studies usually only interview multiracial persons. As a result, these studies rely upon the impressions of respondents about how their own social position contrasts to single-race persons rather than making a systematic comparison between multiracial and single-race persons. A second limitation is the small size of most interview studies, which usually include fewer than 30 multiracial persons from a single multiracial heritage group (e.g. white-black). Finally, the non-random nature of the samples makes it difficult to draw conclusions about the multiracial population. Interview studies usually rely on general appeals to multiracial persons to find their interviewees, such as newspaper advertisements aimed at multiracial persons or through the membership of multiracial organizations. This sampling method is likely to over-represent individuals for whom their racial identity as a multiracial person is most salient. It is unclear to what extent the findings of the interview studies might apply to persons with less strong multiracial identities, or to individuals who have mixed-race parents but whom identify with only a single race. Alternatively, a few studies have used small numbers of multiracial individuals receiving psychological counseling (e.g. Gibbs, 1987; Brown, 1990). Similar to the problems with interview studies, it is very uncertain what we can learn about multiracial persons' social worlds from such a self-selected sample.

We know of only three quantitative studies that consider the social acceptance of multiracial persons. Chang (1974) compared 251 children of mixed-race marriages to 98 children of same-race marriages in Kansas on the Piers-Harris Children's Self-Concept scale. Cauce et al. (1992) contrasted 22 biracial adolescents to monoracial adolescents on psychological measures of relations with peers including measures of alienation, trust, and communication. Both studies found no significant differences between monoracial and multiracial youth on the measures examined. Yet the small size, specific geographical settings, and non-random sample selection methods of Chang (1974) and Cauce et al. (1992) result in limitations similar to the interview studies.

Recently, Campbell and Eggerling-Boeck (2006) contrast single-race and multiracial adolescents using the large sample of multiracial adolescents in the National Longitudinal

Study of Adolescent Health survey. Like most of the prior literature, Campbell and Eggerling-Boeck (2006) focus primarily on differences in psychological outcomes such as depression or suicidal thoughts rather than social relationships. But they additionally examine one measure of subjective social acceptance: a survey item that asks student to agree or disagree with the statement “I feel socially accepted”. They find that individuals who identify as multiracial on the in-school survey score on average significantly lower than single-race students on social acceptance. They also find that this difference in feelings of social acceptance primarily results because of lower perceived social acceptance of white-Native American adolescents and white-black adolescents rather than lower social acceptance for all multiracial groups. This last conclusion is necessarily somewhat tentative, however, because of the small sample sizes of several specific multiracial heritage groups in their analysis.² Overall, their results suggest lower perceived social acceptance by some but not all multiracial heritage groups.

2.4. The racial composition of multiracial social networks

Beyond the issue of social isolation there has been little social science study of the social networks of multiracial persons. Theory does not provide a clear prediction about the composition of the friendship networks of multiracial persons.

One possibility is that multiracial persons respond to segregated friendship relations by choosing friends predominately (or exclusively) made up of one of their single-race heritage backgrounds. Such a pattern would mirror the historically common pattern of multiracial persons identifying with only one of their multiracial heritage backgrounds, a process codified in social practice and the law for black-white multiracials under the one-drop rule or hypodescendency (Davis, 1991). The high racial segregation in social settings and in friendship relations among single-race persons may contribute to this outcome, because their social settings may tend to be racially homogeneous or because high racial segregation in peer networks makes it difficult to form diverse friendships.

A second possibility is that multiracial persons may form racially diverse friendship networks. The weakening of the one-drop rule and the increasing frequency of multiracial identification are consistent with this possibility. Alba and Nee (2003) suggest that multiracial persons are forming “interstitial” groups that are in several respects between their single-race backgrounds, suggesting that multiracial persons may form friendships with members of both of their single-race heritage backgrounds. Alternatively, Rockquemore and Brunson (2002) present evidence that some multiracial persons view themselves as “transcending” racial categories. In terms of friendships, this suggests that multiracial persons may be able to form more cross-race friendships among persons of all racial backgrounds.

The few studies of these topics are mixed in their conclusions regarding the diversity of the friendships of multiracial students. Korgen (1998) reports that in her sample of biracial black-white persons several respondents reported acting as mediators between individuals

²A 95% confidence interval for the coefficient for popularity differences of each of the specific multiracial heritage groups in their Tables 2 and 3 is large enough to include the one significant difference they find.

from each of their single-race backgrounds, suggesting that biracial individuals may tend to have more racially diverse friendship networks than single-race students. Likewise suggesting diversity in social networks, Root (2001, p. 150), reports black–white biracial individuals were harassed by members of their single-race heritage groups, but not by students whose single-race backgrounds did not overlap with one of their racial heritage backgrounds. Root’s observation suggests diverse friendship networks among multiracial persons since they find greatest acceptance outside of their single-race heritage groups. On the other hand, Twine (1996), Tatum (1997), and Korgen (1998) suggest that multiracial individuals sometimes perceive social pressure from friends to show solidarity with the racial group with which they most strongly identify by dating only members of that group. If this logic also applies to friendship, multiracial persons may have friendship networks that are no more diverse than their single-race peers.

We know of only one quantitative study of the race of friends of multiracial persons, which is Doyle and Kao’s (2007) study of the best friend selected by multiracial adolescents in the Add Health survey. They find that multiracial persons have racially diverse best friends, a pattern they refer to as “blending” (following Lieberman and Waters, 1988). Because they focus only on the best friend—a single friendship choice of each multiracial person—it is not possible to tell from their results whether the friendship networks of individual multiracial persons are more diverse than single-race persons, or whether multiracial individuals tend to have their friendship choices slant toward one of their racial heritage backgrounds, with variability in the direction this slant takes.

