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What is This?

*Article*

# When and why does extended contact work? The role of high quality direct contact and group norms in the development of positive ethnic intergroup attitudes amongst children

**Lindsey Cameron,[1] Adam Rutland,[1]**
**Rosa Hossain,[1] and Rebecca Petley[1]**

## Abstract

This research examines quasi-experimentally for the first time whether direct contact moderates the extended contact effect amongst children, and whether the extended contact effect is mediated by either in-group or out-group norms about cross-ethnic friendships. We tested two forms of extended contact (Dual identity and Common in-group identity) among ethnic majority children aged 6–11 years (white–English, $n$ = 153) with differing levels of high quality (i.e., cross-ethnic friendships) or low quality (i.e., acquaintances) direct contact with the Indian–English out-group. As expected, the extended contact effect was demonstrated only amongst children who reported less high quality direct contact. Furthermore, we found the effect of extended contact was mediated by out-group norms. We also found evidence of moderated mediation, with the indirect effect of extended contact through in-group norms being significantly stronger amongst older children. The implications for extended contact theory and the future development of prejudice-reduction interventions amongst children are discussed.

The "extended inter-group contact hypothesis" is derived from the contact hypothesis (Allport, 1954) and is based on the idea that merely being aware of intergroup friendships between a member of one's own group and another group can also improve intergroup attitudes (Wright, Aron,

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McLaughlin-Volpe, & Ropp, 1997). There is now evidence to support this hypothesis amongst adults (e.g., Turner, Hewstone, Voci, Paolini, & Christ, 2007; Turner, Hewstone, Voci, & Vonofakou, 2008), adolescents (e.g., De Tezanos-Pinto, Bratt, & Brown, 2010; Turner, et al., 2008) and young children (e.g., Cameron, Rutland, Brown, & Douch, 2006; Feddes, Noack, & Rutland, 2009; Turner, Voci, & Hewstone, 2007). However, while we know extended contact can promote positive attitudes in children, little is known about the conditions that facilitate effective extended contact amongst children (i.e., "when does it work?") and what factors underlie effective extended contact in childhood (i.e., "why does it work?").

The present field research will examine in a real-world context when and why extended contact promotes positive attitudes towards an ethnic minority group amongst ethnic majority children. In particular, this study makes a novel contribution to the literature by examining quasi-experimentally, whether different types of direct contact moderate the extended contact effect amongst children, and whether in childhood the relationship between extended contact and more positive ethnic attitudes is mediated by either in-group or out-group norms about cross-ethnic friendships.

In a series of studies, Cameron and colleagues (Cameron & Rutland, 2006; Cameron, Rutland, & Brown, 2007; Cameron, et al., 2006) developed an "extended contact" prejudice-reduction intervention for use in schools. These interventions exposed children to intergroup friendships through reading, together with a researcher, illustrated stories, that portray friendships between in-group and out-group members (e.g., white–English children and non-white refugee children). Cameron and colleagues showed this technique was effective in promoting more positive out-group attitudes. However, these studies have typically been undertaken in ethnically homogeneous elementary schools, so making it difficult to evaluate the relative value of direct or extended contact or any interactive relationship between these two different forms of intergroup contact.

## Extended contact and direct contact amongst children

Previous research with adults suggests direct contact typically has a stronger significant relationship with positive out-group attitudes than extended contact (e.g., Paolini, Hewstone, & Cairns, 2007; Paolini, Hewstone, Cairns, & Voci, 2004). A recent longitudinal study did sample children from an ethnically diverse community in Germany, and therefore, was able to examine together the relative effect of direct and extended contact on ethnic attitudes (Feddes, et al., 2009). Feddes and colleagues asked German and Turkish (living in Germany) children who were their best friends and how many friends of these best friends were German or Turkish, to measure direct and extended contact respectively. They found that direct contact but not extended contact amongst German children predicted over time positive out-group ethnic attitudes.

