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Interracial contact and racial constancy: A multi-site study of racial intergroup bias in 3–5 year old Anglo-British children

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Abstract

This paper examined the influence of interracial contact and racial constancy on the racial intergroup bias of young Anglo-British children. This multi-site study was conducted in areas of Great Britain that varied in terms of racial diversity. The study also investigated whether preschool children express bias on positive, but not negative, valence attributions. Anglo-British children ($N = 136$) between 3 and 5 years of age with different levels of interracial contact undertook a racial stereotype attribution measure and three tasks to assess racial constancy. Significantly more racial bias was shown towards the African Caribbean-British compared to the Asian-British or Oriental-British racial out-groups. As predicted, only children in racially mixed areas failed to show discrimination in favor of the white in-group on both the positive and negative trait attributions. In addition, higher racial constancy was related significantly to greater racial intergroup bias. These findings suggest that racial intergroup bias amongst 3–5 year old children may be reduced through the promotion of interracial contact, because at this age children are already beginning to develop racial constancy.

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1. Introduction

“Segregation leads to blockages in the communication and interaction between the two [racial] groups. Such blockages tend to increase mutual suspicion, distrust, and hostility” (Brown v. Board of Education, 1954, as cited in [Martin, 1998](#), p. 145).

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The above belief was instrumental in the historic 1954 *Brown v. Board of Education* decision to halt lawful segregation of racial groups in U.S. public schools. This ruling had a significant impact on the nature of U.S. education and the quality of education for African-Americans and other minority groups (Zirkel & Cantor, 2004). It also sent an important message beyond the shores of the United States that racial segregation was damaging and not compatible with racial harmony. Unfortunately, in recent years within cities of the United Kingdom and United States racial segregation has increased (Cantle, 2001; Denham, 2001; Ellis, Wright & Parks, 2004) and some contend that racial communities now lead “parallel lives” in which majority children and those from racial minorities “do not seem to touch at any point, let alone overlap and produce any meaningful exchange” (Ward, 2002). In this article, findings from a multi-site study that examined whether less interracial contact amongst 3–5 year old children is related to greater racial intergroup bias are presented. The study also investigated the relationship between racial constancy and young children’s racial intergroup bias.

The focus of the present research was 3–5 year old children. This early period of childhood is critical in the development of intergroup attitudes. Racial intergroup bias and stereotypes emerge in the early years of childhood (Aboud, 1988; Brown, 1995; Nesdale, 2001) and, with age, children increasingly draw on racial information when perceiving the world and making social judgments (Killen & Stangor, 2001; Ruble, Alvarez, Bachman & Cameron, 2004). Research (Aboud & Amato, 2001; Tatum, 2004) suggests young children do not primarily learn their racial bias and stereotypes from their parents; rather biases are a result of social-cognitive development, and the influences of others from outside the home in the school environment (e.g. peers, teachers). Therefore, the level of interracial contact in the education system could be significantly related to racial attitudes in young children.¹

Contact between members of different groups, under a given set of conditions, reduces existing prejudices according to Allport’s (1954) ‘intergroup contact hypothesis’. Allport’s hypothesis is that prejudice and discrimination are a consequence of unfamiliarity with the out-group. Intergroup contact leads to positive experiences with the out-group and exposes individuals to stereotype disconfirming information, resulting in changes in beliefs, attitudes and behavior towards the out-group (Brewer & Gaertner, 2001). A large body of research suggests that intergroup contact can lead to a reduction in intergroup bias (Pettigrew & Tropp, 2000). Allport (1954) specified the ‘optimal conditions’ under which contact is most likely to be successful. Groups in contact should be equal in status and the contact should be personal and individualized and cooperative in nature. Indeed, research suggests that the effect of contact is stronger in contexts in which Allport’s optimal conditions were met (Brown & Hewstone, 2005; Hamberger & Hewstone 1997).

A number of studies with young children have examined the affect of actual interracial contact in the field (see Aboud & Levy, 1999, for review). The vast majority of these studies have been conducted in North America, with very few known studies examining the relationship between interracial contact and young children’s racial attitudes within the United Kingdom (see Brown, 1995). However, studies in the United Kingdom have found some evidence that intergroup contact may improve children’s attitudes

¹ This study also examined the relationship between children’s moral judgments and racial intergroup attitudes. The children were presented with a vignette describing an incident of racial exclusion. They were asked how ‘right’ or ‘wrong’ was this exclusion and to what degree. 87 % of the children stated that racial exclusion was ‘wrong’ to some degree, though surprisingly 10% of the children rated racial exclusion as ‘very right’. Nonetheless, the children’s moral judgments were not significantly related to their racial intergroup attitudes. Future research examining the relationship between morality and racial intergroup attitudes should also measure children’s *moral reasoning*, by asking them to justify their answer (Killen & Stangor, 2001; Killen et al., 2002).