2.5. Research questions and our approach

We focus on the friendship relations of multiracial adolescents on three possible axes of variation. These axes are:

1. *Isolation vs. popularity:* Classic and modern accounts of the multiracial population suggest that multiracial adolescents may tend to be rejected by many of their single-race peers, resulting in lower popularity. Alternatively, the growing acceptance of the idea of multiraciality may mean that there is no popularity deficit to multiracial heritage.
2. *Diversity vs. homogeneity:* By virtue of their multiracial background, multiracial persons may tend to develop more diverse friendship networks than most single-race persons. Alternatively, racial segregation in social networks and continuing resistance to accepting multiraciality may lead multiracial adolescents to affiliate with a single-race crowd, leading to racially homogeneous networks. We add to Doyle and Kao’s (2007) study in this area by examining diversity of individual friendship networks, rather than of best friend selection.
3. *Background bridging vs. polyracialism:* In background bridging, the friendship networks of multiracial persons tend to include friends from both of their single-race backgrounds. In polyracialism, race in general is a weaker barrier to friendship formation than it is for single race persons, resulting in friendship networks that include individuals of several races.

“Bridging” is a concept from the network literature to denote a person who connects two groups whose members lack much connectedness to each other except through the bridge individual (Wasserman and Faust, 1994, pp. 114–117). In our analysis, a bridge is a multiracial adolescent who has friends with both of their single-race friendship groups.

3. Data

Our analysis is based on the National Longitudinal Study of Adolescent Health, a large school-based survey of adolescents (Bearman et al., 1997). Four features of the Add Health data make it nearly ideal for comparing the social networks of multiracial and single-race adolescents. First, the Add Health survey includes an extensive social network survey that asks for friendship nominations from all students in a large number of schools. Second, the Add Health study includes a large, racially diverse sample, including more than 4,500 multiracial respondents in the school survey. Third, a sample of adolescents is well-suited for examining social networks at a crucial stage of development during which peer relations become increasingly important. Fourth, the Add Health study includes an unusually complete set of measures of race, including self-identified race and parents’ races for respondents in the home survey, allowing us to test the sensitivity of results to different definitions of multiraciality.

3.1. Construction of the self-assessed race and parental race samples

We construct two separate samples for our analysis, one based on the Add Health in-school survey and using self-identified race measures and the other based on combining information from the Add Health in-school and home surveys and including measures of race based on parents’ races.

The school survey is based on a self-administered instrument given to all students present on the day of administration in about 120 high schools and junior high schools in 1994 and 1995, resulting in a total sample of more than 80,000 students. For analysis with the in-school sample, 77,272 students had valid values on the Add Health sampling weights and race (discussed below). We also eliminated cases missing data on the control variables we will use in later models (discussed below), dropping 9040 cases because they were missing values for GPA, and 3058 cases because they were missing on one of the other control variables, resulting in an in-school sample for our analysis of 65,174 students.

In the school survey sample, race is measured based on self-identification on the in-school questionnaire. Self-identified race allows respondents to express their own view, and it matches the method used by the Census Bureau and most other survey organizations for racial classification (Jones and Smith, 2001).

The second, smaller sample includes students for whom we were able to determine race based on parents’ races. This sample combines data on social networks from the school survey with data from home surveys and a separate parental questionnaire.³ Unfortunately, the smaller at-home sample size; non-overlap in sample design among the in-home, in-

³The parental questionnaire was filled out by a parent in the household, usually the mother.

schools, and parental surveys; missing data from several sources; and the restricted availability of the parental race measures results in a greatly reduced sample size. Although 20,745 adolescents were interviewed in the Add Health In-Home Survey, 1821 students are eliminated because they are part of the genetic sample that cannot be used for population-representative estimates, 4528 students are eliminated because they did not complete the in-school survey, and 2789 additional students who filled out some of the in-school questionnaire did not answer the friendship network questions. An additional 2569 cases were missing on some of the independent variables we use in the regression models—most often the BMI variable used to construct the obesity measure. Finally, the parental questionnaire only ascertained parents' races when the respondent lives with both biological parents, a restriction that reduces the sample size by an additional 4326 cases. Our final sample size with present values on all variables used in our analysis is 4709 cases. Of the sample with present values on other variables, we lose slightly less than 50% because they are not living with both of their biological parents.

Does the limitation of the parental race sample to only respondents living with both parents skew the results in some way systematic to friendship or our results? Fortunately, we can consider this issue using the in-school sample and measures of self-identified race. We included an interaction between a variable indicating that respondent lives with both parents (based on respondents self-report in the school survey) and the major race-group independent variables in our main tables (Tables 4, 6, and 7). We found no statistically significant differences at $p < .01$, suggesting that racial patterns of popularity, friendship diversity, and bridging do not differ sharply by family structure.

Despite the much smaller sample size of the parental race sample and its limitation to persons living with both parents, our view is that an analysis with parental race is well worth including. Probably the largest advantage of parental race over self-identified race is that it clearly cannot be caused by friendship (or other controls), making it possible to unambiguously ascertain the direction of causation between parental race and friendship. Some past analyses have suggested that race of friends is a factor that affects racial identification (Rockquemore and Brunnsma, 2002; Herman, 2004). In addition, most theories suggesting social isolation or bridging emphasize racial background as the key variable, rather than self-identified racial identity, making it a better fit to most theoretical perspectives on multiraciality and friendship. In what follows, we present all of our major results with both self-identified and parental race.

3.2. Measures of race

Self-identified race is based on answers to the Add Health race question on the in-school survey: "What is your race? If you are of more than one race, you may choose more than one," with the answers of white, black or African American, Asian or Pacific Islander, American Indian or Native American, or other. Respondents who are multiracial are those who choose more than one race on the questionnaire. Following the Census, Hispanic origin on the Add Health questionnaire is asked in a question separate from race ("Are you of Hispanic descent?").

There is no universally agreed-upon practice for the treatment of Hispanic background in defining racial categories. The Census treats Hispanic as an ethnic rather than a racial category. There is good evidence, however, that many respondents of Hispanic origin think of “Hispanic” as their race, notably the high rates at which Hispanic respondents choose “other” or fail to answer the standard census race question, which does not include a “Hispanic” category (Hirschman et al., 2000). Consistent with the idea of self-identified race, we code respondents whose answers suggest they think of Hispanic as their race into a separate racial category. For these respondents we create a category of “other Hispanic” which is based on two categories of response: one when the respondent responds “other” for their race and indicates they are of Hispanic descent, the other when the respondent does not answer the race question (does not check any category) and indicates they are of Hispanic descent. Respondents who choose “white” or “black” and indicate Hispanic are classified as “white” or “black”, respectively.⁴

An alternative approach to dealing with respondents of Hispanic background would be to exclude Hispanic respondents altogether, a solution employed by Harris and Sim (2002) in a study of racial identification. In a study of friendship, however, we view this as an unsatisfactory solution because this would exclude not only respondents but also friends who are Hispanic, resulting in an incomplete picture of friendship relations of non-Hispanic students with Hispanic friends.

From the answers to the race and Hispanic-origin questions, we formed six single-race groups and eleven specific multiracial heritage groups. These basic groups and counts of respondents are shown in Table 1.

In the parental race sample, respondent’s race is assigned based on the respondents’ parents’ races as indicated on the parental questionnaire. As discussed above, parental race is only available for adolescents who live with both of their biological parents. The parental race counts and percentages are shown in Table 1. One notable difference is the lower percentage of single-race black respondents in the parental race sample, which reflects the high rates of single parenting among blacks.

To form respondent racial categories from the parents’ races, we first created categories of race for each parent from the home survey similar to the self-identified categories for adolescents, discussed above. We then assigned each adolescent a second racial identity based on their parents’ answers to the race survey. Multiracial background is assigned to adolescents who have parents who are not both from the same racial group. Adolescents with one or more parent who indicates a multiracial identification are placed in the category of “more than 2 races”. Counts of respondents in the home survey who are in each category are in the right pair of numeric columns in Table 1.

⁴Quillian and Campbell (2003) find that Hispanic whites have friendship networks quite similar to non-Hispanic whites, and Hispanic blacks have friendship networks quite similar to non-Hispanic blacks.

3.3. Social networks measurement

On the Add Health school survey, each student was asked to indicate his or her best male and best female friends, up to five of each gender. Students wrote in the names of their friends and were then asked to look up the ID number of friends from a list of student names. Most students named fewer friends than the five of each gender the survey allowed. Only 38.7% of the sample named ten friends.

Because most students named as friends were also surveyed as part of the in-school questionnaire, we are able to discern the characteristics of friends directly from their responses from the school questionnaire. This allows us to avoid the social desirability bias and subjective variation in reference groups that contaminate self-reports of the racial composition of friendship networks (see Smith, 2002).

We do not use variables or data from the later waves of Add Health because the complete social network data is only available in the first wave of Add Health data. Although later waves of Add Health data include some limited network data, they do not include the complete network data that allows detailed examination of social network measurement. Likewise, the later waves of Add Health data are only available for the smaller at-home sample rather than for the larger in-school sample, reducing our ability to examine results for specific multiracial groups.

3.4. Analytic procedures

Both the in-school and at-home samples are complex stratified and clustered samples. Correspondingly, all standard errors, confidence intervals, and hypothesis tests presented in the tables are calculated using the procedures recommended by Chantala and Tabor (2004) for analyzing the Add Health data. That is, we employed the Add Health survey sampling weights for all analyses and use Huber/White/Sandwich procedures to estimate standard errors with schools as clusters and regions as strata.

4. Analysis and results

4.1. The popularity of multiracial adolescents

In discussions of multiracial persons, the possible social exclusion of multiracial adolescents is a recurring concern. To consider the possibility that multiracial adolescents are excluded by their peers, we created measures of popularity from the Add Health social networks data. Our measure of popularity is the number of other students in the Add Health school survey who name the respondent as a friend; in network studies, this is often referred to as the “in-degree” of a network node (Wasserman and Faust, 1994, pp. 125–126). The resulting measure of popularity ranges from 0 to 43. Popularity has a highly skewed distribution: 54.1% of the respondents have scores of 0, 1, 2, or 3. Because the survey is based on popularity among persons at the respondent’s school or sister (feeder) school, and the vast majority of friendship nominations were among school peers, in effect this is a measure of within-school popularity.

The average popularity by race is shown in Table 2. The left columns are based on student race identification on the school survey. The right columns use the parental race definition, which is only available for the home sample. The results show a category with all multiracial persons included together, and also shows results separately for specific multiracial heritage groups. Markers of significant differences of the group mean from the white mean and black mean at $p < .01$ are denoted by the letters “w” and “b”, respectively.⁵ We chose white and black as comparison groups for multiracial groups because they are large racial groups which tend to score toward the opposite ends of the range of single-race group variation for many of our measures.

Examining first the single-race groups, there are significant variations in the level of popularity by race. In particular, white students stand out from non-white students, with white students having higher mean levels of popularity. This is true using both the self-identified and parental race definitions. Among the five non-white single-race groups, the average popularity scores do not vary much from each other, especially in the school survey. The only possible exception to the similar levels of popularity across non-white groups are other Hispanics using self-identified race, but this result does not replicate using the parental race definition.

By contrast, multiracial students have a mean level of popularity that is generally similar to non-white students, and are correspondingly less popular than white students. Since the popularity of multiracial students is within the range of variation that occurs among single-race groups, this is contrary to the suggestion that multiracial students face a particular popularity problem relative to their single-race peers. The results in the right columns, using parental race, show that multiracial students have a lower mean popularity score than all students except Native Americans, but these differences are substantively small and statistically nonsignificant. Our overall conclusion is that multiracial students are not significantly less popular than single-race non-white students.

The lower portion of Table 2 shows mean levels of popularity for specific multiracial heritage groups. The differences among multiracial groups in levels of popularity are generally small and usually statistically nonsignificant. We conducted pairwise tests of statistical significance of the differences between each of the specific multiracial groups and the pooled multiracial average: no contrasts were statistically significant at the $p < .05$ level.⁶ Because of the small and generally nonsignificant variation in levels of popularity among specific multiracial heritage groups, in future analyses we focus on results that include all multiracial persons together in a single multiracial category.

The lack of significant variation we find among specific multiracial heritage groups is inconsistent with the finding of Campbell and Eggerling-Boeck (2006) that Native

⁵We use $p < .01$ rather than $p < .05$ to help reduce the probability of making a type I error when searching across the large number of contrasts we examine. With a $p < .05$ standard, the likelihood of finding some significant differences when none exist (a type I error) becomes quite large (see the discussion of multiple comparisons in Agresti and Finlay, 2001; Chapter 12).

⁶If we use an adjustment to the tests to control the chance of a type I error across multiple tests, we note that this makes the results fall much further short of statistical significance. A Bonferroni adjusted test with 11 contrasts is equivalent to a standard test performed at the $\alpha = (.05)/11 = .0045$ level of significance. Thus a Bonferroni adjustment results in even more conservative results about differences among groups.

American-whites score significantly lower on perceived social acceptance. Looking in more detail at the lower panel of Table 2, we see that our findings are somewhat similar to Campbell and Eggerling-Boeck in that we find that white-black and Native American-other students have significantly lower popularity than whites, but only for the parental race definition (but neither of these groups is significantly below the pooled mean of popularity for all multiracial students). Using the larger school self-identified race sample, we do not find that white-black or Native American-other students stand out from other students. The inconsistency with Campbell and Eggerling-Boeck's results suggest a difference resulting either from the samples used, since Campbell and Eggerling-Boeck use the smaller at home sample for their analysis using self-identified race while we use the larger in-school survey, or from how complex racial identifications are coded into biracial categories, since they find lowest popularity for Native American-white while we find it for Native American-other. While beyond the scope of this study, further study would be useful to better understand the situation of multiracial students with Native American as one of their identities, which is where the comparisons across samples show the largest difference; Harris and Sim (2002) have found that multiracial groups with Native American as one of their racial heritage backgrounds show high inconsistency in racial self-identification across different contexts.

To this point, we have not controlled for other factors that may be related to popularity of students. Some of the differences among racial groups we find may reflect differences in parental characteristics or other background factors between single-race and multiracial students. These background factors could confound the influence of multiraciality among peers, especially if multiracial students differ systematically in family socioeconomic status from single-race students.

We use regression models to statistically control other characteristics that may be related to popularity and could confound the race variables. Based on a review of the literature and our common-sense ideas about the sources of popularity, we chose several variables to include as controls. The control variables we include are shown in Table 3. Because popularity is highly skewed, in the regression models we used the logarithm of popularity plus one as the dependent variable rather than the raw popularity variable.

The popularity levels by race before and after controls are shown in Table 4. Coefficients of all variables including controls are available from the authors on request. Although the coefficients of the controls are not our main interest, it is worth noting that the controls behave in fashions consistent with our expectations. For instance, students who are obese are significantly less popular: obese students are named as friends by 30–40% fewer students than students who are not obese. The negative relationship between obesity and popularity is consistent with prior studies (Gortmaker et al., 1993) and increases our confidence that frequency of friendship selection is a valid method of assessing popularity.⁷

Race differences in popularity before and after controls are shown numerically in Table 4 and graphically in Fig. 1. In Fig. 1, each vertical line represents a statistical model, with the

⁷In other words, the obesity results provide a successful test of construct validity for the popularity measure.

markers indicating the average popularity of persons of each group relative to whites in that model.

The markers on the left lines represent race group mean differences in log popularity without controls. The markers on the middle lines represent race group mean differences in log popularity after controlling for individual and school characteristics.⁸ With individual characteristics controlled, differences in popularity among single-race and multiracial groups become somewhat smaller, which is shown by the markers in Fig. 1 clustering more closely together after controls (especially in the school sample). Some of the differences in popularity among students, then, are accounted for by differences across racial groups in the control variables. The basic patterns that we found in the unadjusted group means persist when these controls are added: multiracial students have levels of popularity that are below whites but not statistically or substantively lower than blacks or most other non-white groups. That is, we still find no evidence of any special popularity deficit for multiracial students, since the popularity of multiracial students remains within the range of variation that exists among single-race groups.

The final models in Table 4 add fixed effects (dummy variables) for each school in the survey. The right lines in Fig. 1 graph the results. This provides an alternative means to control for school-level influences on popularity, effectively using only the within-school variation to determine the effects of the individual characteristics. The direct school controls are correspondingly dropped, because they cannot be included in a model with the school-level dummy variables, with which they are linearly dependent. Again, the results show basically the same pattern in which multiracial students are not as popular as whites, but are higher than several of the non-white groups in popularity.

4.2. Multiraciality and friendship diversity

Some literature on multiracialism suggests that a positive aspect of a multiracial background is the ability to see both sides of racial issues and to act as liaisons between persons of different racial backgrounds. In network terms, this suggests that multiracial individuals may tend to have more racially diverse friendship networks, often including persons from more than one of their specific racial heritage groups.

We begin our investigation of this possibility in Table 5, which provides descriptive statistics on the racial diversity of friendship networks based on the friends named by each respondent on the survey.⁹ Because diversity in an individual's friendship network is only possible if the person names at least two friends, we only include individuals who named at least two friends on the survey—eliminating 18,253 individuals from the in-school sample and 863 from the at-home sample who only name zero or one friend. Table 5 shows the mean of a summary measure of friendship diversity which we calculated for each individual, the entropy index.¹⁰

⁸These hypothesis tests for difference across groups are similar to Table 2, except in this case the popularity variable is logged before the contrast in mean is conducted. While these are not exactly equivalent tests because of the logging, they lead to identical conclusions.

⁹The measure of popularity in the prior section was based on friendship nominations of each student by other students. By contrast, the friendship diversity measures are calculated for each student based on the friends named by that student.

The entropy index takes on a value of zero for no diversity of an individual's friends—all friends the same race—and reaches its maximum value (of the log of the number of friends) when each friend chosen is from a different racial group. The racial friendship entropy of each individual (i) is calculated as:

$$\text{entropy}_i = - \sum_{k=1}^K p_{ki} \log p_{ki}$$

where p_{ki} is the proportion of friends named by the i th individual who are members of the k th racial group (of K total racial groups in the survey). The entropy index is a measure of diversity with several desirable statistical properties, and is the basis of a common index of segregation (see Theil, 1972; White, 1986).

Table 5 shows the mean friendship diversity by race, measured by the mean friendship entropy statistic. There are two clusterings of friendship network diversity: white and black students have low levels of diversity in their friendship networks, while other single-race groups and multiracial students have more diverse networks. Based on descriptive means, then, multiracial students seem to have friendship networks that are more diverse than white students, and are about as diverse as Asian, Native American, and other Hispanic students. As was the case with popularity, there are few significant differences among specific multiracial heritage groups.

An important influence on the racial composition of friendship networks is the diversity of the school populations from which friends are selected (Moody, 2001; Quillian and Campbell, 2003). To control for this factor, we calculated measures of the racial diversity (entropy) of the schools attended by each student and included this as a control variable in a regression model in which popularity is the dependent variable. The differences with and without this control are shown in the left two numeric columns of Table 6 and are graphed in Fig. 2. Full results (including coefficients of controls) are available from the authors on request.

Controlling for school racial diversity, the difference between white and black students and other students in the diversity of their friendship nominations narrows substantially. In other words, one of the reasons for the diverse friendship networks of Asian, Native American, and other Hispanic students is because they tend to be in schools with relatively diverse student populations. After this control, white, black, and Asian students have similar levels of racial diversity of their friendship networks. Native American, other Hispanic, and multiracial students continue to have a relatively high level of racial diversity in their friendship networks.

¹⁰We also considered conducting this analysis as a dyadic analysis of network ties, used in several network studies focusing on the racial composition of friendships (Hallinan and Williams, 1989; Moody, 2001; Quillian and Campbell, 2003). But a dyadic analysis is not well suited to an analysis in which the main subject of interest is the diversity of *all* of the friendship selections of each person, rather than the characteristics of individual friendship dyads. Methods treating individuals as the basic unit are more appropriate for an analysis of popularity, because individuals are the basic unit for which popularity is measured.

The third model in Table 6 adds the controls shown in Table 3 for other individual and school levels factors. Fig. 2 provides a graph of the results. Contrasting the first and second vertical lines, the results are not much different than the models with only controls for school racial diversity. Results with individual and school controls thus support the prediction that multi-racial individuals will tend to have more diverse friendship networks than most of their single-race peers, with levels of friendship diversity about equal to the single-race groups who have the most diverse friendship networks (Native Americans and Hispanics).

Why do Native Americans and other Hispanics have friendship networks that are so much more diverse than white, black, or Asian students, equaling the racial diversity of multiracial students' networks? It may be that the diversity of Native American's friendship networks reflects the fact that they are a group that has intermarried heavily. Goldstein (1999) estimates that 19 of 20 Native Americans have a close relative who is of another race. A different explanation is some students are choosing to identify as Native American because they find the cultural image of Native Americans appealing and have some Native American ancestry, however remote (see Harris, 1994). The diversity of the friendships of other Hispanics may be attributable to the treatment of Hispanic origin as an ethnic category separate from race. It may be that similarity in Hispanic origin contributes to friendships across racial lines more commonly than is the case for non-Hispanic students, or it may be that students who appear racially ambiguous sometimes choose "other" and sometimes "black" or "white" as their race, increasing apparent friendship diversity because of variability in how Hispanic respondents answer the race survey question.

Diversity in personal networks, especially among youth, may also tend to contribute to self-identified multiraciality rather than the other way around. As shown in Fig. 2, however, multiracial individuals still have more diverse friendship networks when we use parents' races to determine multiraciality rather than self-identified race. Throughout, the results using race based on parents' races are very similar to those based on self-identified race. It is clear, then, that there is more to the diversity of the friendship networks of multiracial students than the possibility that diverse friendship networks contribute to multiracial identification.

4.3. Do multiracial adolescents bridge social networks of single-race students?

What accounts for the diversity of multiracial friendship networks? Two competing hypotheses are testable using our data, although only for multiracial groups for which there is sufficient sample size. One possibility is that multiracial persons often tend to have social networks that include members of both of their single-race backgrounds, thus giving them relatively diverse networks. This is what we will call the "bridging" hypothesis, since multiracial persons in this case bridge friendships among persons of their single-race heritage groups, giving them diverse friendship networks. A different possibility, which we refer to as "polyracialism," is that multiracial students tend to have diverse friendship networks, perhaps because race in general is a weaker barrier to friendship formation among persons of multiracial backgrounds. Background bridging suggests that multiracial students from a multiracial heritage group (e.g. white-black) will be especially likely to have white

and black friends, while polyracialism suggests they may be more likely to have more diverse friendship networks in general, beyond their specific multiracial heritage backgrounds.

Table 7 examines the rate of “bridging” friendships across multiracial heritage backgrounds for the larger multiracial heritage groups. The percentages in the columns indicate the share of respondents who name friends who are of both of the two races indicated in the left column. “Bridging” suggests that multiracial students should be more likely to have friends of both races than members of single-race groups from these backgrounds. When this pattern fits, the percentage of bridging friendships for the multiracial category is in bold in Table 7.

The only multiracial heritage groups for which we have sufficiently large samples for statistically reliable estimates of bridging prevalence have white or black as one of their heritage backgrounds using self-identified race. For several of the multiracial groups—namely white-Asian, white-native American, and white-other Hispanic—the bridging hypothesis is not sustained: the extent of bridging is generally as great among single-race minority members of these groups as among biracial persons. The diversity of multiracial friendships for these groups must then result from diverse friendship networks in general. Interestingly, however, high rates of bridging are generally sustained for multiracial groups that include African-Americans. Past studies of friendship patterns in Add Health have found that friendships between black and nonblack adolescents are especially infrequent relative to other cross-race friendships when the diversity of school environments are controlled (Quillian and Campbell, 2003). Because black adolescents are less likely to have friends of other races, it is especially notable that there is relatively high bridging between blacks and whites by black-white multiracial students.

5. Discussion

Our results regarding the social networks of multiracial persons are more consistent with the optimistic possibilities suggested by commentators on the growing multiracial population. We find that multiracial adolescents have levels of popularity that are about the same as their non-white single-race peers, thus we conclude there is not strong evidence supporting the idea that multiracial persons are rejected to the point of becoming socially isolated. We also find that multiracial adolescents have more racially diverse friendship networks than most single-race students, with levels of diversity similar to Hispanic and Native American students, who have the most diverse friendship networks. Multiracial adolescents of black-white backgrounds are especially likely to bridge their multiracial heritage groups, compared to prevalence of bridging among other single-race and multiracial adolescents. For other multiracial groups, their relatively diverse friendship networks do not result specifically from bridging their single-race heritage groups.

While our results indicate that multiracial individuals are not less popular than their single-race peers, we also note that this does not necessarily imply that there are no social adjustment problems resulting from a multiracial background, or that multiracial individuals may not face occasional social rejection from members of single-race groups. Indeed, the

accounts from interview studies strongly suggest that rejection from single-race individuals occasionally happen, and that multiracial adolescents face some issues of defining how they “fit in” in a country where the large majority of persons identify their heritage with a single racial group. Instead, our results suggest that the problems of social adjustment faced by multiracial adolescents are not pervasive enough to result in social isolation. In other words, despite occasional race-based rejections, multiracial adolescents generally develop friendship networks that are not systematically smaller than single-race adolescents.

The relative racial diversity of the friendship networks of multiracial students contradicts the notion that multiracial adolescents tend to choose a single-race clique as their social group. Instead, our results are more consistent with the idea that multiracial individuals may be able to develop a social position that incorporates relatively diverse peers. At the same time, however, we should emphasize that the diversity of friendship networks of multiracial persons is not higher than all single-race groups, but instead the level of racial diversity of multiracial persons’ friendship networks is similar to the single-race groups with the most diverse friendship networks.

One exceptional characteristic of the friendship networks of biracial persons with black as one of their multiracial heritage backgrounds is the high rates at which their networks incorporate both black and nonblack persons. This high black-nonblack bridging stands out because cross-race friendships are less likely for African American adolescents when group size is adjusted for than for any other racial group (Quillian and Campbell, 2003). By contrast, for the other biracial heritage groups we consider, friendship diversity appears to result more from generally diversity in friendship networks than from bridging their single-race identities.

Many modern observers have suggested that the in-between social position of multiracial persons could in several ways help to reduce racial divisions. Friendship ties with members of both racial heritage backgrounds, for instance, might help multiracial persons develop a more sympathetic understanding of the position of both of their racial heritage groups. Although beyond the scope of our study, we believe that our findings, combined with recent evidence on the attitudinal consequences of close interracial contact, provides some support for this idea. The study of randomly-assigned college roommates by Duncan et al. (2003) provides the strongest evidence to date that diverse social networks contribute to greater empathy across racial lines. While they do not specifically consider multiracial persons, their evidence of empathy from cross-race contact is consistent with the possibility that a growing multiracial population that socially connects persons across racial lines will contribute to more positive racial attitudes.

In their discussion of racial and ethnic boundary blurring and immigration, Alba and Nee (2003) claim that “the key” to weakening social division is “sustained equal-status contact between the members of different groups ... support by institutional mechanisms enforcing equal rights” (p. 62). Friendship seems likely to be the sort of sustained, equal-status contact they suggest may help to reduce the salience of racial divisions. If Alba and Nee are correct, then, the diversity of the friendship networks of multiracial persons is likely to contribute to blurring boundaries. Moreover, because persons who share a friend are more likely to

become friends themselves—an effect called “transitivity” in network studies (Wasserman and Faust, 1994)—multiracial persons are likely to foster cross-race friendships between persons in their social network.

Lee and Bean (2004) have recently suggested that while boundaries among whites, Asians, and Hispanics are blurring—with Asians and Hispanics following a trajectory not too different from past white ethnic groups—the black—white divide is retaining its strength. Instead, they suggest that the traditional black—white binary is being replaced by a black—nonblack divide. Correspondingly, Quillian and Campbell (2003) found that friendship formation across racial lines was less common among black adolescents than for other groups. A high rate of bridging by multiracial persons with black heritage, however, works against this tendency. Of course, a complex outcome like racial boundary blurring is a product of multiple, complex causes, of which friendship relations are only one. But our results regarding friendship and multiraciality provide support for the hopeful idea that a growing multiracial population may contribute toward a broad reduction in the social salience and rigidity of racial distinction.

Acknowledgments

While working on this study, Rozlyn Redd was supported through the University of Wisconsin Center for Demography and Ecology's NICHD Training Grant (T32 HD07014). We thank Mary Campbell for helpful suggestions and comments. This research uses data from the Add Health project, a program project designed by J. Richard Udry (PI) and Peter Bearman, and funded by grant P01-HD31921 from the National Institute of Child Health and Human Development to the Carolina Population Center, University of North Carolina at Chapel Hill, with cooperative funding from 17 other agencies. Persons interested in obtaining data files from The National Longitudinal Study of Adolescent Health should contact Add Health, Carolina Population Center, 123 West Franklin Street, Chapel Hill, NC 27516–2524 (<http://www.cpc.unc.edu/addhealth>).

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Note: Based on Race Coefficients of Regression Models in Table 4

Fig. 1.
Popularity by race.

Note: Based on Race Coefficients of Regression Models in Table 6

Fig. 2.
Friendship racial diversity by race.

Table 1

Self-identified race and parental race categories and counts

	Self-identified race (school survey)		Race defined by parents' races (home survey)	
	Unweighted count	Weighted percentage	Unweighted count	Weighted percentage
White	38821	62.4	3241	79.8
Black	10101	16.9	608	8.0
Asian	3390	3.6	317	3.3
Native American	955	1.7	16	0.3
Other Hispanic	6089	6.8	171	2.1
Other, not Hispanic	976	1.4	12	0.3
All multiracial	4842	7.3	344	6.1
<i>Specific multiracial heritage groups</i>				
White-black	330	0.5	31	0.4
White-Asian	488	0.6	53	0.7
White-Native American	1335	2.2	26	0.5
White-other	822	1.2	56	1.0
Black-Asian	179	0.3	6	0.1
Black-Native American	431	0.7	5	0.1
Black-other	106	0.2	16	0.1
Asian-Native American	53	0.1	0	0.0
Asian-other	216	0.2	9	0.1
Native American-other	69	0.1	4	0.1
More than two races	813	1.3	138	3.1
Total sample	65174		4709	
Of total sample, number who name at least 2 friends	46921		3846	

Source: The National Longitudinal Study of Adolescent Health, 1994–95.

Table 2

Popularity levels of single-race and multiracial students

	Self-identified race (school survey)			Races defined by parents' races (home survey)		
	Percentage with popularity zero	Mean popularity	Sig.	Percentage with popularity zero	Mean popularity	Sig.
White	12.5	4.74	b	7.8	5.44	b
Black	15.2	4.03	w	6.9	4.61	w
Asian	17.5	3.70	w	18.7	4.24	
Native American	15.5	3.89	w	18.7	3.64	
Other Hispanic	22.4	3.21	w	11.9	4.00	w
Other, not Hispanic	20.5	3.61	w	15.6	4.07	
All multiracial	17.5	3.85	w	14.2	3.72	w
<i>Specific multiracial heritage groups</i>						
White-black	13.4	3.91	w	17.2	2.86	w, b
White-Asian	14.2	4.18		0.4	3.45	w
White-Native American	16.6	3.92	w	5.4	3.12	w
White-other	19.0	3.86	w	28.8	3.15	w
Black-Asian	24.8	3.21	w	0.0	3.94	w
Black-Native American	21.1	3.54	w	0.0	3.39	
Black-other	15.5	3.70	w	31.9	2.71	w
Asian-Native American	26.8	2.88	w	(no cases)		
Asian-other	25.1	3.16	w	0.0	6.28	
Native American-other	8.6	4.58		0.0	2.34	w, b
More than two races	16.3	3.99	w	14.7	4.17	w
<i>N</i>	65174			4709		

Notes: w, statistically significance difference from white mean at $p < .01$; b, statistically significant difference from black mean at $p < .01$.

Table 3

Control variables used in regression models

Variable	Description	Notes
<i>Controls for student characteristics</i>		
GPA	Average of most recent grades (self-reported) in English, math, history/social studies, science	
Mother's education	Dummy variables for six levels	
Grade in school	Dummy variables for respondent's grade in school	
Male	1 = male, 0 = female	
Respondent is foreign born	1 = foreign born, 0 = born in U.S.	
First year	1 = respondent is in first year at this school, 0 = not in first year	
English in home	1 = English spoken at home, 0 = some other language spoken at home	Home sample only
Obesity	1 = respondent has a body mass index of over 30, 0 = respondent has a body mass index equal or less than 30	Home sample only
<i>Controls for school characteristics</i>		
Type of school	1 = private, 0 = public	
Urbanicity	Dummies for urban, rural, suburban	
Region	Dummies for South, West, Midwest, Northeast	
School diversity	Racial diversity of students in respondent's school, entropy index (see text)	Racial friendship diversity regressions only

Table 4

Race coefficients from regressions of log popularity on race, individual characteristics, and school controls

	No controls			With controls			Fixed effects		
	Coeff.	SE	Sig.	Coeff.	SE	Sig.	Coeff.	SE	Sig.
<i>A. Self-identified race (school survey, n = 65174)</i>									
White	(Ref.)		b	(Ref.)		b	(Ref.)		b
Black	-0.140	0.050	w	-0.100	0.034	w	-0.065	0.016	w
Asian	-0.200	0.051	w	0.042	0.047	b	-0.001	0.029	
Native American	-0.149	0.072		-0.001	0.068		-0.039	0.029	
Other Hispanic	-0.335	0.083	w	-0.038	0.076		0.025	0.019	b
Other, not Hispanic	-0.243	0.043	w	-0.103	0.040		-0.105	0.031	w
All multiracial	-0.179	0.026	w	-0.068	0.025	w	-0.056	0.016	w
<i>Controls include</i>									
Student characteristics	No			Yes			Yes		
School characteristics	No			Yes			No		
School fixed effects	No			No			Yes		
<i>B. Races defined by parent's races (home survey, n = 4709)</i>									
White	(Ref.)			(Ref.)			(Ref.)		
Black	-0.112	0.055		-0.099	0.047		-0.035	0.078	
Asian	-0.269	0.127		0.008	0.113		0.005	0.103	
Native American	-0.324	0.244		0.046	0.197		-0.164	0.180	
Other Hispanic	-0.218	0.121		0.164	0.124		0.140	0.121	
Other, not Hispanic	-0.224	0.211		-0.039	0.187		-0.164	0.183	
All multiracial	-0.314	0.072	w	-0.207	0.068	w	-0.168	0.065	w
<i>Controls include</i>									
Student characteristics	No			Yes			Yes		
School characteristics	No			Yes			No		
School fixed effects	No			No			Yes		

Notes: w, statistically significance difference from white mean at $p < .01$; b, statistically significant difference from black mean at $p < .01$; SE, standard error.

Table 5

Diversity (entropy) of friendship networks of single-race and multiracial students

	Self-identified race (school survey)		Races defined by parents' races (home survey)	
	Mean network racial entropy	Sig.	Mean network racial entropy	Sig.
White	0.30		0.30	
Black	0.33		0.28	
Asian	0.54	w, b	0.52	
Native American	0.55	w, b	0.71	
Other Hispanic	0.59	w, b	0.66	w, b
Other, not Hispanic	0.59	w, b	0.48	
All multiracial	0.52	w, b	0.54	w, b
<i>Specific multiracial heritage groups</i>				
White-black	0.64	w, b	0.67	
White-Asian	0.55	w, b	0.40	
White-Native American	0.44	w, b	0.52	w, b
White-other	0.54	w, b	0.87	w, b
Black-Asian	0.55	w, b	1.02	w, b
Black-Native American	0.53	w, b	0.72	w, b
Black-other	0.66	w, b	0.88	
Asian-Native American	0.66	w, b		
Asian-other	0.65	w, b	0.87	w, b
Native American-other	0.51	w	1.14	w, b
More than two races	0.57	w, b	0.43	
<i>N</i>	46921		3846	

Notes: w, statistically significance difference from white mean at $p < .01$. b, statistically significant difference from black mean at $p < .01$.

Table 6

Race coefficients from regressions of friendship network diversity on race, individual characteristics, and school controls

Variable	No controls			School diversity			All controls			School fixed effects		
	Coeff.	SE	Sig.	Coeff.	SE	Sig.	Coeff.	SE	Sig.	Coeff.	SE	Sig.
<i>A. Self-identified race (school survey, n = 46921)</i>												
White	(Ref.)			(Ref.)			(Ref.)			(Ref.)		
Black	0.030	0.034		-0.038	0.021		-0.018	0.023	0.009	0.031		
Asian	0.245	0.039	w, b	0.009	0.039		0.002	0.037		0.021	0.039	
Native American	0.253	0.046	w, b	0.127	0.022	w, b	0.101	0.020	w, b	0.075	0.026	w
Other Hispanic	0.296	0.028	w, b	0.093	0.025	w, b	0.099	0.022	w, b	0.095	0.021	w
Other, not Hispanic	0.291	0.029	w, b	0.182	0.021	w, b	0.163	0.019	w, b	0.144	0.019	w, b
All multiracial	0.227	0.024	w, b	0.124	0.015	w, b	0.110	0.015	w, b	0.097	0.015	w, b
<i>B. Races defined by parent's races (home survey, n = 3846)</i>												
White	(Ref.)			(Ref.)			(Ref.)			(Ref.)		
Black	-0.013	0.055		-0.079	0.049		-0.052	0.049		-0.039	0.074	
Asian	0.218	0.080	w	-0.048	0.074		-0.068	0.072		-0.088	0.090	
Native American	0.411	0.173		0.163	0.174		0.119	0.178		0.135	0.144	
Other Hispanic	0.362	0.075	w, b	0.129	0.081		0.122	0.082		0.152	0.086	
Other, not Hispanic	0.175	0.099		0.013	0.101		0.007	0.116		-0.011	0.118	
All multiracial	0.239	0.045	w, b	0.141	0.042	w, b	0.125	0.041	w, b	0.128	0.042	w
<i>Controls (both panels)</i>												
School racial diversity	No			Yes			Yes			No		
Student characteristics	No			No			Yes			Yes		
School characteristics	No			No			Yes			No		
School fixed effects	No			No			No			Yes		

Notes: w, statistically significance difference from white mean at $p < .01$; b, statistically significant difference from black mean at $p < .01$. SE, standard error.

Table 7

Bridging friendship patterns of selected single-race and multiracial heritage groups

Race of friends	Race of student	Self-identified race (school survey)	<i>N</i>	Race from parents' races (home survey)	<i>N</i>
		Percentage with one or more friends from both racial heritage groups		Percentage with one or more friends from both racial heritage groups	
White and Black	White (single-race)	7.9	29528	7.3	2699
	Black (single-race)	18.1	6707	15.9	449
	White-black (multiracial)	32.6*	232	36.7	16
White and Asian	White (single-race)	6.1	29528	5.8	2699
	Asian (single-race)	31.0	2297	20.1	241
	White-asian (multiracial)	20.5	336	12.6	37
White and Native American	White (single-race)	5.5	29528	7.0	2699
	Native American (single-race)	14.3	622	29.6	12
	White-Native American (multiracial)	9.7	1015	0.0	5
White and Other Hispanic	White (single-race)	9.3	29528	9.1	2699
	Other Hispanic (single-race)	61.9	3695	80.2	112
	White-Other (multiracial)	24.0	591	53.3	34
Black and Asian	Black (single-race)	3.0	6707	2.7	449
	Asian (single-race)	6.9	2297	6.0	241
	Black-Asian (multiracial)	11.7	98	9.9	6
Black and Other Hispanic	Black (single-race)	2.8	6707	0.7	449
	Other Hispanic (single-race)	11.9	3695	10.0	112
	Black-other (multiracial)	17.1	106	0.0	11

Notes: Only calculated for students who named at least 2 friends. Figures are calculated with sampling weights. Bolded figures are consistent with greater friendship “bridging” of their single-race heritages by multiracial persons.

* = Bolded figure has a statistically significant difference in friendship bridging from both single-race groups.