This research suggests that direct contact is more effective at changing children's ethnic attitudes than extended contact. Nonetheless, no study to our knowledge has tested quasi-experimentally amongst children whether direct contact interacts with extended contact, in particular, whether induced extended contact is effective irrespective of children's level of direct contact. The findings of Feddes and colleagues (2009) suggest it is questionable whether children in settings where they have greater direct contact with members of the ethnic out-group would benefit from an extended contact intervention. This would be true particularly if Allport's (1954) optimal condition for contact have been met and children have a high level of quality direct contact involving cross-ethnic friendships (Aboud & Sankar, 2007). This is because the effects of high quality direct contact are thought to supersede that of indirect contact, meaning that the additive effects of extended contact on intergroup attitudes beyond the effects of high quality direct contact are limited (see Turner, Hewstone, et al., 2007). Therefore, in the present study, we expect that an extended contact intervention will be

significantly more effective amongst children who have experienced lower levels of direct contact.

## Quality of direct contact

The study described in this paper will examine the moderating effects of two types of direct contact: high quality direct contact (i.e., involving cross-group friendships) and low quality direct contact (i.e., acquaintances rather than cross-group friendships). Research over the past decades has shown that cross-group friendship is a particularly effective form of high quality direct intergroup contact (see Pettigrew, 1998; Pettigrew & Tropp, 2006; Turner, Hewstone, et al., 2007). Research has also found this amongst adolescents and children (e.g., Aboud, Mendelson, & Purdy, 2003; Feddes, et al., 2009; Jackson, Barth, Powell, & Lochman, 2006; Turner, et al., 2008). High quality cross-group friendships are likely to have a particularly strong effect in promoting positive intergroup attitudes amongst children, because they involve meaningful interactions, cooperation and self-disclosure (Turner, Voci, et al., 2007). On the other hand, low quality direct intergroup contact via acquaintances in the neighborhood or school environment does not necessarily imply meaningful and positive interactions, and unlike high quality contact, should not lead significantly to positive intergroup attitudes.

It is important that these two aspects of direct contact are examined within our study, as they may moderate the effect of extended contact interventions in different ways. We predict that extended contact will be less effective with children reporting more high-quality direct contact, as their intergroup attitudes should already be more positive towards the out-group due to prior cross-ethnic friendships. Whereas, we expect that children reporting less high quality direct contact would benefit from extended contact interventions as they are not currently experiencing the benefits of high quality direct contact through cross-group friendship. In contrast, children's ethnic attitudes should be more positive in the extended contact conditions compared to a control condition irrespective of their level of low quality direct contact, since this form of direct contact should have little effect on children's attitudes towards the ethnic out-group.

## Category salience and extended contact

Within social psychology, there has been much debate concerning the effectiveness of intergroup contact depending on the salience of group categories. Two approaches to this issue are the "Common in-group identity" and "Dual identity" theories. The former argues that intergroup contact will have a maximal effect on attitudes when sub-group categories (e.g., black and white) are de-emphasized during contact, and a common, shared category (e.g., both British), is stressed (Gaertner & Dovidio, 2005; Gaertner, et al., 2008). This approach to contact is in line with Social Identity Theory (Tajfel & Turner, 1986), which would predict that with emphasis on a new common in-group a positive orientation towards in-group members should then be applied to new in-group members, those erstwhile out-group members. From this perspective, intergroup contact is effective because it increases perception of one group rather than two opposing groups. Therefore, increasing perception of "us" rather than "we" and "them" (Gaertner & Dovidio, 2000).

Meanwhile, according to the Dual identity approach, contact is more likely to improve general attitudes towards all out-group members when a common, shared category is stressed during contact, and sub-group categories are also emphasized (Brown & Hewstone, 2005). Contact will be most effective when black and white categories are emphasized alongside a common in-group identity (i.e., British). This approach should facilitate generalization from individual to all members of the group because some subgroup salience is maintained (Hewstone & Brown, 1986). Recent research with children in ethnically homogeneous elementary schools has shown that extended contact is also most effective when sub-group and super-ordinate

group categories are both made salient (Cameron, et al., 2006).