towards disabled people (e.g. Furnham & Pendred, 1984; Maras & Brown, 1996, 2000). Interracial contact may be a result of specific interventions designed to create intergroup contact, or may be a consequence of changes in school structure or policies, such as racial desegregation, as well as cultural immersion programs and bilingual education. For example, Stephan (1999) conducted a broad review of studies examining racial desegregation in elementary and high schools that concluded the effects of desegregation are dependent on the ethnic group of the child. Subsequent to racial desegregation in schools, Black children's out-group attitudes were more likely to become positive than negative, whereas White children's out-group attitudes were more likely to become negative. However, the majority of studies included in Stephan's meta-analysis were conducted just a few years after desegregation. Therefore the long-term effects of contact cannot be inferred from this review. In contrast, there is evidence that racial desegregation can lead to long-term improvements in intergroup relationships (Stephan & Stephan, 1996). For example, attending a racially desegregated school has been linked to relationships with racial out-group co-workers and willingness to live in racially desegregated communities in later life (Braddock & McPartland, 1989).

A different type of school ethnic desegregation is a bilingual education programme. In their review, Genesee and Gandara (1999) outlined two different types of bilingual education: Dual-Language Education and Immersion. The former is typically found in the United States and involves children whose primary language is the majority language being educated alongside those whose primary language is the minority language. This allows direct contact with out-group members and the opportunity for close intergroup co-operation in the classroom. Research suggests that compared to children in mono-language English schools, those attending dual-language schools are less prejudicial towards groups that speak another language (Cazabon, 1999). In contrast, the Canadian Language immersion programmes tend to be exclusively aimed at members of the ethno-linguistic majority (i.e., English-speaking Canadians). Though the children do not have direct contact with members of the linguistic out-group, they have vicarious contact with the out-group because they are taught in the minority language (i.e., French) and are immersed in French Canadian culture. Children who experienced these immersion programmes engaged in more intergroup contact (Genesee & Gandara, 1999) and were more positive towards French Canadians compared to non-immersion students (Lambert & Tucker, 1972).

The present study investigated whether children from kindergartens of differing ethnicity mix showed variations in their racial intergroup bias. Children from kindergartens were tested from across the United Kingdom and, therefore, the sample included children with varying degrees of interracial contact. In accordance with Allport's 'intergroup contact hypothesis', it was predicted that children would show less racial intergroup bias the more racially mixed their kindergarten. Specifically, it was anticipated that only children from racially mixed kindergartens, who should experience most interracial contact, would show the least racial intergroup bias. However there may be other important factors, apart from interracial contact, in the development of racial intergroup bias in young children.

According to social-cognitive theories, variations in children's perceptions of social categories reflect differences in cognitive development (e.g. Aboud, 1988; Kohlberg, 1969). These theories contend that children's social understanding reaches a new level when they realize a social category is not changeable, namely it has constancy (Kohlberg, 1966). Research suggests children begin to develop gender and racial constancy from 3 to 4 years of age and the majority have this understanding by 7 years (Rhee & Ruble, 1997; Ruble et al., 2004). According to Ruble et al. (2004) there are three components in children's understanding the immutability of social category membership: (1) correct *identification* of one's own category membership; (2) understanding that category memberships remains *stable* over time;

and (3) realization that category membership is *consistent* across superficial transformations in appearance or context. Therefore, the present study measured children's racial constancy through tasks that examined racial identification, stability and consistency amongst 3–5 year old white British children. Social-cognitive theory contends that once children obtain racial constancy they are motivated to seek out information about appropriate behavior for their group (i.e., stereotypes) and to behave in line with their group membership (Bernal, Knight, Garza, Ocampo & Cota, 1990; Ocampo, Bernal & Knight, 1993; Semaja, 1980; Stangor & Ruble, 1987). Indeed, the emergence of racial constancy does seem to parallel the onset of racial in-group bias (Ruble et al., 2004). However, little known research has examined how the achievement of racial constancy might be related to greater racial intergroup bias. Thus the present research investigated whether children with high levels of racial constancy were likely to show significantly greater racial intergroup bias.

The present study used a stereotype attribution task to measure racial intergroup bias (Aboud, 2003; Rutland, Cameron, Milne & McGeorge, 2005). This allowed for an examination of the *positive* vs. *negative* valence of the evaluative dimension (Mummendey & Otten, 1998), which has been relatively ignored in previous research on children's intergroup attitudes. Several studies have noted that children are sometimes more willing to differentiate between groups on positive attributes and much less reliably show intergroup discrimination on negative attributes (e.g., Bennett et al., 2004; Bennett, Lyons, Sani & Barrett, 1998; Bigler, Jones & Lobliner, 1997; Bigler, Brown & Markell, 2001). This phenomenon has been termed the 'positive–negative asymmetry effect' (PNA effect: Mummendey & Otten, 1998; Mummendey et al., 1992; Otten, Mummendey & Blanz, 1996). However, studies that have noted the PNA effect typically involved children aged 6 years and above. To our knowledge, no study has examined whether the PNA effect is evident amongst preschool children aged between 3 and 5 years.

Research suggests there are several reasons why preschool children should not demonstrate the PNA effect. First, preschool children are less likely to react to social constraints against displaying explicitly negative racial bias. This is because young children have less advanced awareness of what is normative when engaging in social reasoning about inclusion and exclusion (Abrams, Rutland & Cameron, 2003; Abrams, Rutland, Cameron & Marques, 2003; Rutland et al., 2005) combined with an inability to *spontaneously* engage in self-presentation (Aloise-Young, 1993; Bennett & Yeeles, 1990). These features of preschool children mean they are less likely to react to social constraints against displaying explicitly negative racial bias. Second, adult research suggests that when participants are asked to show negative intergroup attitudes they recategorize the situation into "us" (i.e., "participants", whether belonging to the 'in-group' or 'out-group') and "them" (i.e., "researchers" who are asking us to be explicitly negative) and this should reduce intergroup bias in the negative area (Gaertner & Dovidio, 2000; Gardham & Brown, 2001; Mummendey & Otten, 1998). However, developmental research indicates that the social-cognitive ability of young children to engage in multiple classifications is poor (Barenboim, 1981; Doyle & Aboud, 1995). Thus they, unlike adults, are less likely to engage in recategorization when invited to show negative intergroup attitudes. Therefore, given these two reasons, it was predicted that our preschool children would not show the PNA effect when attributing positive and negative stereotype traits to racial groups.

In summary, preschool white British children with higher levels of interracial contact should show the least racial intergroup bias. This prediction is based upon Allport's (1954) 'intergroup contact' hypothesis and a body of research that suggests intergroup contact improves children's intergroup

attitudes (e.g., Genesse & Gandara, 1999; Stephan & Stephan, 1996). Social-cognitive theories predict that children's racial intergroup attitudes would also reflect differences in their racial constancy (Kohlberg, 1969; Ruble et al., 2004). It was anticipated that the children showing high levels of racial constancy would also demonstrate high racial intergroup bias. Finally, it was predicted that 3–5 year old children would not show evidence of the PNA effect given their relatively poor normative awareness, self-presentation concerns and recategorization abilities.

2. Method

2.1. Participants

One hundred and thirty-six Anglo-British children (75 females and 61 males) aged from 3 years 2 months to 5 years 10 months ($M = 4$ years, 8 months; $SD = 6.07$ months) were tested. The children attended seven different kindergartens in Great Britain; with three from the south-east region of England, two from the midlands of England and two from the north of England. These kindergartens were each aware of and implemented UK Government standards of day care for children under 8 years (Department for Education and Skills, 2003), which specify that equal opportunities and anti-discriminatory behavior should be actively promoted by all staff. The children attended three types of kindergartens that varied in terms of their interracial contact. First, some children came from three 'all white' kindergartens (scored 1) based in predominately rural areas that only included Anglo-British children ($n = 63$, 28 boys and 35 girls, $M = 4$ years, 6 months; $SD = 4.46$ months). Second, other children attended one 'majority white' kindergarten (scored 2) in an urban area included a majority of Anglo-British children with a small minority (10%) of children from racial minorities ($n = 45$, 17 boys and 28 girls, $M = 5$ years, 1 month; $SD = 5.44$ months). Finally, some children originated from three racially 'mixed' kindergartens (scored 3), with two in an urban area and one in a semi-rural area in which at least 50% of the students were from a racial minority ($n = 28$, 17 boys and 11 girls, $M = 4$ years, 4 months; $SD = 3.90$ months). The majority of the racial minority children in the 'majority white' and 'mixed' kindergartens were African Caribbean-British. The children all lived in predominately mixed socio-economic areas.

2.2. Procedure

Researchers individually interviewed participants for approximately 15 min. There were two components to the interview schedule, administered in a counterbalanced order. First, the children's understanding of racial constancy (i.e., racial identity, racial stability and racial consistency) was assessed using a measure based upon Kohlberg's (1966) conception of gender constancy (see Ruble et al., 2004). Second, a stereotype trait evaluation task was included to measure the children's attitudes to their own racial group and three racial outgroups (Aboud, 2003; Doyle & Aboud, 1995). The racial outgroups were African-Caribbean (or Afro-Caribbean), Indian-Asian (i.e., targets from racial groups typical of the Indian subcontinent, e.g., India and Pakistan) and Far East-Asian (i.e., targets from racial groups characteristic of China and Japan). These groups were selected because they represent the most common racial minority populations within Great Britain. Therefore, the children were expected to be relatively familiar with these racial groups.

The interviews involved the use of photographs of both children and adults. The children were presented with photographs of four smiling children each belonging to a different ethnic group: Anglo-British, African-Caribbean, Asian-Indian, Far-East Asian. These photographs were obtained from and with the consent of a modeling agency, and therefore showed children considered highly physically attractive. In addition, the children were presented with photographs of four smiling adults each belonging to a different ethnic group: Anglo-British, African-Caribbean, Asian-Indian, Far-East Asian. Pilot work was conducted with a group of university students ($n = 125$) to ensure that the photographs of both children and adults were perceived as equally physically attractive.

2.2.1. *Racial constancy*

The three racial constancy components (racial identity, stability and consistency) were each measured using a single question. First, the children were shown the photographs of four children. There were two versions of this measure, one for boys with male photographs and one for girls with female photographs. Once the child's attention was focused on the four photographs they were asked the racial identity question: "Which one are you like?" The children could point to one photograph only. Then the children were asked the racial consistency question: "If you went on holiday to a really hot place and got a suntan and your skin turned dark, which of these children would you REALLY be like?" Again the children gave their answer by pointing to one of the 4 photographs. Very few of the children had difficulty understanding what a suntan is, and if they did, it was very briefly explained to them that it is when your skin goes darker for awhile after being in the sunshine.

Next, the children were shown the four photographs of adults and asked the racial stability question: "When you grow up, which one will YOU be like?" The children gave their answer by pointing to one of the 4 adult photographs. The children's responses to the three questions were scored correct (1) or incorrect (0), and then added together to form a composite score. The children's understanding of racial constancy was better the higher the composite score. Twenty-six children scored 0 (21%), 47 scored 1 (38%), 42 scored 2 (34%) and 8 scored 3 (7%).

2.2.2. *Stereotype trait evaluation task*

The Multiple-Response Racial Attitude (MRA) measure was used to derive a measure of racial intergroup bias (Aboud, 2003; Doyle & Aboud, 1995). The children were presented with 12 adjectives (six positive and six negative) and the same four photographs of children used in the racial constancy tasks in a counterbalanced order. The adjectives were either chosen after a small sample of 4–5 year old children underwent an open-ended interview about their racial intergroup attitudes or taken from the Preschool Racial Attitude Measure II (Pram II) Series A (Williams, Best, Boswell, Mattson & Graves, 1975). The positive adjectives were: 'friendly', 'kind', 'helpful', 'smart', 'hardworking', and 'clever'. The negative adjectives were: 'mean', 'stupid', 'nasty', 'rude', 'lazy', and 'slow'. Initially, children were presented with four copies of each word on a sticky piece of card. The children were explicitly told they could stick the word next to one, two, three, all or no photographs. To ensure the children understood the meaning of each word they were given a corresponding definition. For instance, one item read, "Some children are friendly. They often share their toys with other children. Who is friendly? Is it the Black child, the White child, the Asian child, the Oriental child or more than one child who is friendly? Or even no child?" To ensure understanding of the task, initially each child

was asked to practice assigning adjectives by attributing four non-evaluative items to each of the categories (Black-Gutman & Hickson, 1996). These items were ‘likes to run’, ‘likes to sing’, ‘likes TV’ and ‘likes music’.

The number of adjectives assigned to each photograph was computed. Eight scores were calculated; a positive and a negative trait score for each racial group, each with a possible range of 0–6. The higher the scores on positive traits and the higher the scores on negative traits, the more positive and negative the child’s ratings were, respectively. Relative positive stereotype bias scores were computed by subtracting the out-group positive stereotype ratings from the in-group positive stereotype ratings. Thus, the higher the score the more positive bias the children showed towards the in-group relative to each out-group. A relative negative stereotype score was also calculated by subtracting the in-group negative stereotype rating from the out-group negative stereotype ratings. In this case, the higher the score the more negative bias the children showed towards the out-groups relative to the in-group. Finally, summing the relative positive and negative stereotype scores created an overall racial intergroup bias measure. The higher the intergroup stereotype bias score the more the children showed racial bias towards the in-group compared to the out-groups in their positive and negative stereotype evaluations.

2.3. Data analysis

The analyses conducted involved only one between-participants factor, racial mix or racial constancy. Thus problems created by unequal numbers in the interracial contact conditions or racial constancy groups are relatively minor (Howell, 2002; Tabachnick & Fidell, 1996). Heterogeneity of variance and unequal sample sizes do not mix. If the group with the smaller n has a larger variance, the F test is too liberal, leading to increased Type 1 error rate and an inflated alpha level. Therefore, the degree of variance was checked in all ANOVA analyses. In none of the analyses did the smallest group have a larger SD . In addition, for each analysis the Levene test of equality of error variances was calculated (Howell, 2002). These Levene tests all proved nonsignificant indicating there was homogeneity of variance between groups. Therefore, the ANOVA assumption of homogeneity of variance was not violated in any of the analyses.

3. Results

3.1. Racial intergroup bias

To investigate variations in bias between the three racial out-groups the children’s intergroup stereotype bias scores were subjected to a within-participants ANOVA with three levels of racial out-groups (African-Caribbean, Asian-Indian, Far-East Asian). This ANOVA revealed a main effect for Out-group, $F(2,266) = 9.09$, $p < .001$, $\eta^2 = .06$, power = .97. Pair-wise comparisons showed that the African-Caribbean stereotype bias score ($M = 1.67$, $SD = 3.98$) was significantly higher than both the Asian-Indian ($M = .37$, $SD = 3.81$, $p < .05$) and Far-East Asian scores ($M = .91$, $SD = 2.92$, $p < .05$). A series of one-sample t -tests showed that only scores for the African-Caribbean, $t(133) = 4.86$, $p < .001$, and Far-East Asian, $t(133) = 3.61$, $p < .001$, racial out-groups were significantly higher than the neutral point of 0. These findings indicate that racial intergroup bias was strongest towards the African-

Caribbean out-group. Therefore, the remainder of the analyses focused on factors that influenced the degree of racial intergroup bias shown towards the African-Caribbean out-group.²

3.2. Interracial contact

The children's positive and negative stereotype bias scores were submitted to a 3 (Interracial contact: all white, majority white, mixed) \times 2 (Group: White, Black) \times 2 (Valence: positive, negative) ANOVA, with the last two factors manipulated within-participants. This ANOVA revealed main effects for Valence, $F(1, 131) = 20.39, p < .001, \eta^2 = .15$, power = 1.00, and a Valence \times Group interaction, $F(1, 131) = 20.39, p < .001, \eta^2 = .15$, power = .99. The Valence main effect showed the children attributed more positive ($M = 4.07, SD = 1.87$) than negative traits ($M = 3.19, SD = 2.17$). The two-way interaction demonstrated that whereas the children attributed significantly more positive traits to the in-group than to the out-group, $t(133) = 4.80, p < .001$, they attributed significantly more negative traits to the out-group than to the in-group, $t(133) = -3.68, p < .001$. This indicates the children were not showing the positive-negative asymmetry effect. However, these effects were qualified by a significant 3-way interaction, Valence \times Group \times Interracial contact, $F(2, 131) = 3.70, p < .05, \eta^2 = .05$, power = .67.

To examine this interaction further the responses of the children from each interracial contact group were submitted to a 2 (Group: White vs. Black) \times 2 (Valence: positive and negative) within-participants ANOVA. The ANOVA on children from an 'all white' contact group showed a main effect for Valence, $F(1, 60) = 9.98, p < .01, \eta^2 = .14$, power = .87, indicating the children attributed significantly more positive ($M = 4.48, SD = 1.78$) than negative traits ($M = 3.66, SD = 2.15$). This effect was qualified by a

² A full analysis was also conducted on the children's attitudes towards the Far-East Asian out-group. The children's attitudes submitted to a 3 (Interracial contact: all white, majority white, mixed) \times 2 (Group: White, Far-East Asian) \times 2 (Valence: positive, negative) ANOVA, with the last two variables manipulated within-participants. This ANOVA showed a main effect for Valence [$F(1, 131) = 34.06, p < .001, \eta^2 = .21$, power = 1.00] and a Valence \times Group interaction [$F(1, 131) = 26.04, p < .001, \eta^2 = .09$, power = .93]. There were no other main effects or interactions. The Valence main effect showed the children attributed more positive ($M = 4.15, SD = 1.91$) than negative traits ($M = 2.93, SD = 2.19$). The 2-way interaction indicated that while the children attributed significantly more positive traits to the in-group [$M = 4.60, SD = 1.78$] than out-group ($M = 4.00, SD = 2.03; t(133) = 4.19, p < .001$) they, by comparison, attributed marginally more negative traits to the out-group ($M = 3.22, SD = 2.14$) than the in-group [$M = 2.90, SD = 2.24; t(133) = -1.68, p = .09$]. These findings suggest that the children's attitudes towards the Far-East Asian group were unrelated to level of interracial contact and the children were not showing the positive-negative asymmetry effect. The children's positive and negative stereotype bias scores were also submitted to a 4 (Racial constancy score: 0, 1, 2, 3) \times 2 (Group: White, Far-East Asian) \times 2 (Valence: positive, negative) ANOVA, with the last two variables manipulated with-participants. This ANOVA revealed a 2-way interaction between Racial constancy and Valence, $F(3, 119) = 4.86, p < .01, \eta^2 = .11$, power = .90, that was superseded by a 3-way interaction between Racial constancy, Valence and Group, $F(3, 199) = 3.08, p < .05, \eta^2 = .07$, power = .71. To examine this interaction further the responses of the children with each racial constancy score were submitted to a 2 (Group: White, Far-East Asian) \times 2 (Valence: positive, negative) within-participants ANOVA. The ANOVAs on children who scored 0 and 1 showed no main effects or interactions. In contrast, the ANOVA involving children who scored 2 revealed a main effect for Valence, $F(1, 41) = 29.19, p < .001, \eta^2 = .42$, power = 1.00, indicating the children attributed significantly more positive ($M = 4.49, SD = 1.88$) than negative traits ($M = 2.55, SD = 2.21$). However, this ANOVA also showed a significant Valence \times Group interaction, $F(1, 41) = 10.19, p < .01, \eta^2 = .20$, power = .88. Simple main effects within Valence revealed that the in-group ($M = 4.88, SD = 1.71$) was significantly favored over the out-group ($M = 4.10, SD = 2.05$) in positive attributions, $t(41) = 3.42, p < .001$, and the out-group ($M = 2.88, SD = 2.20$) was significantly favored over the in-group ($M = 2.21, SD = 2.21$) in negative attributions, $t(41) = -2.22, p < .05$. The ANOVA with children who scored 3 also resulted in a significant interaction between Valence and Group, $F(1, 7) = 7.61, p < .05, \eta^2 = .52$, power = .66. However, simple main effects within Valence showed no significant differences between the children's positive and negative attributions to the in-group and out-group. These findings suggest that the children's racial constancy scores were related to their attitudes towards the Far-East Asian out-group.

Valence \times Group interaction, $F(1, 60) = 8.35, p < .01, \eta^2 = .12, \text{power} = .81$. Simple main effects within Valence revealed that the in-group was significantly favored over the out-group in positive attributions, $t(60) = 2.98, p < .01$, and the out-group was marginally favored over the in-group in negative attributions, $t(60) = -1.85, p = .07$. This is clear from the means for the ‘all white’ interracial contact sample presented in the top row of Table 1. The ANOVA on ‘majority white’ children also revealed a main effect for Valence, $F(1, 44) = 5.69, p < .05, \eta^2 = .12, \text{power} = .65$, indicating the children attributed significantly more positive ($M = 4.07, SD = 2.07$) than negative traits ($M = 3.24, SD = 2.20$). This effect was again qualified by a significant Valence \times Group interaction effect, $F(1, 44) = 14.21, p < .001, \eta^2 = .24, \text{power} = .96$. Simple main effects within Valence revealed that the in-group was significantly favored over the out-group in positive attributions, $t(44) = 3.72, p < .01$, and the out-group was significantly favored over the in-group in negative attributions, $t(44) = -3.07, p < .01$. This is evident in the means for the ‘majority white’ interracial contact group presented in Table 1. In contrast, the ANOVA on children in ‘mixed’ contact groups showed only a main effect for valence, $F(1, 27) = 12.19, p < .01, \eta^2 = .31, \text{power} = .92$, demonstrating the children attributed significantly more positive ($M = 3.68, SD = 1.55$) than negative traits ($M = 2.66, SD = 2.02$). There was no significant differentiation between in-group and out-group in either the positive, $t(27) = 1.11, p > .05$, or negative attributions, $t(27) = -1.10, p > .05$, for children in the ‘mixed’ contact groups. Table 1 shows that significant differentiation between in-group and out-group on positive and negative traits was *only* evident amongst children from the ‘all white’ and ‘majority white’ groups.

3.3. Racial constancy

Next the effect of racial constancy understanding on the children racial intergroup attitudes was investigated. The children’s positive and negative stereotype bias scores were submitted to a 4 (Racial constancy score: 0, 1, 2, 3) \times 2 (Group: White, Black) \times 2 (Valence: positive, negative) ANOVA, with Group and Valence as within-participants factors. This ANOVA revealed a main effect for Valence, $F(1, 119) = 15.27, p < .001, \eta^2 = .11, \text{power} = .97$, and a Valence \times Group interaction, $F(1, 119) = 25.01, p < .001, \eta^2 = .17, \text{power} = 1.00$. However, these effects were qualified by a significant 3-way Valence \times Group \times Racial constancy interaction, $F(3, 119) = 5.12, p < .01, \eta^2 = .11, \text{power} = .91$.

Table 1

Mean (and *SD*) stereotype trait attribution scores for each interracial contact group as a function of valence and in/out-group

Interracial contact	Valence and in/out-group			
	Positive		Negative	
	In-group	Out-group	In-group	Out-group
‘All white’	4.82 (1.60) <i>n</i> = 61	4.13 (1.95) <i>n</i> = 61	3.41 (2.27) <i>n</i> = 61	3.92 (2.02) <i>n</i> = 61
‘Majority white’	4.78 (2.02) <i>n</i> = 45	3.36 (2.13) <i>n</i> = 45	2.49 (2.26) <i>n</i> = 45	4.00 (2.14) <i>n</i> = 45
‘Mixed’	3.82 (1.56) <i>n</i> = 28	3.54 (1.55) <i>n</i> = 28	2.46 (1.99) <i>n</i> = 28	2.86 (2.05) <i>n</i> = 28
Total	4.60 (1.78)	3.75 (1.96)	2.90 (2.24)	3.72 (2.10)

Note. Positive stereotype trait attribution scores could range from 0 (very unfavorable) to 6 (very favorable). Negative stereotype trait attribution scores could range from 0 (very favorable) to 6 (very unfavorable).

Table 2

Mean (and *SD*) stereotype trait attribution scores for each racial constancy score group as a function of valence and in/out-group

Racial constancy score	Valence and in/out-group			
	Positive		Negative	
	In-group	Out-group	In-group	Out-group
'0'	4.27 (1.79) <i>n</i> = 26	4.00 (1.77) <i>n</i> = 26	3.65 (2.37) <i>n</i> = 26	3.65 (2.37) <i>n</i> = 26
'1'	4.32 (1.88) <i>n</i> = 47	3.83 (1.89) <i>n</i> = 47	3.72 (1.90) <i>n</i> = 47	3.72 (1.90) <i>n</i> = 47
'2'	4.88 (1.71) <i>n</i> = 42	3.60 (2.08) <i>n</i> = 42	2.21 (2.21) <i>n</i> = 42	3.81 (2.16) <i>n</i> = 42
'3'	5.38 (1.82) <i>n</i> = 8	3.25 (2.25) <i>n</i> = 8	1.63 (2.13) <i>n</i> = 8	4.25 (1.98) <i>n</i> = 8
Total	4.57 (1.82)	3.75 (1.94)	2.94 (2.23)	3.77 (2.08)

Note. Positive stereotype trait attribution scores could range from 0 (very unfavorable) to 6 (very favorable). Negative stereotype trait attribution scores could range from 0 (very favorable) to 6 (very unfavorable).

To examine this interaction further, the responses of the children with each racial constancy score were submitted to a 2 (Group: White, Black) \times 2 (Valence: positive, negative) within-participants ANOVA. The ANOVAs on trait scores of children in the two lower racial constancy groups (i.e., who scored 0 and 1) revealed no main effects or interactions. In contrast, the ANOVA involving children who showed greater racial constancy, scoring 2 on the racial consistency and stability questions, showed a main effect for Valence, $F(1,41) = 13.66$, $p < .001$, $\eta^2 = .25$, power = .95, indicating these children attributed significantly more positive ($M = 4.24$, $SD = 1.90$) than negative traits ($M = 3.01$, $SD = 2.19$). However, this ANOVA also showed a significant Valence \times Group interaction, $F(1,41) = 22.39$, $p < .001$, $\eta^2 = .35$, power = 1.00. Tests of simple main effects within Valence revealed that the in-group was significantly favored over the out-group in positive attributions, $t(41) = 3.85$, $p < .001$, and the out-group was significantly favored over the in-group in negative attributions, $t(41) = -2.46$, $p < .001$. This is shown in the mean stereotype trait attribution scores presented in Table 2 for the children who scored a 2 on the racial constancy measure. The ANOVA with children who scored 3 on the racial constancy measure also found a significant interaction between Valence and Group, $F(1,7) = 7.82$, $p < .05$, $\eta^2 = .53$, power = .67. Again, simple main effects within Valence showed that the in-group was significantly favored over the out-group in positive attribution, $t(7) = 2.61$, $p < .05$, whereas the out-group was significantly favored over the in-group in negative attributions, $t(7) = -2.46$, $p < .05$. The means presented in Table 2 demonstrate that significant differentiation between in-group and out-group on positive and negative traits was *only* evident amongst children who scored 2 or 3 on the racial constancy tasks. Thus only these high scoring children showed evidence of significant racial intergroup bias.

4. Discussion

The findings of this study indicated that interracial contact and racial constancy were significantly related to preschool children's racial intergroup attitudes. However, naturally, with a correlational design it is difficult to infer any degree of causality from our results. Nevertheless, the present study is the first in the United Kingdom to show a significant link between interracial contact and Anglo-British

children's attitudes toward the African-Caribbean out-group. This original finding may have significant implications, which are discussed in due course. This study also revealed that 3–5 year old children did not show the positive–negative asymmetry effect (Mummendey & Otten, 1998), because they differentiated between the in-group and out-group on *both* positive and negative trait attributions. It should be noted, however, that the Anglo-British children showed the most racial intergroup bias towards the African-Caribbean racial group. Significantly less intergroup bias was shown towards the Asian-Indian and Far-East Asian racial groups. This indicates that some caution should be taken when suggesting that young Anglo-European children show racial bias towards all racial minority groups.

Anglo-British children within the 'all white' and 'majority white' kindergartens, who probably experienced low levels of interracial contact, showed discrimination in favor of the white in-group over the African-Caribbean out-group on both the positive and negative trait attributions. Importantly, this was not true for Anglo-British children from racially mixed contexts in which they would have most likely experienced a high level of interracial contact with the African-Caribbean out-group. Interestingly, the findings suggest the children from racially mixed schools were both less positive about their in-group and less negative about the African-Caribbean out-group. This finding is compatible with previous research that has shown intergroup contact is related to more positive out-group attitudes (Furnham & Pendred, 1984; Genesee & Gandara, 1999; Maras & Brown, 1996, 2000; Stephan 1999; Stephan & Stephan, 1996). It also provides some support for Allport's 'intergroup contact' hypothesis that suggests interracial contact between majority and minority racial groups is connected to positive relationships and challenges individuals' biased stereotypes.

It was not possible within this study to investigate whether all of Allport's (1954) optimal conditions for intergroup contact were realized (Brown, 1995). However, social and institutional support for interracial contact were evident in each of the kindergartens because they were all aware of and act on UK Government standards of day care for children under 8 years, which promoted equal opportunities and anti-discriminatory behavior amongst children. Thus interracial contact within our schools should have had institutional support. It was harder to determine whether Allport's other optimal conditions existed, because insufficient information was available from the schools or the children to determine whether interracial contact was frequent, lengthy, personal in nature, cooperative and existed in a context of equal status between groups. Future more extensive research should examine the relative importance of Allport's optimal conditions for successful interracial contact. Nonetheless, our findings indicate that the historic 1954 *Brown v. Board of Education* decision, based upon the belief that racial desegregation is related to mutual respect between groups, is still relevant today. Moreover, they suggest there may be positive benefits for intergroup relations if multi-racial rather than mono-racial environments were promoted within the education system (Zirkel & Cantor, 2004).

Social-cognitive theories (e.g., Aboud, 1988; Kohlberg, 1969) also found some support from the finding that children's level of racial constancy was related to their racial intergroup bias. Amongst the children high racial identification, stability and consistency were linked to high racial intergroup bias towards the African-Caribbean and Far-East Asian out-groups. Furthermore, a significant percentage of our preschool children showed evidence of racial constancy, with 41% scoring 2 or 3 on the racial constancy tasks. Indeed, this 41% of the children compared to the others showed significantly more differentiation between the in-group and the out-group on both positive and negative trait attributions. This finding is congruent with the notion that the onset of racial constancy may encourage children to actively search for stereotypical information about racial groups and behave in a manner that confer advantages to their in-group. However, the correlational design of the present study means one cannot infer that the development

of racial constancy will inevitably lead to racial intergroup bias. Future research could explore this issue further by investigating whether the development of constancy generally (i.e., through the inclusion of a measure of gender constancy too) is also related to children showing stereotypical evaluations of racial groups. Interestingly, the level of racial constancy in the young children in the present study is consistent with some previous research indicating the parallel development gender and racial constancy between 3 and 7 years of age (Rhee & Ruble, 1997; Ruble et al., 2004).

The results of this study have implications for attempts to reduce or eliminate young Anglo-British children's intergroup bias towards the African-Caribbean out-group. Our research suggests interventions may be introduced early in childhood during the preschool years, because children at this age are already showing evidence of racial constancy and may show negative intergroup bias. Thus, these young children could develop racial intergroup bias unless interventions are introduced to promote positive intergroup relations between racial groups. Interventions certainly exist to reduce racial intergroup bias in young children, though their success has been rather mixed (Aboud & Levy, 2000; Aboud & Fenwick, 1999; Bigler, 1999). Indeed, some researchers have argued the failure to design effective intervention programs is due in a large part to the fact that theoretical frameworks are often sidelined in the development of intervention strategies (see critical review: Bigler, 1999; Stephan, 1999; Vrij & Smith, 1991).

There exist some interventions based upon a sound theoretical framework that are known to reduce racial intergroup bias in young children. For example, a recent study (Cameron, Rutland & Brown, 2004) has successfully evaluated the effectiveness of a new hypothesis for improving young children's ethnic attitudes derived from the intergroup contact theory (Allport, 1954; Pettigrew & Tropp, 2000). This is the 'extended contact effect' (Wright, Aron, McLaughlin-Volpe, & Ropp, 1997), which suggests that reduced bias might result from 'vicarious' experiences of friendship, that is, knowledge of in-group members being friends with out-group members. There are several advantages to using 'extended contact' rather than 'direct contact' when attempting to reduce intergroup bias. Extended contact allows participants to experience contact while avoiding any anxiety or negative feeling, which may be caused by direct contact (Paolini, Hewstone, Cairns & Voci, 2004; Pettigrew & Tropp, 2000; Stephan & Stephan, 1985). It is also advantageous practically because the number of racial minority group members available for direct contact may be small.

The lack of a positive–negative asymmetry effect amongst the 3–5 year children is both a novel and informative finding. To our knowledge, previous research has not shown that the PNA effect is absent amongst preschool children. Studies have only shown that the PNA effect develops from approximately 6 years of age (Bennett et al., 2004, 1998; Bigler et al., 1997). The implication of this finding may be that interventions with young children should emphasize changing negative out-group evaluations, because this age group seems prone to expressions of bias in the negative evaluative domain. Nevertheless interventions should also target bias based on positive evaluations, though these interventions might be more effective amongst older children (Rutland, Brown, Ahmavaara, Arnold & Samson, 2003). Prejudice reduction strategies based upon intergroup contact (Allport, 1954; Pettigrew & Tropp, 2000) may provide one approach, given they provide opportunities for personal experience to change negative out-group evaluations (Aboud, 2003; Cameron, Rutland, & Brown, 2004; Schofield & Eurich-Fulcer, 2001).

In conclusion, the present study showed interracial contact and racial constancy are both linked significantly to the levels of racial intergroup bias shown by 3–5 year old Anglo-British children. These findings provide some support for the Allport's (1954) 'intergroup contact' hypothesis and social-cognitive theories (e.g., Aboud, 1988; Kohlberg, 1969; Ruble et al., 2004) that emphasize the importance of racial concept development in the onset of intergroup bias. Practically this study suggests

that interracial contact may be effective amongst preschool Anglo-British children, because at this age they are already developing racial constancy and may show racial intergroup bias. The non-existence of the PNA effect in our young white children also suggests interventions may need a particular focus on reducing preschool children's negative evaluations of racial out-groups. Finally, we wish to emphasize that our research findings provide some support for the Supreme Court contention in the *Brown v. Board of Education* landmark case of 1954 that racial segregation encourages racial intergroup bias in young white children and that interracial contact is necessary for racial integration within a wider society.

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