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Children's perceptions of intergroup and intragroup similarity and the role of social experience☆

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Abstract

Perceptions of intragroup and intergroup similarity were assessed in 1st grade (M=6.78 years, SD=.42) and 4th grade (M=9.79, SD=.51) boys and girls (N=382) who attended either ethnically homogeneous or ethnically heterogeneous schools. Children's evaluations of same-race and cross-race friendships were also assessed. European-American children attending homogeneous and heterogeneous schools attributed greater homogeneity to the same-race Black dyads. European-American children attending homogeneous schools, furthermore, focused on skin color in their evaluations of similarity and friendship to a greater extent than did European-American and minority (i.e., African-American, Latin-American, Asian-American) children attending heterogeneous schools. Children attending heterogeneous schools were more positive about friendship in general than children attending homogeneous schools, suggesting that social experiences in school settings are an important context of children's intergroup contact experience. The findings indicate that children's intergroup contact influences their perceptions of similarity and reasoning about cross-race friendship.

Keywords: Ethnically heterogeneous and homogeneous settings; Friendship; Skin color; Intergroup and intragroup similarity

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1. Introduction

Many countries around the globe have become more diverse and more highly integrated as a function of immigration laws, increased mobility, and socioeconomic patterns. One result is that children in these countries are interacting with individuals from a wide range of ethnic and racial backgrounds not encountered in previous generations (Fisher, Jackson, & Villarruel, 1998; Greenfield & Cocking, 1994; Pettigrew, 1998a; Ogbu, 1994; Verkuyten & Thijs, 2002). As long argued by social psychologists (Allport, 1954; Gaertner & Dovidio, 2005; Pettigrew, 1998b; Pettigrew & Tropp, 2005), this increased intergroup contact holds the potential to positively change intergroup attitudes, especially when long-lasting friendships between members of different racial and ethnic backgrounds develop. Although research with adults has found a consistent positive relationship between increased intergroup contact and intergroup attitudes in research with adults (Pettigrew & Tropp, 2000), little work has examined the relationship between intergroup contact and intergroup attitudes in children. Intergroup attitudes that may be significantly influenced by contact with outgroup members are perceptions of intergroup and intragroup similarity. The study reported in this paper examined similarity judgments of U.S. children from majority (European-American) and minority (African-American and Latin-American) ethnic groups who attended either heterogeneous or homogeneous schools and, therefore, had different levels of exposure to ethnic groups other than their own.

1.1. Children's perceptions of intergroup and intragroup similarity

Research on children's intergroup attitudes has employed various methodologies that range from direct assessments, such as trait assignment techniques (e.g., Multiple Racial Attitudes Assessment, MRA, Doyle & Aboud, 1995), to indirect assessments, such as ambiguous behavior attributions (see Killen, Margie, & Sinno, 2006; McGlothlin & Killen, submitted for publication; Sagar & Schofield, 1980). Methodologies investigating intergroup attitudes have also differed with respect to whether they are context-free assessments (e.g., MRA) or rooted in a social context, such as decision-making about peer relationships (see Killen, Lee-Kim, McGlothlin, & Stangor, 2002). The present research investigated an indirect aspect of children's intergroup attitudes, namely, children's perceptions of intergroup and intragroup similarity, and how these perceptions impact decision-making about peer relationships.

A common finding in research with adults and children is the tendency to perceive more variability between members of one's own group than between members of another group. This is referred to as the *outgroup homogeneity effect* (Park, Ryan, & Judd, 1992; Quattrone & Jones, 1980). For example, European-Americans may recognize that they differ from other European-Americans in numerous ways and on a variety of dimensions; however, they may not ascribe the same extent of variability to other ethnic groups. Instead, similar traits, attitudes, and behaviors may be attributed to all members of an outgroup. Perceiving an outgroup as homogeneous reinforces stereotypes, which emphasize differences between groups while attributing little or no variation within groups (Brewer & Brown, 1998). In addition to being associated with stereotyping (Brewer & Brown, 1998; Nesdale, 2001), children's perceptions of similarity have been found to correlate inversely with negative racial attitudes (Doyle & Aboud, 1995; Katz, Sohn, & Zalk, 1975). Perceptions of outgroup homogeneity have often been measured by asking participants to indicate the proportion, either by percentages or categories (e.g., all, some, or none), of group members along a number of dimensions (see Quattrone, 1986). A more direct

method is to ask participants to rate the similarity of group members to one another (Quattrone, 1986). This method is preferable for use with children due to their vocabulary and mathematical limitations.

In previous studies investigating European-Canadian and European-American children's perceptions of similarity, children were shown pictures of different-race pairs of children (e.g., a European-American child and an African-American child) and same-race pairs of children (e.g., two African-American children) and asked to rate how similar the two children in the pictures are to one another (Doyle & Aboud, 1995; Katz et al., 1975). These studies found that participants judged children of the same race as more alike than children from different races. With age, European-Canadian and European-American children perceived more variability within groups and less variability between groups. Older children (9-year-olds) judged two White children as less alike than did younger children (6-year-olds). In addition, older children evaluated a White child and a Black child as more alike than did younger children. Thus, with age, children perceived less similarity within the same race and more similarity between races, reducing the focus on race as a distinguishing feature. One conclusion drawn from these studies is that the decline in focusing on race as a variable for making social comparisons leads to a decline in prejudice (Aboud & Levy, 2000; Doyle & Aboud, 1995).

In previous studies on similarity judgments, no information besides the observed physical characteristics was given about the children being judged in the photos. The children being judged were of the same sex and age. Participants were shown the pictures and asked to judge their similarity. Thus, the only cues by which to judge similarity were physical characteristics, the most obvious of which was skin color. While skin color clearly stands out as a physical difference between children of different races, the prior studies cited above did not examine the relative significance of skin color with respect to other features that children might use when they are making similarity judgments. For instance, when evaluating how similar two children are, do children consider having different skin colors more salient than a shared interest in playing soccer? Recently, a methodology was designed to assess children's perceptions of similarity of characters in picture cards in which children vary by race as well as by other dimensions such as sports interest (McGlothlin, Killen, & Edmonds, 2005).

Using this methodology, several studies were conducted in the U.S. to evaluate perceptions of similarity among cross-race and same-race peer dyads with ethnic majority (i.e., European-American) and minority (i.e., African-American, Latin-American, and Asian-American) children (see Margie, Killen, Sinno, & McGlothlin, 2005; McGlothlin, 2004; McGlothlin et al., 2005). Further, in these studies, the amount of intergroup contact participants encountered in their school contexts varied. Overall, the results revealed that children focused on shared activities and interests (e.g., soccer) more than on the dimension of race when making similarity judgments. There were differences among the ethnic groups, however, regarding outgroup homogeneity judgments. McGlothlin et al. (2005) found that European-American children in heterogeneous schools attributed greater homogeneity to the outgroup, which in this case were African-American peer dyads, than to the ingroup. This outgroup homogeneity effect was also found with majority children in homogeneous schools (McGlothlin, 2004). Interestingly, in a sample of African-American, Latin-American, and Asian-American children, Margie et al. (2005) did not find evidence of outgroup homogeneity attributions.

No study that we know of to date has directly compared outgroup homogeneity judgments as a function of intergroup contact, that is, as a function of the heterogeneity of the school environment. Thus, one aim of the present study was to directly compare the similarity ratings from the three samples of children described above who varied in their degree of intergroup contact, to determine whether

significant differences exist in their perceptions of intergroup and intragroup similarity as a function of social experiences with members of outgroups.

1.2. Children's perceptions of similarity and friendships

Another reason to examine racial similarity and shared interests is that these dimensions of peer relationships are often key elements of children's friendships. Reviews of research on children's friendships have concluded that children tend to choose same-race and same-sex peers with similar activity interests for friends (Aboud & Mendelson, 1996; Rubin, Bukowski, & Parker, 1998). One limitation with the empirical literature, however, is that few studies have systematically compared these two distinct aspects of similarity, *group membership* (age, sex, and race), on the one hand, and *shared interests* (hobbies, activities, and personality profiles), on the other hand. In fact, measurements of friendship in childhood often rely on asking children to describe what makes someone a good friend; children readily refer to physical traits, such as sex (see Rubin et al., 1998). This does not mean, however, that children use these criteria to make judgments about friendship potential. Nor does it mean that children do not form friendships with children who differ from them in physical similarity or group membership.

Surprisingly, physical similarity and shared interests have rarely been directly compared or measured in studies of children's reasons for friendship. Clearly, shared interests and activities are important in the initial selection of friends, as well as to the longevity of the friendship. Enjoying the same hobbies or sports increases the attraction between individuals and the time spent together. An emphasis on physical similarity, however, may hinder the development of cross-race relationships. Indeed, research has shown that cross-race friendships are much less frequent than same-race friendships throughout childhood (Aboud, Mendelson, & Purdy, 2003; Graham & Cohen, 1997; Hallinan & Teixeira, 1987; Howes & Wu, 1990). This trend is particularly true for European-American children (Aboud et al., 2003; Levy, 2000).

Investigating the relationship between perceptions of similarity and friendship choices has implications for intergroup relations. Cross-race friendships have been found to be a significant factor in the reduction of prejudice (Aboud & Levy, 2000; Ellison & Powers, 1994; Pettigrew & Tropp, 2000, 2005). Children with friends from different ethnic groups recognize that variation exists across groups as well as within groups, thus reducing outgroup homogeneity attributions. Cross-race friendships also increase sensitivity to the negative impact of discrimination and prejudice. Thus, identifying factors that may increase the likelihood of cross-race friendships may inform strategies for reducing prejudice. Unfortunately, little is known about children's decision-making regarding cross-race friendship. Until recently, no empirical work had examined the extent to which children focus on similarity of skin color versus similarity of activity interests when determining friendship potential. When children are making decisions about friendships, they must coordinate many factors that may have a bearing on the potential friendship. By varying both race and shared or non-shared activity interests as in the Similarity Task developed by McGlothlin et al. (2005), the relative importance of each in children's judgments of similarity and in their reasoning about potential friendship can be investigated.

In order to examine children's decision-making about friendship, McGlothlin et al. (2005) asked European-American participants attending ethnically heterogeneous schools whether or not two children could be friends when the race and the shared interests of the friends varied. Results indicated that children's judgments about friendship were influenced more by whether or not the two characters shared activity interests than by whether or not the two characters shared skin color. Margie et al. (2005) found

similar results with African-American, Latin-American, and Asian-American children attending ethnically heterogeneous schools. A study by McGlothlin (2004), however, found that European-American children attending ethnically homogeneous schools judged the potential for friendship to be lower for cross-race dyads than for same-race dyads. The present study investigated the influence of intergroup contact on children's judgments of friendship potential by directly comparing the judgments and reasoning about friendship potential of these three samples of children (as cited in Margie et al., 2005; McGlothlin, 2004; McGlothlin et al., 2005).

1.3. Children's intergroup contact

As discussed in the previous section, cross-race friendships are a significant factor in the reduction of prejudice in childhood and adulthood (Pettigrew & Tropp, 2000). Intergroup contact, more generally, can also affect intergroup attitudes in a positive way when certain conditions are met (Allport, 1954; Pettigrew & Tropp, 2000). In their review of the literature, Pettigrew and Tropp (2000) focused on cross-race friendships as a key condition to be met based on the conditions identified by Allport (1954). From our perspective, a diverse school environment provides an opportunity for children to form cross-race friendships, unlike a homogeneous school in which children do not interact with others from different ethnic backgrounds. Thus, this type of experience may have a positive influence on intergroup attitudes. Moreover, this is particularly the case in the elementary school years in which children's classes are rarely tracked and lunch table assignments are by classroom rather than by self-selection.

Although a direct assessment of the amount of intergroup contact experienced by an individual child and their view of the quality of this contact is preferable to using the demographic composition of a school as the sole measure of intergroup contact, assessing the conditions of contact, especially in elementary school with young children, is a difficult task. Few studies have examined the relationship between the conditions of intergroup contact and attitudes (for an exception with older children, see Green, Adams, & Turner, 1988). For this study, we used an Intergroup Contact Assessment for the homogeneous sample (to measure their individual intergroup contact—see Methods) but we were not able to administer this assessment in the heterogeneous schools due to our agreement with the school district when ascertaining approval for conducting research. Thus, we used school demography in the present study as our key intergroup contact variable. We recognize that this is a first step towards testing how intergroup contact influences intergroup attitudes. Because children spend a great deal of time at school, the school setting offers a significant opportunity for children to interact with peers and form friendships. Indeed, the school setting has often been the measure used in research investigating the impact of intergroup contact (see Schofield & Eurich-Fulcer, 2004).

We propose that experiencing intergroup contact in school settings can impact perceptions of intergroup and intragroup similarity as well as children's decision-making about cross-race friendship. When the school environment allows for contact with individuals from the outgroup, new learning occurs that corrects negative views of that outgroup (Pettigrew, 1998b). Many interactions with diverse individuals from an outgroup provide counterevidence regarding stereotypes about the outgroup and demonstrate potential similarities that exist between the ingroup and outgroup that were previously unrecognized. Moreover, research has shown that the frequency of cross-race friendships is related to the number of potential cross-race friends (Hallinan & Teixeira, 1987; Howes & Wu, 1990). In other words, the more balanced a school is with respect to the number of children from different groups, the more likely cross-race friendships will form. Thus, just being in contact with outgroup members may serve the

functions outlined by Pettigrew (1998b) of learning about the outgroup, reappraising the ingroup, changing behavior, and generating affective ties in childhood just as in adulthood. Through these processes, intergroup attitudes as well as reasoning about cross-race friendships may be altered. In fact, Aboud (2003) found differences in intergroup attitudes between students attending a homogeneous school and students attending a heterogeneous school. Given the findings on the influence of intergroup contact, the impact of ethnically homogeneous schools, particularly all-European-American schools, on children's biases and decision-making about interracial relationships needs to be more closely examined.

1.4. Goals and hypotheses

The goals of the present paper were to analyze the relationship between intergroup contact, as measured by the school environment (ethnically homogeneous or heterogeneous), and children's perceptions of similarity along with their evaluations of cross-race friendships. In order to achieve these goals, we sampled majority children who attended either heterogeneous (see McGlothlin et al., 2005) or homogeneous elementary schools (see McGlothlin, 2004) and minority children who attended heterogeneous elementary schools (see Margie et al., 2005). Thus, there were three samples: 1) 1st and 4th grade European-American children attending ethnically heterogeneous schools; 2) 1st and 4th grade children from ethnic minority groups (African-American, Latin-American, and Asian-American) who attended the same ethnically heterogeneous schools as did the European-American children; and 3) 1st and 4th grade European-American children who attended ethnically homogeneous schools and therefore had little opportunity for intergroup contact. These schools did not have tracking arrangements within the schools (as is often the case in middle and high schools). We chose to sample 1st and 4th graders because previous studies on perceptions of similarity have shown a developmental shift between these ages in children's similarity judgments (Doyle & Aboud, 1995) as well as a decline in cross-race friendships (Graham & Cohen, 1997; Howes & Wu, 1990). Thus, our age related hypotheses were that younger children would attribute greater homogeneity to the outgroup than would older children. We also predicted that younger children would be more positive about friendship potential between the cross-race dyads than would older children. Our sex hypotheses were that girls would be more open to friendship potential than would boys given prior findings in the friendship literature (see Rubin et al., 1998).

Due to the different school environments, we expected that the majority children in homogeneous schools would differ in their ratings of similarity from the majority and minority children in heterogeneous schools. Specifically, we predicted that the European-American children attending homogeneous schools would rate the cross-race dyads as less alike than would children from all ethnic groups with more opportunity for intergroup contact. Moreover, we expected that these majority children would attribute greater homogeneity to the outgroup (i.e., rate the Black dyads as more similar) than would their counterparts in heterogeneous schools. We further hypothesized that minority children would focus on skin color to a lesser degree than the majority children and use reasoning based on activity interests more often. Moreover, we expected that European-American children attending homogeneous schools would cite skin color in their reasoning about similarity, especially when comparing cross-race dyads and Black dyads, more often than would the children attending heterogeneous schools.

Regarding evaluations of friendship potential, we predicted that majority children in homogeneous schools would judge friendship between the characters in the cross-race dyads as less likely than would

children in heterogeneous schools. Although the racial makeup of the dyad was expected to influence judgments, we also hypothesized that overall, children would focus on the activity interests and evaluate friendship positively when the dyads shared sports interests. We expected children, both majority and minority, in heterogeneous schools to be more inclusive in general. That is, we expected that children in heterogeneous schools would be more likely to judge friendship as possible overall than the majority children in homogeneous schools. We also expected that when asked to give reasons why the characters could or could not be friends, children's justifications would vary by intergroup contact experience. Specifically, children from heterogeneous schools were hypothesized to use more reasoning based on activity interests that could be shared than children from homogeneous schools.

2. Method

2.1. Participants

Participants were 382 children attending 1st grade ($n=189$) and 4th grade ($n=193$) in elementary schools in a metropolitan area in the Mid-Atlantic region. Samples were drawn from ethnically heterogeneous and homogeneous schools, all of which served students of the same income level, middle-to-working socio-economic background. In the four ethnically heterogeneous schools, the percentages of European-American students ranged from 20% to 65%. In the two ethnically homogeneous schools, the percentages of European-American students were 91% and 86%. Information beyond the demographic composition and socio-economic level of the schools was not available for reporting due to confidentiality agreements with the schools. Analyses revealed no differences between children's responses from the four heterogeneous schools or from the two homogeneous schools; therefore, the data from the heterogeneous schools were combined and the data from the homogeneous schools were combined.

For the heterogeneous site, there were two samples: majority children and minority children. The majority sample consisted of 94 European-American children. There were 52 first graders (M age=6.8 years, $SD=.33$; 33 boys, 19 girls) and 42 fourth graders ($M=9.9$ years, $SD=.35$; 22 boys, 20 girls). The minority sample consisted of 70 African-American children and 80 non-African-American minority (51 Latin-American, 24 Asian-American, 5 Other) children. There were 32 African-American 1st graders ($M=6.4$ years, $SD=.37$; 20 boys, 12 girls), 31 non-African-American minority 1st graders ($M=6.7$ years, $SD=.53$; 20 boys, 11 girls), 38 African-American 4th graders ($M=9.4$ years, $SD=.64$; 10 boys, 28 girls), and 49 non-African-American 4th graders ($M=9.7$ years, $SD=.49$; 23 boys, 26 girls). For the present analyses, these students were combined into one sample (minority children in heterogeneous schools). No significant differences were found between the different ethnic groups in preliminary analyses (for more detail, see Margie et al., 2005). The majority sample in the homogeneous schools consisted of 74 European-American 1st graders ($M=6.9$ years, $SD=.32$; 34 boys, 36 girls) and 64 European-American 4th graders ($M=10.0$ years, $SD=.36$; 28 boys, 36 girls).

It should be noted that within site analyses for age and sex were conducted and reported in previous papers with these samples (see Margie et al., 2005; McGlothlin, 2004; McGlothlin et al., 2005). The unique report in this paper pertained to the cross-site comparisons, that is, the role of school environment on children's perceptions of similarity. Neither of the previous reports involved analyses across heterogeneous and homogeneous schools or between participant ethnic groups.

2.2. Procedure and assessments

Trained research assistants individually interviewed children for approximately 30 min in a quiet room at the child's school. All children were informed that the interviews were confidential and anonymous and that there were no right or wrong answers. In the *Similarity Task*, participants were shown six pairs of 10.16 × 15.24 cm (4 × 6 in.) illustrated picture cards in sequential order (see Fig. 1). The cards depicted colored drawings of two children who were identical in dress and expression. The children were also of the same sex as the participant. There were three race conditions: same-race Black, same-race White, and cross-race (i.e., a Black character and a White character). There were two activity conditions: shared activity interest and non-shared activity interest. Thus, the six pairs consisted of 1) same-race Black dyad/shared activity; 2) same-race Black dyad/non-shared activity; 3) same-race White dyad/shared activity; 4) same-race White dyad/non-shared activity; 5) cross-race dyad/shared

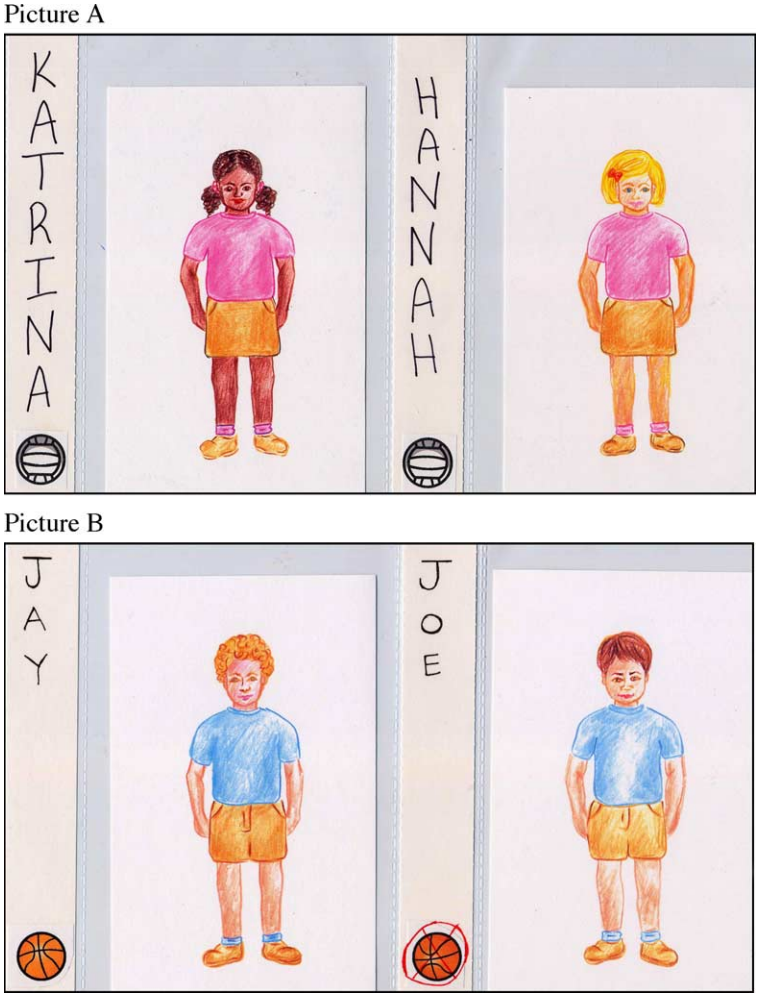

Fig. 1. Picture cards for the similarity task: cross-race dyad, shared activity (Picture A) and same-race dyad, non-shared activity (Picture B).

activity; and 6) cross-race dyad/non-shared activity. In order to illustrate that the sports activity was shared, three pairs of cards depicted children with identical sports icons in the lower-right corner. In the other three pairs of cards, one child had a red circle with a line drawn through it over the sports icon to illustrate that the pair did not share the same interest in the sports activity. Upon presenting the picture cards, the interviewer said the names of the two children and whether or not each played the particular sport pictured. For example, for one pair the interviewer said, "This is Katrina and this is Hannah. Katrina and Hannah both like to play soccer." (see Fig. 1, Picture A). Presentation of the cards was counterbalanced. Half of the participants viewed the White peer dyad with different interests first, while the other half viewed the Black peer dyad with different interests first.

Four dependent measures were used to assess similarity and the potential for friendship between the children depicted in the cards. The first question, *Rating of Similarity* ("How much are X and Y alike or different?"), asked participants to rate the similarity of the two children using a Likert scale (1= not at all alike, 6= very, very alike). The second question, *Similarity Reasons*, assessed the participants' reasons why the pair was either alike or different ("Why do you think X and Y are/are not alike?"). Responses were coded into three categories: 1=*Race/Skin Color*; 2=*Sports Interest*; 3=*Non-racial Physical Characteristics*. An example of race/skin color would be: "They both have brown skin." For sports interest, an example would be: "They don't like to play the same game." An example of non-racial physical characteristics would be: "They are wearing the same shorts." The next two questions measured children's judgments and reasoning about friendship potential. The third question, *Friendship Potential* ("Do you think they could be friends?"), asked participants to judge the potential friendship between the two characters in the scenario. Responses of "no" were coded as 0, and responses of "yes" were coded as 1. The final question, *Reason for Potential Friendship* ("Why do you think they could/couldn't be friends?"), asked participants to justify their judgment of friendship potential. The responses were coded into four categories: 1=*Race/Skin Color*, 2=*Sports Interest*, 3=*General Friendship Interest*, which referred to shared interests outside of sports interests (i.e., "Even if they don't play golf, they might like playing something else together."), and 4= *Non-racial Physical Characteristics*. For both *Similarity Reasons* and *Reason for Potential Friendship*, participants were allowed to give multiple reasons and all reasons were proportionately coded.

An *Intergroup Contact Assessment* (ICA) was administered to the European-American children attending ethnically homogeneous schools and verified that these children had low amounts of contact with African-Americans (see McGlothlin, 2004). Children were shown 5 picture cards that depicted different groups of people. The groups varied by racial composition (e.g., Group 1 consisted of all European-American characters; Group 5 consisted of all African-American characters). Children were asked which group looked most like the people in six contexts: 1) their town, 2) their neighborhood, 3) their school, 4) their teams or clubs, 5) their friendships, and 6) their family. Overall, the vast majority of children (78% to 96%) reported that were "none" or "not many" African-Americans across the six contexts; 78% chose these categories when asked about the school context, while 19% reported that there were "some" African-Americans at their school.

While the contact assessment was not administered in the heterogeneous schools, qualitative observations at the schools in which the samples were drawn indicated that themes regarding diversity, in the form of wall posters, bulletin boards, students' displayed artwork, were common in the heterogeneous schools and not present in the homogeneous schools. Moreover, the faculty and staff at the heterogeneous schools were ethnically diverse, indicating that the contact hypothesis condition of authority sanction was met, while the faculty and administrative staff at the homogeneous schools were

all European-American. Finally, there were no tracking programs in these schools, thus, eliminating the possibility that children were in segregated classrooms within the heterogeneous schools.

2.3. Reliability coding

Reliability coding was calculated on 25% of the reason data for the Similarity Task. The average inter-rater agreement across studies using Cohen's kappa coefficient was .97 for *Similarity Rating* and .88 for *Reason for Potential Friendship*. Discrepancies between raters were resolved through consensus after discussions.

3. Results

Hypotheses were tested by conducting repeated measures ANOVAs. Post-hoc comparisons were performed using Tukey's HSD. Follow-up *t*-tests were used to examine interaction effects. Justifications were proportions of responses for each respective coding category. We first conducted analyses on children's ratings of similarity and the reasons used to justify the similarity ratings. Next, we conducted analyses on children's judgments and reasoning about friendship potential. In these analyses, we focused on comparisons between samples in order to test our hypotheses regarding intergroup contact. We do not report results for within sample findings, which have been reported elsewhere (see Margie et al., 2005; McGlothlin, 2004; McGlothlin et al., 2005).

3.1. Ratings of similarity

To test our hypotheses regarding children's similarity ratings of cross-race and same race dyads, a 2 (Grade of participant: 1st, 4th) × 2 (Sex of participant: male, female) × 3 (Sample: Majority-Heterogeneous, Minority-Heterogeneous, Majority-Homogeneous) × 2 (Activity: same, different) × 3 (Race of peer dyad: cross-race, Black, White) ANOVA with repeated measures on the last two factors was conducted on the ratings of similarity. Not surprisingly, children rated the dyads that shared activity interests ($M = 5.23$; $SD = .85$) as more similar than the dyads that did not share activity interests ($M = 2.64$, $SD = 1.05$), $F(1, 370) = 1171.32$, $p < .001$. This confirmed that our measure of similarity was consistent with children's interpretations of similarity.

Central to the hypotheses of the study, children's ratings differed as a function of the racial makeup of the dyads. A main effect for race of peer dyad, $F(2, 740) = 24.87$, $p < .001$, revealed that, overall, children rated the cross-race dyads ($M = 3.79$, $SD = .86$) as the least alike, $ps < .001$. This indicated that race played a factor in children's perceptions of similarity. In addition, the White dyads ($M = 3.93$, $SD = .80$) were rated as less alike than the Black dyads ($M = 4.10$, $SD = .78$), $p < .001$, thus indicating that children's similarity ratings revealed a greater assumption of homogeneity of the Black dyads than the White dyads or cross-race dyads. There were, however, several interactions that qualified this main effect.

Our hypothesis that majority-homogeneous children would rate the cross-dyads as less alike than would children attending heterogeneous schools was only partially supported. The mean (and *SD*) similarity ratings are presented in Table 1 for each racial composition peer dyad and by sample. A race of peer dyad × sample interaction, $F(4, 740) = 7.29$, $p < .001$, revealed that majority-homogeneous children

Table 1
Mean (and *SD*) ratings of similarity in the similarity task

Sample		Peer dyads by racial composition		
		Black dyads	White dyads	Cross-race dyads
Majority-heterogeneous	*M*	4.30	4.04	3.75
	SD	(.67)	(.76)	(.89)
Minority-heterogeneous	*M*	3.99	4.04	3.97
	SD	(.78)	(.73)	(.81)
Majority-homogeneous	*M*	4.08	3.72	3.61
	SD	(.83)	(.85)	(.85)
Total	*M*	4.10	3.93	3.79
	SD	(.78)	(.80)	(.86)

Note. $N = 382$. 1=not at all like; 6=very, very alike.

rated the cross-race dyads as less alike than did minority-heterogeneous children (post hoc comparison $p < .001$), but did not differ from majority-heterogeneous children (see last column of Table 1). Moreover, majority-homogeneous children rated the White dyads as less alike than did majority-heterogeneous children and minority-heterogeneous children (middle column of Table 1; $ps < .01$). Thus, European-American children in homogeneous schools perceived more heterogeneity for White dyads (their ingroup) than did European children in heterogeneous schools or minority children in heterogeneous schools.

Our hypothesis that majority-homogeneous children would attribute greater homogeneity to the Black dyads than would children attending heterogeneous schools was not supported. Majority-homogeneous children did not differ from the other samples of children in the similarity ratings of Black dyads. Majority-heterogeneous children rated the Black dyads as more similar, however, than did the minority-heterogeneous children ($p < .01$; see left column of Table 1). Thus, majority children enrolled in heterogeneous schools attributed more homogeneity to the Black dyads than did minority children enrolled in the same schools, indicating that ethnicity, rather than school environment contributed to attributions of homogeneity for these similarity judgments. Further, there were no significant age differences for similarity ratings.

3.2. Reasons for similarity ratings

The proportions of use for each reasoning category in children's justifications of their similarity ratings were: Race/Skin Color = .08, Sports Interest = .70, and Non-racial Physical Characteristics = .22. In this study, children rarely used race or skin color as reasons for their judgments about whether the dyads were similar or different. Given the low frequency of the use of Race/Skin color and the lack of hypotheses for the use of non-racial physical characteristics, we conducted analyses for the use of Sports Interest as a reason for similarity. A focus on sports interest indicated that children were explaining their similarity ratings in terms of shared or non-shared interests rather than race and ethnicity. In order to test the hypothesis that children in heterogeneous schools would use Sports Interest more often than children in homogeneous schools, 2 (Grade of participant) × 2 (Sex of participant) × 3 (Sample) × 2 (Activity) × 3 (Race of peer dyad) ANOVA with repeated measures on the last two factors was conducted separately on that category.

As expected, minority-heterogeneous children ($M = .79$, $SD = .28$) used Sports Interest more often overall than did majority-homogeneous children ($M = .66$, $SD = .26$) or majority-heterogeneous children ($M = .63$, $SD = .30$), $ps < .001$, $F(2, 370) = 8.76$, $p < .001$. Minority children in heterogeneous schools focused on children's shared interests (or non-shared) rather than any other physical or racial factor more often than children in the other samples. The racial makeup of the dyad, however, also influenced children's use of Sports Interest reasoning, $F(2, 740) = 6.38$, $p < .05$. Overall, children used this type of reasoning more often when evaluating the White dyads ($M = .73$, $SD = .31$) than the cross-race dyads ($M = .69$, $SD = .32$) or the Black dyads ($M = 69$, $SD = .34$), $ps < .05$.

3.3. Judgments of friendship potential

Our hypotheses regarding children's judgments of friendship potential for same-race and cross-race dyads were tested by conducting a 2 (Grade of participant) × 2 (Sex of participant) × 3 (Sample) × 2 (Activity) × 3 (Race of peer dyad) ANOVA with repeated measures on the last two factors on the dichotomous (yes/no) judgments of friendship potential. A main effect for activity, $F(1, 370) = 126.70$, $p < .001$, supported our hypothesis that children would evaluate friendship potential positively when the dyads shared activity interests. Children judged friendship as possible more often when the dyads shared activity interests ($M = .97$, $SD = .11$) than when the dyads did not share activity interests ($M = .77$, $SD = .32$). An activity × sample interaction, $F(2, 370) = 11.85$, $p < .001$, qualified the main effect. Supporting our hypothesis that children in heterogeneous schools would be more inclusive regarding friendship, majority-heterogeneous ($M = .83$, $SD = .32$) and minority-heterogeneous ($M = .83$, $SD = .31$) children judged friendship as likely when the dyads did not share activity interests more often than did majority-homogeneous children ($M = .65$, $SD = .31$), $ps < .001$. This finding was central to our hypothesis about the influence of school environment on inclusive perspectives regarding peer interactions. Children from different ethnic backgrounds in mixed-ethnic schools were more positive about the potential for friendship than were children from majority backgrounds, and even in cases in which the peers did not share a sports interest.

The sex and the racial makeup of the dyad were also influential on children's expectations about friendship potential. Gender played a role in this judgment as revealed by an activity × sex interaction, $F(1, 370) = 6.42$, $p < .01$; when the dyads did not share activity interests, females ($M = .80$, $SD = .28$) were more likely than males ($M = .74$, $SD = .35$) to judge friendship as possible, $p < .05$. The racial makeup of the dyad influenced children's judgments, $F(2, 740) = 6.90$, $p < .001$. The Black dyads ($M = .90$, $SD = .20$) were judged as more likely to be friends than the White dyads ($M = .86$, $SD = .23$) and the cross-race dyads ($M = .85$, $SD = .24$), $ps < .01$.

Further demonstrating how school environment influenced racial attitudes, a race of peer dyad × sample interaction, $F(4, 740) = 6.26$, $p < .001$, supported our hypothesis that majority-homogeneous children ($M = .75$, $SD = .28$) would judge friendship as less likely for the cross-race dyad than would minority-heterogeneous ($M = .90$, $SD = .21$) and majority-heterogeneous ($M = .91$, $SD = .19$) children, $ps < .001$.

Table 2 presents the mean (and *SD*) judgment scores for friendship potential for each type of peer dyad presented as sharing or not sharing activities within each of the three samples. As shown in Table 2, children in the majority-homogeneous sample judged friendship potential as significantly lower than majority-heterogeneous and minority-heterogeneous children for the cross-race dyads who did not share activities (see right side of Table 2). Furthermore, a significant Activity type × Race of peer

Table 2
Mean (and *SD*) judgment score of friendship potential in the similarity task

Sample		Peer dyads by activity type					
		Black dyad different activities	Black dyad same activities	White dyad different activities	White dyad same activities	Cross-race dyad different activities	Cross-race dyad same activities
Majority-heterogeneous	*M*	.87	1.00	.80	1.00	.82	1.00
	SD	(.34)	(.00)	(.40)	(.00)	(.39)	(.00)
Minority-heterogeneous	*M*	.83	.97	.81	.97	.85	.95
	SD	(.37)	(.18)	(.39)	(.16)	(.36)	(.21)
Majority-homogeneous	*M*	.77	.99	.64	.96	.55	.94
	SD	(.42)	(.12)	(.48)	(.21)	(.50)	(.24)
Total	*M*	.82	.98	.75	.97	.74	.96
	SD	(.39)	(.13)	(.43)	(.16)	(.44)	(.19)

Note. $N = 382$. 0=No; 1=Yes.

dyad × Sample interaction, $F(4, 740) = 2.81$, $p < .05$, revealed that the majority-homogeneous sample judged friendship potential as significantly lower than majority-heterogeneous and minority-heterogeneous for the White dyads only when the dyads did not share activity interests (central portion of Table 2). Interestingly, and in line with our expectations, when the dyads shared activity interests, there were no differences between the three samples; the vast majority of all children (*M* proportion score = .97) judged friendship as possible. Thus, it was in the non-shared activity condition that friendship potential was unlikely, according to majority-homogeneous children, and it was especially unlikely for the cross-race dyad. The children in heterogeneous schools, however, were more positive about the potential for friendship even when the dyad did not share interests or skin color.

In accordance with our hypotheses, there were between-participant main effects for sample and sex. Overall, majority-heterogeneous ($M = .91$, $SD = .16$) and minority-heterogeneous ($M = .90$, $SD = .17$) children judged friendship as possible more often than did majority-homogeneous children ($M = .81$, $SD = .17$), $F(2, 370) = 16.47$, $p < .001$. That is, children in diverse schools were more inclusive in general than children in less diverse schools. Moreover, females ($M = .90$, $SD = .15$) were more likely than males ($M = .85$, $SD = .19$) to judge friendship as possible, $F(1, 370) = 7.33$, $p < .05$. Our hypothesis that younger children would judge friendship in the cross-race dyads as more likely than would older children was not supported.

3.4. Reasons for friendship potential judgments

The proportions of use for each reasoning category in children's justifications of their similarity ratings were: Race/Skin Color = .03, Sports Interest = .56, General Friendship Interest = .31, and Non-racial Physical Characteristics = .10. Because the proportion of use for Race/Skin Color was low, we did not conduct analyses for this reasoning category, and we did not formulate hypotheses regarding the use of non-racial physical characteristics. In order to test our hypothesis that children from heterogeneous schools would focus on General Friendship Interest for judgments of potential friendship, a 2 (Grade of participant) × 2 (Sex of participant) × 3 (Sample) × 2 (Activity) × 3 (Race of peer dyad) ANOVA was conducted on that reasoning category. An effect for sample, $F(2, 370) = 14.75$, $p < .001$, revealed that

majority-heterogeneous children ($M = .40$, $SD = .28$) used General Friendship Interest (e.g., "There is no reason for them not to be friends.") more often than did majority-homogeneous children ($M = .23$, $SD = .21$) and minority-heterogeneous children ($M = .31$, $SD = .28$), $ps < .05$. Minority-heterogeneous children also used General Friendship Interest more often than did majority-homogeneous children, $p < .05$. Thus, supporting our hypothesis, majority-heterogeneous children were most likely to reason that the children could find a common interest that kindled friendship, while majority-homogeneous children were least likely to pursue this line of reasoning. A between-participants effect for grade was also found, $F(1, 370) = 18.99$, $p < .001$. Fourth graders ($M = .37$, $SD = .27$) used General Friendship Interest reasoning more often than did 1st graders ($M = .26$, $SD = .25$). This was the only age-related finding in this study; with age children positively evaluated the friendship potential of cross-race and same-race dyads by indicating that the peers could be friends even if they did not share the same sports interest.

4. Discussion

The findings from this study contribute to the literature on intergroup contact, children's cross-race friendships, and children's prejudice. Although intergroup contact has been examined in the context of adult interactions (Nesdale & Todd, 2000; Pettigrew & Tropp, 2000; Pettigrew & Tropp, 2005), little work has investigated the impact of contact with outgroup members on children's peer interactions (for exceptions, see Schofield & Eurich-Fulcer, 2004), and no work that we know of has examined the impact of intergroup contact in children's judgments of outgroup homogeneity and friendship potential. The novel findings in this study were that intergroup contact experienced in the school environments influenced children's perceptions of similarity, and their reasoning about cross-race friendship.

The strongest findings pertained to judgments about friendship potential. Children attending heterogeneous schools were more positive, overall, in their judgments of friendship potential than were children attending homogeneous schools. Moreover, children from diverse schools did not differentiate between dyads that were same-race and those that were cross-race in their evaluations. European-American children in homogeneous schools, however, judged the cross-race dyad to be less likely to be friends than the same-race dyads, particularly when the dyads did not share activity interest.

Thus, for all children in all settings, shared activity interests took priority over skin color in determining who could be friends. These findings run counter to theories in the friendship literature, which propose that children use similarity, such as sex, age, and ethnicity, as the criterion upon which children make friendship decisions (see Rubin et al., 1998). Yet, similarity based on ethnicity is quite different from similarity based on shared interests. These two forms of similarity have very different implications for children's judgments about cross-race friendships. Using ethnicity as a basis for friendship can potentially reflect a form of prejudice in contrast to using shared interests as a basis for friendship, which is viewed as central to what makes friendships work. A novel dimension of this study, then, was to demonstrate that these two aspects of similarity were differentiated in these different samples of children, and as measured by our assessments of children's perception of friendship potential. The overall finding was that the majority of all children focused on shared interests rather than race or ethnicity. These results indicate that Gaertner and Dovidio's (2000) Common Ingroup Identity Model in which the focus of intervention to reduce prejudice is on the identity that individuals share, could be effective with young children, given that in this study, 6- and 9-year-old children identified shared

interests, such as sports, as a key factor for their perceptions of peer dyad similarity rather than race or ethnicity.

In fact, very few children mentioned skin color when reasoning about similarity and fewer still when reasoning about friendship (less than 3% cited skin color when referring to friendship potential). This finding parallels work in social psychology, which has demonstrated that explicit biases by adults have greatly diminished over 50 years (Dovidio, Kawakami, & Beach, 2001; Gaertner & Dovidio, 2005). Work by Rutland, Cameron, Milne, and McGeorge (2005) on children's self-presentation concerns also informs our finding that children seldom explicitly referred to skin color in their justification, although skin color did factor into their ratings and judgments. Similar to social psychology research with adults, however, a coexistence of judgments exists such that while very few children mentioned skin color, more children held biases, perhaps implicit, regarding the potential for friendship with a member of another ethnic group. Moreover, this bias was related to the degree of intergroup contact. Children in less diverse school environments judged cross-race friendship as less likely than children in more diverse school environments. Future research should examine the relative importance of additional features of friendship in children's decision-making about cross-race relationships.

An additional finding that supports our proposal that intergroup contact increases general inclusiveness is that children from heterogeneous schools were more likely to justify that the two characters could be friends because they could do other activities together. These children did not focus on what the characters did not share, but instead, on what the characters could share together. Also, supporting other work (Killen et al., 2002), we found that girls were more likely than boys to judge friendship as possible and used more inclusive reasoning about friendship. These findings suggest that children's experience with exclusion and diversity influence their decision-making about friendship. Majority children's experience in diverse schools may increase their awareness of discrimination and racial exclusion. Likewise, females and minority children are more likely to have experienced discrimination and exclusion and therefore, be more sensitive to it. Future work should examine more closely the impact of social experience and perceptions of discrimination on children's judgments of friendship.

The findings regarding outgroup homogeneity were complex, and not as straightforward as we predicted. Although European-American children attending homogeneous schools did not attribute greater homogeneity to the Black dyads when compared to the other samples in this study, these children did view the White dyads as less alike than the European-American and non-European-American children attending diverse schools. Moreover, these children were found to attribute greater homogeneity to the Black dyads than to the White dyads (see McGlothlin, 2004). Thus, European-American children in homogeneous school environments focused on variability for their own group and perceived similarity in the outgroup. Minority children focused on the similarities between the cross-race dyads to a greater extent than did majority children attending homogeneous schools. Minority children also did not attribute greater homogeneity to the White dyads than did their European American counterparts. Moreover, Margie et al. (2005) reported no evidence of greater attributions of homogeneity to White dyads than to the Black dyads by this sample. These findings support research with minority adults which has shown that they are less likely than majority adults to display the outgroup homogeneity effect (Simon & Brown, 1987).

In prior studies examining children's similarity ratings, researchers concluded that younger children were more likely to assume homogeneity of the outgroup than were older children (Doyle & Aboud,

1995). The present study extends the prior research by adding new dimensions: intergroup contact and majority/minority status of the child. Rather than positing that similarity ratings are strictly age-related, we propose that intergroup contact and social experience influences these types of judgments as well. In fact, we found very few age-related differences in children's perceptions of similarity. Our findings did not parallel previous ones with respect to younger children attributing more homogeneity to the outgroup. To the contrary, we found that older children were more likely to focus on similarity overall than were younger children. This may be due to inclusion of activity interests in the current design. Further, we sampled a fairly narrow age range (1st and 4th grade children) and future studies with older children (middle and high school) may find more age-related changes. More research is needed to understand how children perceive similarity across development and which factors influence these perceptions.

Although differences were found between the heterogeneous and homogeneous sites in the present study, the method of differentiating between the sites was fairly general. It is important for future work to assess the quantity and quality of intergroup contact. The contact hypothesis specifies that it is not merely the amount of contact that is important, but that the quality of the interaction also matters (Nesdale, 2001; Pettigrew, 1998b; Pettigrew & Tropp, 2005). Pettigrew and Tropp (2005) created a measure of cross-race friendships that was used to examine the quality of intergroup contact across multiple sites and studies. An important next step in this line of research would be to assess children's cross-race and cross-ethnic friendships, both in and outside of the school environment, and to compare this type of social experience with their intergroup attitudes (both implicit and explicit). We hypothesize that a more sensitive measure of contact will yield stronger findings of the importance of social experience in children's intergroup attitudes.

Further, we suggest that the diversity of the school setting should be analyzed on a continuum rather than as a dichotomous variable. In the present analyses, we classified schools as heterogeneous or homogeneous based on school composition. Although there were no differences between the schools within each site on the variables measured, a closer examination of differences between schools may yield stronger relationships between intergroup contact and attitudes. One such difference to note is the ratio of European-American students to ethnic minority students in the heterogeneous schools. Being in the numerical minority has been related to greater intergroup contact experience and to the extent that this contact generalizes to the broader intergroup context (Nesdale & Todd, 1998). European-American students who are in the numerical minority have more opportunities to make contact, including friendships, with outgroup members than European-American students who are in the numerical majority at ethnically diverse schools. Again, assessing children's intergroup contact experience directly will shed additional light on how and when contact with outgroup members influences intergroup attitudes.

In sum, greater intergroup contact experience was related to increased inclusiveness, while a low level of contact was associated with a more negative view of cross-race friendship. The findings on children's perceptions of similarity were informative of how social influence impacts judgments of intergroup and intragroup similarity. Children attending ethnically heterogeneous schools, where there is daily opportunity for intergroup contact, were more likely to focus, overall, on similarities between two characters and not their differences. European-American children in diverse schools settings, however, were more likely to view the outgroup as homogeneous than were European-American children attending ethnically homogeneous schools. Minority children attending diverse schools were more likely to focus on similarity between two characters of different skin colors than were the European-American children from homogeneous school settings. These findings add to a growing literature of work examining the

benefits of intergroup contact for children and adolescents. What makes this study unique is that the findings provide evidence for the effects of intergroup contact on young children's similarity ratings of peer dyads and the friendship potential of cross-race dyads. That is, we documented how intergroup contact influences children's racial attitudes in the context of familiar, everyday peer contexts, such as friendship. This contextual approach complements research that is more decontextualized, such as implicit bias measures which test latency reactions to computer generated images (see Rutland et al., 2005).

Understanding the impact of intergroup contact on children's developing conceptions of similarity and documenting the developmental path of children's conceptions about cross-race friendships are key factors for creating interventions and programs designed to ameliorate intergroup tension and conflict. All children in this study focused on shared interests among same-race and cross-race peer dyads when provided with information about interests, and this finding suggests that the context of children's friendships provides a powerful opportunity to address the common ground that exists among children for the goal of increasing positive intergroup interaction and attitudes.

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