## School heterogeneity and category salience

The salience of children's ethnic sub-categories should depend on the ethic heterogeneity of their school environment. It seems reasonable to expect that the more children are exposed to ethnic diversity, the more they should become aware of their own ethnic sub-group membership. Significantly, Cameron et al. (2006) undertook their research in ethnically homogeneous elementary schools, where children had no contact with the ethnic out-group in question (i.e., non-white refugees). In this context it was likely the two relevant sub-group categories (i.e., white–English and non-white refugees) were not readily salient. This might explain why in this study the Dual identity approach to extended contact was most successful, since this acted to make the sub-group categories salient so generalization of positive attitudes occurred to the whole out-group.

In contrast, the children included in our study attended schools which were ethnically heterogeneous and included a number of ethnic out-group children (e.g., Indian–English). Within this school context the children's sub-group categories (i.e., white–English and Indian–English) should have already been highly salient, and children readily knew their own ethnic group membership and attended to the ethnic group membership of other children. Therefore, children's ethnic group categories should have been salient in our study irrespective of whether the extended contact intervention utilized a Dual identity or Common in-group identity approach. We, therefore, predict that in our study the Dual identity and Common in-group identity versions of extended contact will both be effective at promoting positive out-group attitudes.

## Mediation of the extended contact effect amongst children

This study will also examine *why* extended contact might be effective in promoting positive inter-ethnic attitudes amongst majority status children. Research

amongst adult and adolescents has identified positive in-group norms about the out-group or more positive out-group norms about the in-group as underlying mechanisms for the extended contact effect (De Tezanos-Pinto, et al., 2010; Turner, et al., 2008). Extended contact is thought to lead to group norms that condone contact, thereby inducing more positive attitude towards the out-group (Pettigrew, 1998; Wright, et al., 1997).

In our study, for the first time, we will investigate quasi-experimentally amongst children whether perceived in-group and out-group norms about cross-ethnic friendships mediate the extended contact effect. Developmental research suggests such mediation may be possible with young children since they are known to be highly sensitive to group norms about forming intra-group and intergroup relationships (Abrams, Rutland, & Cameron, 2003; Castelli, De Amicis, & Sherman, 2007; Nesdale, Maass, Durkin, & Griffiths, 2005; Rutland, Cameron, Milne, & McGeorge, 2005). Therefore children being exposed to, via an extended contact intervention, a typical in-group member and a typical out-group member who form a cross-ethnic friendship are likely to interpret their actions as representative of the in-group and out-group norms in general. Then they will most probably respond in a manner reflective of their in-group norm, and they will also respond in a reciprocal manner to the perceived out-group norm. Consequently, we anticipate that any extended contact effect will be mediated by perceived in- and out-group norms concerning positivity towards intergroup friendships.

## Method

### *Participants*

One hundred and fifty three white British children (48% males and 52% female) from nine elementary schools were tested. The age of the children ranged from 6 years to 11 years and 2 months *(M = 8 years and 3.5 months, SD = 19.3 months).* The children attended schools in mixed social class areas near to a large metropolitan city in the

south-east region of England. The schools varied in their level of ethnic diversity from 3% to 38% ethnic minority children, with the majority of the ethnic minority children typically being Indian–English. Two types of extended contact intervention were compared with a control condition: Dual identity extended contact intervention condition ($n$ = 46), Common in-group identity extended contact intervention condition ($n$ = 53) and no intervention or control condition ($n$ = 54). In order to create truly random conditions, rather than assigning whole school classes to particular conditions, children in each class were individually and randomly assigned to one of the three conditions. Schools volunteered to take part in the intervention and teachers and parents were fully briefed on the aims of the project. Parental permission for children's participation in the project was obtained, and the child's consent was also secured before each intervention session and before the interviews. The consent rate for parental permission was approximately 90%.

## Design

The study used a 3 (Condition: Common in-group identity, Dual identity and Control) x 2 (Age: older and younger) x 2 (Direct contact: higher and lower) between-participants design. The dependent variables were intended intergroup friendship behavior and perceived outgroup and in-group peer norms for cross-ethnic friendships.

## Procedure

Initially, in all conditions, children were introduced to the out-group. Rather than use the term "Asian" which younger British children appear to be unfamiliar with (Nigbur, et al., 2008), the term "Indian English" was used to describe the out-group. Children were shown photos of "Indian English" children and were told that: "These are children who live in England, and were born here, but whose parents or grandparents or even great-grandparents came to England from India many years ago. These children might still have family in

India and they might visit them sometimes." The photograph and explanation ensured children understood what we meant by "Indian English".

The intervention consisted of reading stories that portrayed friendships between ethnic majority (white) and minority (Indian) status British children. In some of the stories the super-ordinate (school) category membership of the characters was salient (Common In-group Identity) and in some of the stories the protagonists' super-ordinate and subgroup identities ("white–English" and "Indian–English") were made salient (Dual Identity). There was also a control group of children who were exposed to no stories. The subgroups and superordinate group were not the same basis for categorization; since one is race/ethnicity, the other one is an educational institution, respectively. This might suggest that we are looking at cross-cutting categories instead of superordinate and subgroup categories. However, in the Common In-group Identity Model, superordinate categories do not have to be on the same dimension as the subgroup identities.

In the control condition, children did not read the extended contact materials, but instead read a book with the researcher. The extended contact intervention stories have been described elsewhere (Cameron & Rutland, 2006; Cameron, et al., 2006; Cameron, et al., 2007), and will be outlined here briefly. Children read with a researcher stories that featured in- and out-group characters, in friendship scenarios. Children read three stories over six sessions in small groups of 3–4 children. The researcher gave assistance with reading as required. As with most children's stories for this age group, the stories were illustrated with colorful and eye-catching pictures, featuring the in- and out-group children.

As in previous studies by Cameron and colleagues, text in the stories, and the focus of the post-story discussion, was altered in line with the Common in-group Identity and Dual identity approach (Cameron, et al., 2006). Children in all conditions completed individual interviews, with a researcher who did not administer the intervention, approximately 1 week after the final intervention session.

## *Measures*

**Direct intergroup contact** In this study we distinguished between high quality (i.e., cross-ethnic friendship) and low quality (i.e., non-friendship acquaintances) direct inter-ethnic contact. Each measure of direct contact was assessed by adapting a scale used by McGlothlin and Killen (2006). Children were shown a set of five pictures made up of cartoon faces of girls and boys representing the ethnic in-group (white–English) and the ethnic out-group (Indian–English). These pictures differed in the proportion of in- and out-group members, and were all white–English (scored 1), mostly white–English and a few Indian–English faces (2), half white–English and half Indian–English faces (3), mostly Indian–English and a few white–English faces (4) and all Indian–English faces (5). In order to measure children's low quality direct contact across different settings, they were asked which picture represented the people they saw around them in their neighborhood, school and class. The children's responses formed a one factor solution in a principled component (varimax rotation) factor analysis (eigenvalue = 1.53, % of variance = 50.89), with the following factor loadings—neighbourhood (.67), school (.75) and class (.73). Therefore a composite measure of low quality direct contact was calculated by averaging across the children's three responses. The higher the score, the more low quality direct contact was experienced by the children.

In order to measure children's high quality direct contact, using the same set of pictures used to measure low quality contact, children were asked to state which picture best represented the individuals who where their friends. The higher the score the more the children had experienced higher quality direct contact. On both measures children's responses to were strongly skewed with most children reporting relatively low levels of direct contact. This means that the assumption of multivariate normality has not been met and statistical inferences become less and less robust as distributions depart from normality (Bradley, 1982; Tabachnick & Fidell, 1996). Therefore we log-transformed the children's responses in order

to use a statistic that had satisfactory stability of variance for further analyses.

**Intended friendship behavior** This dependent measure gauged how much children would like to show friendship behaviors with an out-group child on a future occasion and has been used reliably in previous research (Cameron & Rutland, 2006; Cameron et al., 2006; Cameron et al., 2007). Children were presented with a hypothetical scenario in which they are in the park and they meet an Indian English child there they knew from school. The gender of the child in this scenario was matched to the participant, and a picture was used to represent the child. The items used to measure intended friendship behavior were answered on a 5-point Likert-type scale using smiley faces to represent different points on the scale. The questions were "would you like to play with them?", "would you like them?", "would you like to have them over to your house for a meal?" and "would you like to have them stay overnight at your house?". The scale ranged from not at all (big frown = 1) through neutral (face not smiling or frowning =3) to very much so (big smile = 5). The higher the child's score the more positive their future friendship behaviors. For all four items, Cronbach alpha = .88. Composite means were calculated resulting in one measure of out-group intended friendship behavior for each child.

**Perceived in- and out-group norms for inter-group friendships** Initially children were shown collages of cartoon faces to represent their ethnic in- and out-group (Nigbur, et al., 2008). Children's perceived in-group norms and out-group norms were measured by showing them four statements about intergroup friendships ("I don't like being friends with Indian English [white–English] children", "It is a good idea for white–English and Indian–English children to be friends", "I like being friends with Indian–English [white–English] children", "It is not a good idea for white–English and Indian–English children to be friends"). Then they were asked to indicate on

**Table 1.** Zero order correlations among variables

|  | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Age (months) | 99.45 | 19.38 | – | | | | | | | |
| 2. Intended behavior | 3.79 | 1.09 | .02 | – | | | | | | |
| 3. Intervention-control | −.06 | 1.44 | .10 | .18* | | | | | | |
| 4. Type of intervention | −.05 | .08 | −.04 | −.07 | −.04 | – | | | | |
| 5. High quality direct contact | 1.75 | 0.84 | .15† | .27*** | .08 | −.12 | – | | | |
| 6. Low quality direct contact | 1.86 | 0.60 | .24** | .18* | −.02 | −.17* | .74*** | | | |
| 7. Out-group norm | 3.69 | .83 | −.01 | .53*** | .18* | −.10 | .27** | .24** | | |
| 8. In-group norm | 3.69 | .81 | −.11 | .42*** | −.04 | −.02 | .19* | .11 | .50*** | |

*Note:* Age may range from 72 to 134 months; Intended behavior may range from 1 to 5; High quality and low quality direct contact may range from 1 to 5; Out-group and in-group norms may range from 1 to 5. † $p < .08$; * $p < .05$; ** $p < .01$; *** $p < .001$.

a stick figure scale how many children from the in-group and the out-group would agree with these statements: all of them (5), a lot of them (4), about half (3), a few (2) or none of them (1). Reliability analysis showed Cronbach alpha = .70 therefore, a composite mean was calculated resulting in two measures: perceived in-group for intergroup friendship and perceived out-group norm for intergroup friendship, with scores that range from 1 to 5. Higher scores indicate more positive norms for inter-group friendship.

## Results

Initially, two orthogonal contrasts were constructed. The first (Intervention-control) tested the two extended contact conditions against the control (weights +1, +1, −2). The second (Type of intervention) tested the Dual Identity condition against the Common in-group identity condition (−1, +1, 0). Descriptive statistics and intercorrelations among variables are shown in Table 1, which shows, importantly, that the Intervention-control contrast was significantly positively correlated with intended out-group friendship behavior and out-group norms. Intended out-group friendship behavior was also significantly positively correlated with high quality and low quality direct contact, plus out-group and in-group norms about cross-ethnic friendships. Age was marginally correlated positively with high quality direct contact and significantly positively with low quality direct contact.

### Intended out-group friendship behavior

A regression analysis was conducted with Intervention-control, