Can Extracurricular Activities Reduce Adolescent Race/Ethnic Friendship Segregation?

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ABSTRACT

Racial/ethnic friendship segregation among adolescents has negative consequences throughout the life course. Extracurricular activities (ECAs) within high schools offer the capacity to bring diverse adolescents together and promote friendships that reduce outgroup prejudices. Despite their promise, only a few researchers have tested the effects of ECAs on racial/ethnic friendship segregation. We consider two prominent theories that offer insight into the processes by which ECAs might affect intergroup friendship. It is important that we consider these theories in conjunction as they make diverging predictions regarding the effect of ECAs on racial/ethnic friendship segregation. Focus theory contends that activities attract relatively homogenous subsets of the student body, thereby promoting friendship homophily (e.g., racial friendship segregation). By contrast, intergroup contact theory suggests ECAs can decrease homophily by offering opportunities for familiarization and engagement with peers who are dissimilar. In this chapter, we examine these seemingly contradictory processes and explain how, in fact, they can occur in tandem. At the macro level, ECAs can promote homophily by homogenizing the pool of available friends, whereas at the micro level, ECAs can decrease the relative salience of attributes such as race/ethnicity during friend selection. Our analysis uses data on friendships and participation in 30 ECAs from 108 schools in the National Longitudinal Study of Adolescent Health. We found that around 60% of the ECAs were more homogenous than the broader school context in which they are embedded, with systematic differences by activity type. With a few notable exceptions, ECAs did not predict preferences for homophily. But, ECAs did predict the frequency of cross-group friendships, and thus, may provide many of the desired benefits of integration despite not producing short-term changes in friendship preferences. We conclude with a discussion of the theoretical, methodological, and policy implications of these findings.

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INTRODUCTION

Friendship segregation based on race and ethnicity—also referred to as racial/ethnic homophily—is one of the strongest, most obstinate characteristics of friendship networks in the U.S. (McPherson, Smith-Lovin and Cook 2001). Friendship segregation appears early in life and persists throughout the life course (Graham, Taylor and Ho 2009). In 1985, 91% of U.S. adults had no racial diversity in their close personal networks, dropping only slightly to 85% in 2004 (McPherson, Smith-Lovin and Brashears 2006). Such extreme segregation has several consequences, oftentimes negative. At the societal level, segregated networks increase inequality, polarize beliefs and attitudes, and perpetuate disparities in health, academic achievement and other important outcomes (McPherson et al. 2001).

Adolescence may be a sensitive period in the life course for considering race/ethnicity in regard to beliefs and friendships. To begin, race and ethnicity are core components of identity (Umaña-Taylor et al. 2014); and, the development of identity during adolescence serves as the foundation of beliefs youth carry into adulthood. Because understanding who they are and how they fit within society are central developmental tasks of adolescence, youth may be more susceptible to influence during this period compared to other developmental periods. Indeed, adolescents' identity exploration is informed by the racial/ethnic composition of their friendship networks where these processes play out (Kornienko, Santos and Updegraff 2015; Rivas-Drake et al. 2016). Friendships not only shape adolescents' racial/ethnic identity, but how adolescents see themselves more broadly and how they view others, including their beliefs about other groups (Hartup and Stevens 1997). Moreover, adolescents increasingly turn to their peers for guidance in a variety of decisions (Berndt 1992; Rubin, Bukowski and Parker 2006), meaning

that friend selection becomes important for structuring one's social environments concurrently and into adulthood.

According to a life course perspective, individuals' friendships during adolescence not only have implications for youth outcomes during the adolescent period, but shape youth's future life course pathways (Johnson, Crosnoe, and Elder 2011; Roeser and Peck 2003). The peers youth befriend during adolescence affect adulthood through processes associated with consistency in friendship characteristics over time and friend influence on one's behaviors and attitudes (Hartup and Stevens 1997). Drawing on perpetuation theory, Wells and Crain (1994) argue that interracial contact during childhood and adolescence has a broad array of benefits for disadvantaged minorities to help them counteract forces of segregation that hinder educational attainment and occupational success. For instance, individuals with ethnically and racially diverse friendships in high school have more diverse friendships in college (Stearns, Buchmann and Bonneau 2009) and the workplace (Stearns 2010). Intergroup friendships also help children develop social skills (Lease and Blake 2005), reduce prejudice and bias toward other ethnic groups (Aboud, Mendelson and Purdy 2003; Davies et al. 2011), and provide the cultural tools needed to interact in diverse settings later in life (e.g., knowledge of a wide range of music or sports; Benediktsson 2012). Given these implications, it is important to both understand the mechanisms that promote and inhibit friendship segregation and devise strategies to overcome segregation.

Historically, policies and interventions have been devised to decrease inequality and improve race/ethnic relations among youth. For instance, following *Brown v. Board of Education*, school districts across the U.S. implemented strategies (such as forced busing) in an effort to desegregate schools. Though such efforts afforded the proximity necessary for cross-

race relations to develop, proximity is not a sufficient condition for the emergence of cross-race friendships – additional steps are needed. We argue that school-based extracurricular activities are a context with the potential to influence adolescent friendship segregation.

We argue that among the numerous benefits afforded by extracurricular activities (labeled ECAs), they are a setting that can create positive turning points in individuals' life course pathways. ECAs provide access to and strengthen youth's human, cultural, and social capital, including leadership development, fostering adult-youth supportive relationships, and improving youth's cognitive, behavioral, and emotional skills, even after accounting for selection factors (Mahoney et al. 2009; Vandell et al. 2015). For instance, students who participate in ECAs during adolescence are more likely to gain admission to college, earn a bachelor's degree, and have higher earnings after college – all of which have profound impacts on adult well-being (Vandell et al. 2015). Roeser and Peck (2003) found that participation in ECAs in high school provided a positive turning point for youth who had “everything going wrong in their lives during eighth grade” (p. 56) and made them twice as likely to enroll in college.

Of particular interest for the current research question is the capacity for social capital that ECAs foster by connecting youth participants to teachers, mentors, or other adult leaders, as well as peers with whom they may not otherwise associate. Regardless of the ECA focus (e.g., sports or arts), a common goal among all ECA types is to promote positive interpersonal skills and harmonious relationships among youth participants. ECAs afford opportunities for youth to develop interpersonal communication skills, improve attitudes toward others who are different than themselves, and develop friendships (Schaefer et al. 2011; Watkins, Larson and Sullivan 2007). These social skills are key to achieving the potential decreases in racial/ethnic friendship segregation that contact through ECAs can bring. Although most ECAs are designed to promote

positive interactions among youth, we argue that ECA leaders could capitalize on ECAs' established social benefits and broaden their aims to explicitly promote positive intergroup relations. ECA leaders often have more flexibility to address intergroup relations and friendships than teachers in classrooms. And, ECA involvement is more amenable to intervention and manipulation than other settings that filter friendship opportunities, such as academic tracks (Moody 2001) or neighborhoods (Mouw and Entwisle 2006). Given their pervasiveness in U.S. high schools, ECAs may be a cost-effective, ecologically valid avenue for efforts to support adolescent friendship diversity.

Empirical studies concerning the effects of ECAs on adolescent racial/ethnic friendship segregation are rare (Clotfelter 2002). However, qualitative evidence suggests that ECAs can promote intergroup friendships through shared interests and working together toward a common goal (Vest Ettekal et al. 2015; Watkins et al. 2007). For instance, in interviewing students at a school desegregated in the 1970's, Ferrell (2008) observed that all six students interviewed commented on the power of ECAs to reduce racial tension. One former student reported "Athletics...transcends color. Kids don't see color, they play" (p. 93). Another former student reported, "a lot of the extra-curricular activities – sports, dance, theater, music – it's a whole lot different than just education. From there you learn great social skills: how to mingle and how to understand other social aspects of other races we didn't have before integration" (pp. 94-95). Findings such as these hint at the potential for ECAs to promote positive intergroup relations—whether these processes are typical in all ECAs or only under specific conditions remains to be determined.

If ECAs can successfully promote intergroup relations, they may serve as a positive turning point in adolescents' life course and lead to lasting changes because they represent a

“change in the environment” or change participants’ “views and expectations of other people” (Rutter 1996: p. 614). Qualitative data suggest that both mechanisms occurred in high quality organized after-school community-based programs (Watkins et al. 2007). In one example, an after-school program not only shifted adolescents’ social environments by promoting positive intergroup relations, but working with cross racial/ethnic peers helped youth reconsider stereotypes, learn about people who were different than themselves and the injustices they experience, and change how they interacted with diverse peers outside of the activity (Watkins et al. 2007). As one adolescent reported, “Since there are a lot of Palestinian people or people of Palestinian descent here, I got a chance to talk to them and find out how they feel about things and how it affected their lives personally. So it’s not just an issue on ABC news or something anymore. It’s like, ‘Well, I’m friends with this person, and you know they experienced it’” (Watkins et al. 2007: p. 391). Or as another adolescent expressed, “Like here, I chill with more people that listen to hip-hop and are more like urban, and when you really get down to it, they’re not that different. It’s only like the exterior stuff, but on the inside it’s really all the same people” (Watkins et al. 2007: p. 392). Such experiences reflect changes among adolescents to be more sensitive to issues around diversity and social justice in their lives more broadly.

We draw upon two theories to investigate the association between ECA participation and friendship segregation. On the one hand, focus theory (Feld 1982) suggests that friendships within ECAs should be more homogeneous than in the broader school population. On the other hand, intergroup contact theory (Allport 1954; Pettigrew 1998) contends that ECAs should promote more diverse friendships than the school as a whole. This chapter unpacks these two theoretical accounts in order to provide a more comprehensive view of the contextual processes

driving friend selection. Empirically, we partial out the net effects of each of these processes and evaluate the total effect of ECAs on friendship segregation.

THEORIES OF CONTEXTUAL EFFECTS ON INTERGROUP RELATIONS

Focus theory and intergroup contact theory help to explain how ECAs could affect racial/ethnic friendship segregation. We propose that the seemingly contradictory implications of these theories actually operate in tandem because they focus on different aspects of the friend selection process: the pool of potential friends versus who from that pool is selected as a friend. To be clear, by racial/ethnic friendship segregation or *homophily*, we are referring to a network pattern whereby people of the same racial/ethnic group are more likely to share a tie (in this case a friendship tie) than people from different racial/ethnic groups (i.e., the proportion of same group vs. intergroup ties exceeds 0.5). Our use of the term racial/ethnic homophily itself does not imply any particular cause or reason for this pattern as multiple processes can produce racial/ethnic homophily (Wimmer and Lewis 2010).

Focus Theory

Feld observed that relationships are often centered around foci, which he described as contexts or activities that “actively bring people together or passively constrain them to interact” (1981: p. 1018). For adolescents, salient foci include families, neighborhoods, ECAs, schools, workplaces, and churches. Of interest here is the fact that foci tend to attract relatively homogenous subsets of the population (Feld 1982; Fischer et al. 1977). Foci are expected to be homogeneous on attributes related to the foci’s purpose (Feld and Grofman 2009). In the case of ECAs, adolescents often participate in a particular ECA because they find it interesting, important, and something they are good at (Wigfield et al. 2015). Similarities among ECA participants in terms of how much they value the activity and their proficiency are likely to be strong during

adolescence when competition for ECA slots is heightened and only those who are highly motivated are likely to persist.

Activities may also be relatively homogenous on attributes that are not directly related to the activity's purpose, yet are still related to participation. ECA participation varies systematically by youth gender, race, and SES (i.e., socioeconomic status) due to societal norms and family resources (Wigfield et al. 2015). For example, ECAs that require substantial financial investments in equipment or travel, such as sports and music, attract socioeconomically advantaged participants (Mahoney et al. 2009). When SES and race/ethnicity are correlated, certain ECAs will disproportionately draw youth from socioeconomically advantaged racial/ethnic group(s).

These initial segregation tendencies can intensify due to the way individuals hear about and join voluntary organizations like ECAs. According to McPherson (2004), organizations such as ECAs (and cultural phenomenon more generally) require “attention” from individuals in order to survive. For ECAs, attention takes the form of memberships. Membership spreads or diffuses through social networks as existing members convey information about the activity, practical details on how to participate, and legitimize it as an action. Because social networks tend toward homophily, membership diffuses across relatively homogenous sets of individuals. Consequently, members typically share similarities on many attributes, such as age, SES, and gender (McPherson 1983; McPherson and Smith-Lovin 1986).

Focus theory's contention that ECA participants are likely to be relatively homogenous in terms of race/ethnicity is consistent with prior research finding that individual activities offer less racial diversity than the school as a whole (Clotfelter 2002) and tend to draw participants from predominantly one racial/ethnic group (Schofield 1995). These conditions lead to racial/ethnic

homophily because friends are disproportionately drawn from among one's ECA co-participants (Schaefer et al. 2011). The relatively homogenous nature of ECAs restricts opportunities for intergroup friendships, hence friendships among ECA co-participants should be more homophilous than the broader population. Of course, the amount of racial/ethnic homogeneity within an ECA determines the amount of friendship homophily expected by chance. If participation in an ECA is disproportionately concentrated by race/ethnicity, then homophily on race/ethnicity should be strong, whereas a more racially/ethnically diverse ECA should produce relatively weaker homophily among co-participants.

Research at different points in the life course has supported this hypothesis. For instance, adolescents participating in more heterogeneous activities have a greater proportion of friends from a different race/ethnicity (Jones et al. 2016). Among adult co-workers, Feld (1982) found that the distribution of age within departments was strongly related to age similarity among friends. Employees with a high proportion of same-age co-workers in their department reported a high percentage of same-age friends within the department. And, in considering more intimate relations, Kalmijn and Flap (2001) found that spouses who met in certain foci (e.g., schools, workplaces, voluntary associations, neighborhoods and families) exhibited more sociodemographic homophily than spouses who met outside of these foci. In sum, the expectation based on focus theory is that ECAs will demonstrate higher levels of homophily than the surrounding school context.

Intergroup Contact Theory

An alternative hypothesis is derived from intergroup contact theory (Allport 1954; Pettigrew, 1998). Intergroup contact theory was originally developed by Allport in the 1950s to explain the contradictory findings on whether intergroup contact alleviated or exacerbated prejudice and

negative outgroup attitudes. Allport proposed that intergroup contact would reduce prejudice and stereotypes at the root of segregation *if* the right conditions were met. Requisite conditions include (1) equal status between groups, (2) a common goal for the groups to meet, (3) interdependence in meeting their goal, and (4) support by authorities. Recent meta-analyses suggest that these conditions are not necessary as originally theorized, but rather facilitate and promote positive intergroup relations, with repeated contact and contact through a formal program having stronger effects (Pettigrew and Tropp 2006).

Pettigrew (1998) reformulated Allport's original hypothesis into a formalized theory. In so doing, he recognized the importance of friendships for overcoming prejudice, though friendships have been incorporated in variant ways over the years. Initially, Pettigrew characterized intergroup friendships as a fifth condition reasoning that contexts enabling friendships met Allport's four original conditions, in addition to affording other mechanisms, such as repeated contact and self-disclosure, that further reduce prejudice. More recently, Pettigrew and colleagues characterized friendships as a specific type of contact, rather than a condition, that is particularly effective at lowering prejudice (Davies et al. 2011). Drawing from this reformulated theoretical role of friendships, scholars have focused on *how* intergroup friendships reduce prejudice. Although important, the critical question is how intergroup friendships develop in the first place, given individual's overwhelming tendency to befriend same-race/ethnic peers throughout the life course (Graham et al. 2009). As part of that endeavor, we need to examine what opportunities support intergroup friendships.

High quality ECAs meet many of Allport's four facilitative conditions (1954) as well as those associated with strong effects in recent meta-analyses (e.g., Pettigrew and Tropp 2006). School-based ECAs are formal groups supported by school authorities that bring together youth

who share similar interests and offer consistent contact over the school year. ECAs often have a common goal that requires cooperation to achieve. School sport teams, which is Pettigrew's (1998) exemplar, have an explicit common goal by competing against other schools. Other common goals include a student council fundraiser or producing a monthly newspaper. Though the four conditions of intergroup contact theory form the backbone of many ECAs, ECA contexts and leaders vary in their ability to achieve these facilitative conditions. There are times when programming of the most well-intentioned leader can go awry (Vest Ettekal et al. 2015). To the extent ECAs exemplify these facilitative conditions, they should promote positive intergroup contact and decrease segregation (Watkins et al. 2007).

ECA research has mostly focused on friendships in general and not intergroup friendships, though a handful of exceptions exist. Adolescents have noted in qualitative studies that community-based organized activities helped them become friends with peers of different demographic groups (e.g., Watkins et al. 2007). Moody's (2001) classic study focused at the school level and suggested that the more students were exposed to outgroup members through ECAs, the lower the level of friendship segregation in the school, offering indirect evidence that ECAs can promote intergroup relations. More closely aligned with the research questions at hand, Knifsend and Juvonen (2015) found that more interethnic contact within ECAs led to a greater proportion of interethnic friendships. Though all of these studies provide evidence consistent with intergroup contact theory, none were designed to test the hypothesized effects derived from focus theory. As a result, many statistical effects that are of primary interest were simply controlled for, and the level of specificity in homophily necessary to tease apart the nuanced differences between these two theories was not addressed.

Based on intergroup contact theory, we expect that ECAs will exhibit weaker homophily than non-ECA contexts, such as the broader school. The extent to which ECAs promote intergroup friendships, however, likely depends upon how well they meet the conditions specified by intergroup contact theory.

Reconciling the Theories

Focus and intergroup contact theories make seemingly contradictory predictions regarding whether ECAs increase or decrease racial/ethnic friendship homophily. However, a closer examination reveals they are not actually in conflict. To inform this exposition, we draw upon the conceptual framework developed by McPherson et al. (2001), who attributed homophily to two general sources: baseline and inbreeding.

Although adolescents exercise agency in their choice of friends, those friendships are drawn from a set of potential ties dictated by the environment, referred to as the “opportunity structure” (Blau 1977). The capacity to form homophilous ties is contingent upon the composition of the broader population from which they are drawn. *Baseline homophily* is defined as the level of friendship similarity that would be expected by chance given the composition of the population on an attribute. For example, consider a population with two equally represented groups—perhaps half Black and half White. Assuming group members have an equal number of ties on average, then the random assignment of ties to dyads would result in a roughly equal proportion of ingroup and outgroup ties.

Baseline homophily is the target of focus theory. Focus theory makes a macro-level argument about how much homophily to expect by chance within the opportunity structure provided by ECAs. Because ECAs are expected to be more homogenous than the broader population, the baseline level of homophily within ECAs should be greater. Consequently,

activity participants face restricted options when choosing co-participants as friends. Key to reconciling focus theory with intergroup contact theory is recognizing that the emphasis of focus theory is ECA composition, which should be more homogenous than the broader school population. Focus theory does not address individual level processes, such as preferences, that may also factor into friend selection. Rather, the argument relies on a comparison of chance expectations, or what would occur if friend selection processes were uncorrelated with race/ethnicity.

The second source of homophily is *inbreeding*, which refers to the amount of similarity that exists in excess of the baseline level. The most common form of inbreeding homophily is individual preferences for similar friends. People oftentimes prefer associating with similar others because such relations ease communication, reduce uncertainty, and reinforce one's identity. Additional sources of inbreeding homophily include network processes such as triad closure that *amplify* small initial tendencies toward homophily, essentially serving as a network feedback mechanism (Wimmer and Lewis 2010). Network processes in the form of social withdrawal or sociality can also create homophily if being socially active is associated with the attribute in question (Schaefer, Kornienko and Fox 2011). For example, among two equally-sized groups, if one is more social, then that group will have more ties, which are primarily ingroup, and skew the distribution of ties toward homophily. Thus, homophily can emerge even without homophily preferences.

Inbreeding homophily is the target of intergroup contact theory. ECAs give students the chance to become acquainted, work together, and learn to rely upon one another. Interest-based groups also provide a common ground to members that neutralizes the threat of differences on other attributes (Wojcieszak and Mutz 2009). These direct experiences are argued to make pre-

existing characteristics like race and ethnicity less salient. Thus, at the micro-level, ECA co-participants should have a weaker relative preference for homophily on dimensions unrelated to the activity compared to peers who are not ECA participants.

Based on this discussion, it is clear that focus theory and intergroup contact theory target different aspects of the friend selection process. Focus theory emphasizes the opportunity structure, which dictates the set of possible friendships, whereas, intergroup contact theory emphasizes the processes that operate once adolescents become involved in an ECA. In addition, these theories target different levels of analysis. At the macro level, ECAs can promote homophily by homogenizing the pool of available friends (focus theory), whereas at the micro level, ECAs can decrease the relative salience of attributes not directly related to the ECA's goals (intergroup contact theory).

The net effect of these processes within ECAs is unknown. In studying adult voluntary associations, McPherson and Smith-Lovin (1987) found evidence for homophily due to both baseline and inbreeding sources on gender, age, education, and occupation (they did not examine race/ethnicity). However, they only measured friendship pairs within voluntary associations. They did not consider friendships among non-participants and thus could not determine whether the inbreeding homophily they observed was stronger or weaker than outside of voluntary associations. Jones and colleagues (2016) focused on adolescent ECAs and found that the opportunity structure, as represented by ECA homogeneity, had the expected effect on total homophily. Like most studies, however, they did not differentiate between baseline and inbreeding sources of homophily. Within ECAs, we expect processes related to focus theory and intergroup contract theory to have opposing effects on friendship homophily: ECAs will exhibit more baseline homophily but weaker preferences for homophily compared to the broader

population. In other words, friends in ECAs may be more similar, but have a weaker preference for similarity.

METHODS

We used data from the National Longitudinal Study of Adolescent Health (Add Health), which is a nationally representative study of 7th - 12th graders in the U.S. (Udry, 2003). Add Health targeted more than 90,000 students in 132 schools for an in-school survey that included questions on race/ethnicity, friendships, and ECAs. This study offers unprecedented data on friendships and ECAs across a wide range of school contexts. Given its unprecedented scope, this dataset is well-suited to study questions of racial/ethnic friend segregation (Currarini, Jackson and Pin 2010; Goodreau, Kitts and Morris 2009; Moody 2001; Mouw and Entwisle 2006).

Our primary analysis draws from this sample by selecting schools with sufficient variation in race/ethnicity and ECA participation and at least a 75% response rate (to ensure the network is well-represented). These constraints resulted in a sample of 60,903 students in 108 middle and high schools.

Friendships were measured by asking students to list their 5 closest male and 5 closest female friends within the school. Race and ethnicity were based on separate questions and coded into the 4 most prevalent categories: White, Black/African American, Hispanic/Spanish, and Asian/Pacific Islander. ECA participation was determined by asking students to indicate which of 31 activities they participated in or planned to participate in during the school year. Eleven of these were sports, which we separated into male and female, giving a total of 42 distinct activities. Although Add Health sampled individuals, our unit of analysis is the ECAs to which individuals belonged. For each activity in each school, we determined which students belonged

to the activity and whether those students' friends were also in the activity. We retained only those activities with at least 10 members and 10 friendships, leaving a sample of 1,707 activities representing 40 of the 42 distinct types (female wrestling and male field hockey did not meet our threshold).

Measuring Homophily

The basis of homophily can be explained using three levels of ingroup vs. outgroup ties: equal, random, and observed (see Figure 1). First, equal tie probability is when the proportions of ingroup and outgroup ties are equal, both at 0.5, in which case the network is neither homophilous nor heterophilous. This is a theoretical value and may not even be possible in some network contexts with highly skewed distributions. Second, random tie probability is the level of homophily that would occur by chance if ties were formed completely at random (though other operationalizations of chance are possible; see Bojanowski and Corten 2014). Depending upon the population composition, this level may be greater or less than 0.5. Third, observed tie probability is the level of homophily actually observed in a network. This level may be greater or less than either the 0.5 level and/or the random level.

FIGURE 1 HERE

We use these three levels to offer a conceptual means to partition total homophily into baseline and inbreeding sources. Total homophily is defined as the difference between equal tie probability and the observed proportion of ingroup ties. Total homophily (H_T) can be partitioned into baseline and inbreeding. Baseline homophily (H_B) is represented by the difference between equal tie probability and random tie probability. As seen in Figure 1, baseline homophily may reflect a positive or negative departure from equal tie probability depending upon the composition of the population. Inbreeding homophily (H_I) is represented by the departure of the

observed tie probability from random tie probability. This departure may also be positive or negative; however, friendship networks are nearly universally characterized by observed homophily that exceeds random levels (McPherson et al. 2001; for an exception see Lewis, Gonzalez and Kaufman 2011).

We measured all three forms of homophily within each ECA and within each school as a whole. To measure homophily, we used variations of Coleman's segregation index (1958). We generalized Coleman's measure to the network level (equation 4.39 in Bojanowski and Corten 2014) and assumed friendship rates were constant across racial/ethnic groups (Goodreau et al. 2009). Coleman's original formulation compared observed homophily to what would occur if ties were formed randomly (i.e., expected). We used this original formulation as our measure of inbreeding homophily (H_I). To measure total homophily (H_T), our formula replaced the expected counts representing random tie distribution, with counts representing equal tie distribution within and between groups. For baseline homophily (H_B), the expected counts are also based on equal tie distribution, while the "observed" counts represent what would occur based on chance (i.e., the expected counts used to measure inbreeding homophily). Referring to Figure 1, total homophily compares O (observed tie distribution) to E (equal tie distribution), baseline homophily compares R to E, while inbreeding homophily compares O to R (random tie distribution). Coleman's measure ranges from -1 to 1, with 1 representing the highest level of homophily.¹

RESULTS

We begin our investigation by examining differences between friendships for ECA participants relative to the broader school. Focus theory contends that baseline homophily (H_B) should be

¹ All else being equal, smaller groups will have a higher Coleman value. Thus, the test is biased toward greater homophily within ECAs. This bias is negligible as group size increases.

greater within ECAs than in the broader school. As expected, we found that the *mean* H_B across all ECAs was .36 compared to .31 for all schools. This is in the hypothesized direction of more homogeneity within ECAs than the school and was statistically significant ($t=3.80, p<.001$).

A better test is to compare H_B for *each* ECA to H_B measured for the entire school in which it is situated. If ECA participation were random then we would expect H_B within ECAs to center around school level H_B . However, if ECAs serve as foci that bring similar adolescents together, then H_B should be greater within ECAs than the school in more than half the cases. This comparison revealed that 60% of ECAs were more homogenous on race/ethnicity than the school, which was statistically significant ($z=8.42, p<.001$). Table 1 presents this comparison, as well as the comparison for each specific activity type. In combination, these results are consistent with focus theory's assertion that ECAs bring together relatively homogenous subsets of the broader school population.

TABLE 1 HERE

Intergroup contact theory led to the hypothesis that ECA co-participation would weaken preferences for similar friends, resulting in lower inbreeding homophily (H_I) among ECA co-participants. Making a similar comparison as above, we found that the *mean* H_I across all ECAs was .38, compared to .38 for the broader school mean ($t=.03, p=.97$). This nonsignificant difference also emerged when we compared *each* ECA to the broader school context. Specifically, we found that 49% of ECAs displayed greater inbreeding homophily than the school ($z=.91, p=.36$). The results of H_I for both the mean comparison and for each activity contradict the expectations derived from intergroup contact theory. Thus, we have no evidence that ECAs reduced preferences for racial/ethnic inbreeding homophily.

Lastly, we calculated total homophily (H_T) for friendships within ECAs and for the broader school contexts. The objective of this analysis was to determine the net effect of baseline and inbreeding sources of homophily on friendship segregation. We found the *mean* H_T was .59 across all ECAs and .62 across all schools, a statistically significant difference ($t=3.88$, $p<.001$). That is, we found less total homophily for ECAs than for schools overall. However, when we compared H_T for *each* activity to the broader school, we found that only 51% of the ECAs had greater total homophily than the broader school, which was equivalent to chance ($z=.91$, $p=.36$). These results suggest that some ECAs can reduce total homophily, but overall the combination of baseline and inbreeding homophily had no effect on friendship racial/ethnic segregation.

Heterogeneity within ECAs

Thus far, we have found greater support for the predictions of focus theory than for intergroup contact theory. However, our analysis has treated all activities equally, ignoring whether or not they meet the facilitating conditions described in intergroup contact theory. ECAs vary in whether participants share a common goal; for instance, sports teams are more likely to involve participants coming together to meet a common challenge than academic clubs (Larson, Hansen, and Moneta 2006). Although we do not have detailed data on each specific activity, we categorized each activity based on their general characteristics and developmental experiences they typically afford (e.g., Larson et al. 2006). In this manner, we evaluated the effects of the following four ECA attributes: interdependence, team sport, number of friendships in the ECA, and contact sport (see Table 1 for coding). Interdependence (i.e., whether participants were required to work together to succeed in the activity, such as winning a game or putting on a performance), team sport (i.e., sports where adolescents play as a team, such as volleyball and field hockey, in contrast to individual sports, such as swimming), and friendship opportunities

(i.e., the number of friendship ties among co-participants) are derived directly from intergroup contact theory (Allport, 1954; Pettigrew, 1998). Contact sport, which includes sports characterized by physical contact among players (e.g., football, soccer), was derived from literature suggesting that physical contact provides a more intimate level of familiarity that can help overcome outgroup prejudices (Chappell, 2002). Although we only expected these factors to affect inbreeding homophily, we evaluated their effects on baseline and total homophily as an exploratory step.

In the following analyses, the outcome of interest was the difference between school and ECA measures of homophily. For each analysis, we estimated a model using each activity measure to predict the school-ECA homophily differential. We used a multilevel model, to account for the nesting of activities within schools, and included effects to control for activity size, school type (i.e., middle school, high school or combination), school size, school diversity, region of country, and community type (i.e., urban, suburban, rural).

Our analysis of interdependence and friendship opportunities focused on all ECAs. We expected that interdependence would reduce inbreeding homophily. However, the models revealed no differences in any source of homophily based upon the interdependence of participants in the activity ($H_B: b = -.01, p = .32$; $H_I: b = -.02, p = .10$; $H_T: b = -.01, p = .26$). Turning to Pettigrew's notion of friendship opportunities, we expected a negative association between number of friendships in the activity and inbreeding homophily. By contrast, the models indicated that number of friendships in an ECA were positively related to all three forms of homophily ($H_B: b = .06, p < .001$; $H_I: b = .03, p = .02$; $H_T: b = .05, p < .001$). Activities with more friendships were more likely to have each form of homophily than the school at large.

The remaining two comparisons were specific to the subset of sport ECAs. In comparing team (vs. individual) and contact (vs. non-contact) sports, we found no differences in any form of homophily between team and individual sports ($H_B: b=.01, p=.31$; $H_I: b=-.03, p=.15$; $H_T: b=-.01, p=.77$). However, we found that contact sports had lower levels of each source of homophily than the overall school ($H_B: b=-.03, p=.02$; $H_I: b=-.04, p=.01$; $H_T: b=-.05, p=.003$). That is, contact sports drew a more diverse set of participants, exhibited weaker preferences for homophily, and had less friendship segregation overall than non-contact sports.

These analyses attempted to discern whether activities that conformed to intergroup contact theory reduced friendship segregation. There is a sizeable amount of measurement error as we were only able to roughly estimate the correspondence between ECAs and the theory's facilitating conditions. Although limited, this offers some evidence that when ECAs meet certain conditions, such as the case with contact sports, they can reduce racial/ethnic homophily.

Reflecting on Moody's Findings

It is informative to contrast our findings with Moody (2001), who was interested in how school desegregation following *Brown v. Board of Education* impacted friendship segregation—in essence, whether more integrated schools actually created more integrated friendship networks. At the school level, he found a curvilinear effect of school integration on friendship segregation whereby greater diversity was associated with increasing segregation, with this trend reversing at the very highest levels of diversity (Figure 2). Another of Moody's key findings—and pertinent to our question—was that ECA diversity offset friendship segregation. Schools with more racially/ethnically integrated ECAs displayed lower rates of inbreeding homophily.

His results for ECAs stand in contrast to our mostly null results regarding the effect of ECAs on inbreeding homophily. To shed more light on the subject, we replicated Moody's main

analysis, but with activities (not schools) as the unit of analysis. Although Moody framed the question in terms of the effect of school composition on preference for homophily, it is analogous to our conceptualizations of baseline and inbreeding homophily. To facilitate this comparison, we adopted his measures: an odds ratio to measure inbreeding homophily and the index of qualitative variation (IQV) to measure baseline homophily. Note, IQV is a measure of *diversity* and has the opposite valence as our measure of baseline homophily. Using our measures produced equivalent findings.²

To test for the curvilinear effect Moody found, we regressed inbreeding homophily on IQV as well as squared and cubed transformations of IQV. Results indicated that the effect of IQV (compositional diversity) was nonlinear as indicated by significant squared and cubed terms. As the predicted values in Figure 2 show, these results are strikingly similar to Moody's. At both the ECA and school levels, more diversity was associated with a stronger preference for same-race/ethnic friends. However, this pattern tapered off at the highest levels of diversity. The only seeming differences between our results and Moody's are in (1) effect magnitude (y-axis), which is attributable to remaining differences between measures,³ and (2) the x-axis displayed a greater range of diversity for ECAs than for schools.

FIGURE 2 HERE

These results suggest that the processes Moody documented at the school level also play out at the ECA level. If this is the case, then why do we reach a different conclusion from Moody

² The correlation between baseline homophily measures is -.995; measures of inbreeding are correlated at .65.

³ The odds ratio we use is equivalent to Moody's α as a measure of *gross segregation*. Moody's figure is based on *net segregation* (β), which was calculated using a statistical model (e.g., ERGM) to control for other friend selection factors. The smaller size of ECAs, relative to schools, precludes us from taking this approach. Moody found that the two measures exhibited similar patterns with β smaller on average than α .

as to whether ECAs decrease inbreeding preferences? Although our main analysis paralleled Moody's test quite closely, several differences remain that could account for this discrepancy. A key difference is that Moody considered all friendships within a school whereas we only considered friendships occurring among activity co-participants. It is possible that ECA diversity has effects on friendship that extend beyond the particular activity.⁴ For instance, by offering the chance to learn about members of other groups, diverse ECAs may promote intergroup friendships between participants in the particular activity and non-participants. Such a process would be captured in Moody's analysis, but actually obscure the difference between ECAs and the broader school in our analysis. In addition, from a methodological perspective, our focus on ECAs resulted in more observations (compared to schools), but also more noise given the smaller size of ECAs and imprecision in measuring co-participation (i.e., the presence of varsity and junior varsity teams would affect calculations at the ECA level more than at the school level). Thus, our results may be overly conservative.

Additional Analyses

The results thus far paint a rather pessimistic view of how ECAs affect friendship segregation, especially in considering the policy prospects of manipulating ECA composition as a means to reduce friendship segregation. It is important to consider, however, that inbreeding homophily is an indicator of only one aspect of segregation—namely network level segregation that departs from chance expectation given the ECA's composition. It is informative to also consider how ECA composition affects overall racial/ethnic segregation (i.e., total homophily), which is closer to what is experienced at the individual level. Thus, as a final step we tested how ECA composition affects total homophily. This model replicated the one in the previous section,

⁴ Feld (1982) observed such a pattern: the proportion of friends outside one's department who were similar to oneself was greater for workers in less diverse departments.

though with the dependent variable specified as total homophily. To be consistent with the previous models, we retained IQV as the measure of ECA composition.

Results indicated that total homophily was weaker in more diverse ECAs. As shown in Figure 3, this effect was non-linear, however its trend was downward throughout the complete range of ECA composition. Thus, at all levels, increasing activity diversity led to a greater proportion of intergroup friendships within ECAs. As previous models showed, this was not enough to reduce inbreeding homophily (e.g., preferences). However, it may provide exposure to and experience with outgroup members that help promote and strengthen intergroup relations later in the life course.

FIGURE 3 HERE

DISCUSSION

Middle and high schools are influential times and places in the life course for adolescents' intergroup relations. Developmental changes place an increasing emphasis on friendship networks, at the same time that ethnic/racial identity issues become more salient (Umaña-Taylor et al. 2014). Cross ethnic/racial interactions and friendships during this time may have implications for individual's beliefs and ability to develop intergroup friendships in other settings in the later phases of life (Hartup and Stevens 1997; Johnson et al. 2011; Stearns et al. 2009). Moreover, for disadvantaged minorities, intergroup friendships provide access to important resources and capital that can enhance educational, occupational, and health outcomes.

Given these outcomes, persisting racial/ethnic friendship segregation during adolescence sets a disturbing precedent. From a policy standpoint, the high school context may be the last chance to reach the majority of the youth population in order to promote friendships among peers from different racial/ethnic groups. Following high school, students move to a range of contexts;

many enter the workforce, while others attend college, where they have much more autonomy in selecting their courses, activities, and relationships. Given that previous work suggested that extracurricular activities have the potential to alter individuals' life course trajectories in terms of educational attainment (Roeser and Peck 2003), part of our goal was to test their potential in terms of cross-ethnic/racial friendships.

Our approach was informed by two theories—focus theory and intergroup contact theory—that offer seemingly contradictory hypotheses. To reconcile these theories, we distinguished between total homophily and its constituents: (1) baseline homophily, based on the composition of the opportunity structure, and (2) inbreeding homophily that arises due to non-random selection forces (McPherson et al. 2001). Baseline homophily reflects the structure that provides opportunities as well as constraints on friendships (which are the aim of focus theory). Within this structure, individuals make decisions regarding their friendships (which intergroup contact theory emphasizes). Distinguishing between these two levels offers a more complete understanding of how ECAs shape friendship segregation.

Our main finding was that ECAs were associated with lower friendship segregation on race/ethnicity, with the effect primarily operating through baseline homophily. The more opportunities students had to befriend members of a different race/ethnicity, the more such friendships developed. We did not see clear-cut or strong effects of ECAs on inbreeding homophily, such as would be expected if ECAs affected adolescents' preferences for ingroup friends. Under the right circumstances, ECAs help bridge group differences and promote positive intergroup relationships (Watkins et al. 2007); however, this did not seem to characterize ECAs as a whole in the Add Health data.

Although ECAs on average did not reduce adolescents' preferences for same-race/ethnic friends, there was one type of ECA that promoted cross-racial/ethnic friendships. Participants of contact sports consistently exhibited lower preferences for same-ethnic/racial friends than the school at large. Contact sports are most likely to meet the facilitative conditions articulated by Allport; thus, this finding provides support for intergroup contact theory. Though it is curious that team sports did not produce the same decreases in preferences (i.e., inbreeding homophily), one possible reason we did not see stronger more consistent effects is that ECAs vary dramatically in quality (Mahoney et al. 2009; Vandell et al. 2015). ECA quality is a key ingredient to having a positive impact on youth development. The extent to which ECAs conform to the four facilitative conditions of intergroup contact theory and the extent to which leaders promote positive intergroup contact and how they handle intergroup conflict are aspects of quality that are likely integral to influence positive intergroup relationships (Watkins et al. 2007). Great strides have been made over the last few decades in defining program quality and ensuring that ECAs meet quality standards. It is possible that such improvements since the collection of Add Health data could translate into larger impacts on inbreeding homophily within today's ECAs.

Even when ECA diversity does not reduce inbreeding preferences concurrently, there may be other positive effects given that ECA diversity reduced baseline homophily. Following Davies et al. (2011), if ECAs can increase the number of intergroup friendships then intergroup attitudes should improve. In addition, there are likely longstanding effects of exposure to diverse peers during adolescence as outlined by perpetuation theory. Namely, intergroup friendships in high school can (1) increase the likelihood of choosing integrated social settings (e.g., more diverse workplaces), (2) help develop the skills to interact in diverse settings, (3) offer access to

valuable opportunities (i.e., social capital), and (4) provide motivation for greater academic and occupational achievement (Stearns 2010). ECAs may have such positive long-term effects on intergroup relations even when they do not conform to the requirements of intergroup contact theory and weaken preferences for homophily. That is, increasing the frequency of friendships between members of different racial/ethnic groups may still provide many of the desired benefits of integration, include more equal access to education and labor market outcomes, even if they do not produce short-term changes in friendship preferences.

Implications

Theoretical: Our integration of focus theory with intergroup contact theory led us to conceptualize friendships within ECAs as a two-level process involving who selects into the ECA and, within ECAs, who selects whom as a friend. Although both levels are important for understanding the source of intergroup friendship, a disproportionate amount of research has focused on the second level—what occurs once individuals are in a setting. However, there is likely an endogenous element to this process—individuals have agency in choosing the contexts and networks that provide their friendship opportunities (Kossinets and Watts 2009). For instance, adolescents may select into ECAs because their friends are involved, or in order to become friends with certain peers. Moreover, intergroup attitudes and diverse friendships – factors often treated as outcomes – likely play a role in determining who selects into a particular ECA setting. Selecting into a racially or ethnically diverse setting is only likely to occur once an individual’s prejudice has fallen below some threshold (Binder et al. 2009). The endogenous nature of ECA participation allows for feedback effects on friendship that are worth considering. Kossinets and Watts (2009) speculated that endogenous selection of friends and activities can cumulate over time, magnifying even small tendencies toward for homophily and leading toward

racially/ethnically segregated groups. Thus, we call for future theoretical models that more fully articulate the complex associations between ECA participation, friendship, and the attitudes and beliefs at the heart of prejudice. Such efforts would benefit from Johnson and colleagues' (2011) call to consider processes at work earlier in the life course that lead some adolescents to select into more diverse settings and/or be more susceptible to the positive effects of outgroup contact during adolescence.

Methodological: Our findings have broader implications for the study of friendship segregation. All too often, studies of friendship segregation and its effects on development only consider one source of homophily. Studies focused on total homophily have found that the diversity of ECAs promoted friendship diversity (Jones et al., 2016; Knifsend and Juvonen, 2015). However, because they used a measure of *total* homophily, they were unable to distinguish whether the reductions in friendship segregation they observed were due to changes in preferences, or simply the greater availability of more diverse peers, a distinction with important theoretical and policy implications. By contrast, Moody (2001) utilized several measures of *inbreeding* homophily to reach his conclusion that schools with more integrated ECAs exhibited weaker preferences for homophily. This is a better measure when the research question is related to intergroup preferences as an outcome, as is often the case when evaluating intergroup contact theory, but does not give an indication of changes in the raw number of intergroup friendships. When researchers evaluate only one type of homophily, their results are not so much inaccurate as they are incomplete.

Policy and practice: Given evidence that ECAs can facilitate positive intergroup relationships (Watkins et al. 2007), is it possible to design ECAs to enhance this outcome? Focus theory and intergroup contact theory point to different intervention levers. First, focus theory

points to manipulating the composition of ECAs to make them more heterogeneous, which should naturally lead to more intergroup friendships (given support we found for its effects on baseline homophily). A first step is to identify why certain racial/ethnic groups are under-represented within particular activities and devise strategies to overcome those barriers. Very different strategies will be required if the obstacles are cultural, socioeconomic (e.g., financial, transportation), or interest- or skill-based (e.g., because the activity requires cumulative skills, whose prior acquisition is correlated with race/ethnicity).

Second, what can be done to promote intergroup friendships within racially/ethnically diverse ECAs? Support for intergroup contact theory was weak at best given the modest reductions we saw in inbreeding homophily (e.g., preferences). However, this finding is likely because ECAs on average did not meet Allport's facilitative conditions. ECAs can alter preferences, as we found for contact sports, and which is consistent with prior findings (Chappell 2002), but likely require more concerted effort focused specifically on promoting intergroup friendships than is typically the case. For this step, adult leaders are critical given their role in structuring the activity. Leaders often receive limited training and feel unprepared to effectively handle issues related to race/ethnicity that can be emotionally charged and surrounded by hesitation and trepidation. In addition, such efforts would require contending with the fact that activities vary greatly in their objectives (e.g., sports vs. academic clubs) and structure.

An open question is why ECAs were more homogenous than the school population only 60% of the time. In other words, 40% of ECAs were more diverse than the student body from which they were drawn. Though we have few empirical referents (see Clotfelter [2002] for an exception), this low level is surprising given the expectations from focus theory and ecological theory. It suggests that the processes that drive membership extend beyond the network effects

emphasized by ecological theory. It may be that some ECAs are readily accessible to students regardless of race/ethnic background. For instance, we would expect more diverse ECA membership if information about the activity were widespread, the activity was normatively legitimate, and membership requirements were low. For diversity to be relatively greater within ECAs than the school as we observed 40% of the time, there must be forces at work that push some numerical minority groups toward participation, or restrict a numerical majority groups' participation rates. One possibility is that participation in ECAs is a way for minorities to gain status (Chappell 2002).

Conclusion

ECAs offer a promising route to reduce friendship segregation during adolescence and into adulthood, though one that is underutilized and all too often bereft of conscientious and purposeful planning. Our results suggest that although gathering diverse youth within an ECA can lessen individuals' typical tendencies toward homophily, additional support and concerted effort by leaders may be needed to bridge differences and promote adolescents' preferences for diverse friendships. This focus on adolescence is key as adolescents are developing the cognitive capacities to understand intergroup relations at the same time they gain the autonomy to begin building their own social ecologies. Though our focus was on racial/ethnic segregation, ECAs effects could extend to members of stigmatized groups, such as overweight, immigrant, or LBGTQ youth. Common efforts grounded in extracurricular activities can help to reduce friendship segregation on such attributes, improving life outcomes and promoting societal level integration.

REFERENCES

- Aboud, Frances E., Morton J. Mendelson and Kelly T. Purdy. 2003. "Cross-Race Peer Relations and Friendship Quality." *International Journal of Behavioral Development*, 27: 165-173.
- Allport, Gordon. 1954. *The Nature of Prejudice*. New Jersey: Doubleday Anchor Books.
- Berndt, Thomas J. (1992). "Friendship and Friends' Influence in Adolescence." *Current Directions in Psychological Science*, 1: 156-159.
- Binder, Jens, Hanna Zagefka, Rupert Brown, Friedrich Funke, Thomas Kessler, Amelie Mummendey, Annemie Maquil, Stephanie Demoulin and Jacques-Philippe Leyens. 2009. "Does Contact Reduce Prejudice or Does Prejudice Reduce Contact? A Longitudinal Test of the Contact Hypothesis Among Majority and Minority Groups in Three European Countries." *Journal of Personality and Social Psychology*, 96, 843-856.
- Blau, Peter M. 1977. *Inequality and Heterogeneity*. New York: Free Press.
- Bojanowski, Michal and Rense Corten. 2014. "Measuring Segregation in Social Networks." *Social Networks*, 39: 14-32.
- Brashears, Matthew, Michael Genkin and Chan S. Suh. 2015. "In the Organization's Shadow: How Individual Behavior is Shaped by Organizational Leakage." Unpublished manuscript.
- Chappell, Bob. 2002. "Race Ethnicity and Sport," in A. Laker (ed.) *The Sociology of Sport and Physical Education*, pp. 92 – 109. London: Routledge.
- Clotfelter, Charles T. 2002. "Interracial Contact in High School Extracurricular Activities." *The Urban Review*, 34: 25-46.
- Currarini, Sergio, Matthew O. Jackson and Paolo Pin. 2010. "Identifying the roles of race-based choice and chance in high school friendship network formation." *Proceedings of the National Academy of Sciences*, 107: 4857-4861.
- Davies, Kristin, Linda R. Tropp, Arthur Aron, Thomas F. Pettigrew and Stephen C. Wright. 2011. "Cross-Group Friendships and Intergroup Attitudes: A Meta-Analytic Review." *Personality and Social Psychology Review*, 15: 332-351.
- Feld, Scott L. 1981. "The Focused Organization of Social Ties." *American Journal of Sociology* 86:1015–35.
- Feld, Scott L. 1982. "Social Structural Determinants of Similarity among Associates." *American Sociological Review*, 47:797-801.
- Feld, S. L. & Grofman, B. (2009). Homophily and the focused organization of ties. Pp. 521-543 in Peter Bearman and Peter Hedström (Eds.), *Oxford Handbook of Analytical Sociology*. Oxford University Press.
- Fischer, Claude S., Robert M. Jackson, C. Ann Stueve, Kathleen Gerson, Lynne M. Jones and Mark Baldassare. 1977. *Networks and Places: Social Relations in the Urban Setting*. New York: Free Press.
- Fredricks, Jennifer and Sandra Simpkins. 2013. "Organized Out-of-School Activities: Peers and Adolescent Development." *New Directions for Child and Adolescent Development*, 140: 1 - 17.
- Ferrell, James A. 2008. A Magnet School and Desegregation: A Case Study of Booker T. Washington High School, 1975-1980. Dissertation, Oklahoma State University.
- Graham, Sandra, April Z. Taylor and Alice Y. Ho. 2009. "Race and Ethnicity in Peer Relations Research." Pp. 394-413 in Kenneth H. Rubin, William M. Bukowski and Brett Laursen (Eds.), *Handbook of Peer Interactions, Relationships, and Groups*. Guilford Press.

- Goodreau, S. M., Kitts, J. A., & Morris, M. (2009). Birds of a feather, or friend of a friend?: Using exponential random graph models to investigate adolescent social networks. *Demography*, 46, 103-125.
- Hartup, W. W., & Stevens, N. (1997). Friendships and adaptation in the life course. *Psychological Bulletin*, 121, 355-370.
- Johnson, M. K., Crosnoe, R., & Elder, G. H. (2011). Insights on adolescence from a life course perspective. *Journal of Research on Adolescence*, 21, 273-280.
- Jones, G. J., Carlton, T. A., Bocarro, J. N., Bunds, K. S., & Edwards, M. B. (2016). The salience of sport in cross-race friendship selection. *Journal of Amateur Sports*, 2, 73-98.
- Kalmijn, Matthijs and Henk Flap. 2001. "Assortative Meeting and Mating: Unintended Consequences of Organized Settings for Partner Choices." *Social Forces*, 79: 1289-1312
- Killen, Melanie and Adam Rutland. 2013. *Children and Social Exclusion: Morality, Prejudice, and Group Identity*. New York: Wiley-Blackwell Publishers.
- Knifsend, Casey A. and Jaana H. Juvonen. 2015. "Extracurricular Activities in Multiethnic Middle Schools: Ideal Context for Positive Intergroup Attitudes?" Unpublished manuscript.
- Kornienko, Olga, Carlos E. Santos and Kimberly E. Updegraff. 2015. "Friendship networks and ethnic-racial identity development: Contributions of social network analysis." Forthcoming chapter.
- Kossinets, Georgi and Duncan J. Watts. 2009. "Origins of Homophily in an Evolving Social Network." *American Journal of Sociology*, 115: 405-50.
- Larson, Reed W., David M. Hansen and Giovanni Moneta. 2006. "Differing Profiles of Developmental Experiences Across Types of Organized Youth activities." *Developmental Psychology*, 42: 849-863.
- Lease, A. M. and Jamilia J. Blake. 2005. "A Comparison of Majority-Race Children with and without a Minority-Race Friend." *Social Development*, 14, 20-41.
- Lewis, Kevin, Marco Gonzalez and Jason Kaufman. 2011. "Social selection and peer influence in an online social network." *Proceedings of the National Academy of Sciences*, 109: 68-72.
- Mahoney, Joseph, Deborah Vandell, Sandra Simpkins and Nicolle Zarrett. 2009. "Adolescent Out-of-School Activities." In R. M. Lerner and L. Steinberg (Eds.), *The Handbook of Adolescent Psychology: Vol. 2. Contextual Influences on Adolescent Development* (3rd ed., pp. 228 – 269). Hoboken, NJ: John Wiley & Sons Inc.
- McPherson, Miller. 1983. "An Ecology of Affiliation." *American Sociological Review*, 48: 519-532.
- McPherson, Miller. 2004. "A Blau space primer: Prolegomenon to an ecology of affiliation." *Industrial and Corporate Change*, 13: 263-280.
- McPherson, J. Miller and Lynn Smith-Lovin. 1986. "Sex Segregation in Voluntary Associations." *American Sociological Review*, 51: 61-79.
- McPherson, M., L. Smith-Lovin and M.E. Brashears. 2006. "Social Isolation in America: Changes in Core Discussion Networks over Two Decades." *American Sociological Review* 71:353-375.
- McPherson J. M., Smith-Lovin Lynn, Cook James M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27: 415-444.
- Moody, James. 2001. "Race, School Integration, and Friendship Segregation in America." *American Journal of Sociology* 107: 679-716.

- Mouw, Ted and Barbara Entwisle. 2006. "Residential Segregation and Interracial Friendship in Schools." *American Journal of Sociology* 112:394-441.
- Pettigrew, Thomas F. 1998. "Intergroup Contact Theory." *Annual Review of Psychology*, 49: 65-85.
- Pettigrew, Thomas F. and Linda R. Tropp. 2006. "A Meta-Analytic Test of Intergroup Contact Theory." *Journal of Personality and Social Psychology*, 90: 751-783.
- Rivas-Drake, Deborah, Adriana Umaña-Taylor, David R. Schaefer, and Michael Medina. "Ethnic-Racial Identity and Friendships in Early Adolescence." *Child Development*. In press.
- Roeser, R. W., & Peck, S. C. 2003. Patterns and pathways of educational achievement across adolescence: A holistic-developmental perspective. *New Directions for Child and Adolescent Development*, 101, 39-62.
- Rubin, Kenneth, William Bukowski and Jeffery Parker. 2006. "Peer interactions, relationships, and groups." In William Damon, Richard M. Lerner & Nancy Eisenberg (Eds.), *Handbook of Child Psychology: Volume 3. Social, Emotional, and Personality Development* (6th ed., pp. 571-645). New York: Wiley.
- Rutter, Michael. 1996. "Transitions and Turning Points in Developmental Psychopathology: As Applied to the Age Span between Childhood and Mid-Adulthood." *International Journal of Behavioral Development*, 19:603-626.
- Schaefer, David, Olga Kornienko and A. M. Fox. 2011. "Misery Does not Love Company: Network Selection Mechanisms and Depression Homophily." *American Sociological Review*, 76:764-785.
- Schaefer, David, Sandra Simpkins, Andrea Vest and Chara Price. "The Contribution of Extracurricular Activities to Adolescent Friendships: New Insights through Social Network Analysis." *Developmental Psychology*, 47:1141-1152.
- Schofield, J. W. (1995). Promoting positive intergroup relations in school settings. In W. D. Hawley & A. W. Jackson (Eds.), *Toward a common destiny: Improving race and ethnic relations in America* (pp. 257-289). San Francisco: Jossey-Bass.
- Simpkins, Sandra, Jennifer Fredricks and Jacquelynne Eccles. 2015. "Parent Beliefs to Youth Choices: Mapping the Sequence of Predictors from Childhood to Adolescence." *Monographs of the Society for Research in Child Development*, 80(2): 1-151.
- Stearns, Elizabeth. 2010. "Long-Term Correlates of High School Racial Composition: Perpetuation Theory Reexamined" *Teachers College Record*, 112: 1654-1678.
- Stearns, Elizabeth, Claudia Buchmann and Kara Bonneau. 2009. "Interracial Friendships in the Transition to College: "Do Birds of a Feather Flock Together Once They Leave the Nest?" *Sociology of Education*, 82: 173-195.
- Udry, J. R. (2003). The National Longitudinal Study of Adolescent Health (Add Health), Waves I & II, 1994-1996; Wave III, 2001-2002 [machine-readable data file and documentation]. Chapel Hill, NC: Carolina Population Center, University of North Carolina at Chapel Hill.
- Umaña-Taylor, Adriana J., Stephen M. Quintana, Richard M. Lee, William E. Cross, Deborah Rivas - Drake, Seth J. Schwartz, Moin Syed, TiffanyYip, Eleanor Seaton and Ethnic and Racial Identity in the 21st Century Study Group. 2014. "Ethnic and Racial Identity During Adolescence and into Young Adulthood: An Integrated Conceptualization." *Child Development*, 85: 21-39.
- Vandell, Deborah Lowe, Reed W. Larson, Joseph L. Mahoney and Tyler W. Watts. 2015.

- Children's organized activities. In Richard M. Lerner (Series Ed.) & Mark H. Bornstein and Tama Leventhal (Volume Eds.). *Handbook of Child Psychology and Developmental Science; Vol. 4. Ecological Settings and Processes* (7th ed., pp. 305-344). Hoboken, NJ: John Wiley & Sons Inc.
- Vest Ettekal, Andrea, Sandra Simpkins, Cecilia Menjivar and Melissa Delgado. 2015. "Culturally Responsive Organized Activities: Perspectives from Mexican-Origin Adolescents and Parents." Manuscript under review.
- Watkins, Natasha D., Reed W. Larson and Patrick Sullivan. 2007. "Bridging Intergroup Difference in a Community Youth Program." *American Behavioral Scientist*, 51: 380-402.
- Wells, Amy S. and Robert L. Crain. 1994. "Perpetuation Theory and the Long-Term Effects of School Desegregation." *Review of Educational Research*, 64: 531-555.
- Wigfield, Allen, Jacquelynne Eccles, Jennifer Fredricks, Sandra Simpkins, Robert Roeser and Schiefele, Ulrich 2015. Development of achievement motivation and engagement. In R. M. Lerner (Series Ed.) & C. Garcia Coll and M. Lamb (Volume Eds.). *Handbook of child psychology and developmental science: Vol. 3. Social and emotional development* (7th ed., pp. 657-700). Hoboken, NJ: John Wiley & Sons Inc.
- Wimmer, Andreas and Kevin Lewis. 2010. "Beyond and Below Racial Homophily: ERG Models of a Friendship Network Documented on Facebook." *American Journal of Sociology* 116:583-642.
- Wojcieszak, Magdalena E. and Diana C. Mutz. 2009. "Online Groups and Political Discourse: Do Online Discussion Spaces Facilitate Exposure to Political Disagreement?" *Journal of Communication*, 59: 40-56.

Figure 1: Sources of Homophily for two equally represented groups

Figure 2

Note: We used a multilevel model, to account for the nesting of activities within schools, and included effects to control for activity type (academic, art, leadership, sport), activity size, school type (middle, high or combination), school size, school diversity, region of country, and community type (urban, suburban, rural). Odds of same race friendship is an indicator of inbreeding homophily.

Figure 3: Total Homophily based on ECA racial heterogeneity (IQV)

Table 1: Extracurricular Activity Coding and Homophily Rates Relative to School

ECA	Mean Size	# of Schools	Friend- ship #	Activity Coding			% ECA H > School H		
				Interdep- endence	Team Sport	Contact Sport	Baseline	Inbreed- ing	Total
Band	84.4	92	168.8	1	0	0	69.6	39.3	64.3
Softball (girls)	47.2	73	45.7	1	1	0	76.7	50.8	65.6
Baseball (boys)	62.1	87	62.2	1	1	0	70.1	43.8	45.0
Basketball (girls)	45.2	88	54.0	1	1	1	54.5	42.1	46.1
Basketball (boys)	65.4	101	76.7	1	1	1	36.6	54.1	38.8
Book Club	35.0	1	64.0	0	0	0	100.0	100.0	100.0
Cheerleading	50.2	91	57.2	1	0	0	61.5	59.5	59.5
Choir	70.0	80	101.9	1	0	0	56.3	54.3	51.4
Computer Club	38.8	12	24.0	0	0	0	50.0	50.0	50.0
Debate	33.7	19	26.7	0	0	0	57.9	50.0	43.8
Drama	61.2	56	81.2	1	0	0	73.2	53.8	53.8
Field Hockey (girls)	48.3	4	58.8	1	1	1	50.0	.0	25.0
FFA	47.5	15	51.5	0	0	0	86.7	50.0	60.0
Football (girls)	12.0	1	11.0	1	1	1	99.0	99.0	99.0
Football (boys)	79.9	89	99.7	1	1	1	40.4	36.4	27.3
French Club	45.1	36	42.1	0	0	0	66.7	51.9	55.6
German Club	33.8	8	22.6	0	0	0	100.0	20.0	40.0
History Club	32.5	6	27.8	0	0	0	66.7	75.0	75.0
Honor Society	68.7	73	109.4	0	0	0	75.3	47.6	65.1
Ice Hockey (girls)	65.0	1	45.0	1	1	1	100.0	100.0	100.0
Ice Hockey (boys)	32.5	8	24.0	1	1	1	100.0	.0	50.0
Latin Club	62.2	9	63.0	0	0	0	77.8	42.9	85.7
Math Club	41.1	33	44.6	0	0	0	60.6	51.7	44.8
Newspaper	38.1	50	31.6	1	0	0	72.0	42.1	52.6

Orchestra	58.4	14	58.3	1	0	0	57.1	46.2	53.8
Science Club	48.2	29	66.5	0	0	0	55.2	46.2	53.8
Soccer (girls)	44.1	39	43.7	1	1	1	66.7	53.1	59.4
Soccer (boys)	46.6	51	42.6	1	1	1	72.5	44.2	48.8
Spanish Club	68.1	56	80.4	0	0	0	41.1	58.0	46.0
Student Council	52.0	79	68.1	1	0	0	58.2	38.5	50.8
Swimming (girls)	35.2	27	20.6	0	0	0	66.7	40.9	63.6
Swimming (boys)	32.3	6	17.5	0	0	0	66.7	60.0	40.0
Tennis (girls)	32.7	31	25.5	0	0	0	83.9	52.4	71.4
Tennis (boys)	30.9	25	23.2	0	0	0	72.0	70.6	64.7
Track (girls)	46.6	69	44.1	0	0	0	52.2	58.3	46.7
Track (boys)	46.4	65	38.9	0	0	0	40.0	50.0	43.5
Volleyball (girls)	50.2	60	63.5	1	1	0	58.3	58.5	58.5
Volleyball (boys)	31.8	8	22.0	1	1	0	75.0	66.7	100.0
Wrestling (boys)	41.9	29	28.2	0	0	1	51.7	30.4	34.8
Yearbook	48.2	86	40.3	1	0	0	55.8	58.2	49.3
Total ⁺	54.6	1707	63.3	.67	.36	.24	60.2	48.9	51.1

⁺ Totals for activity codes represent the proportion of activities in the sample of each type.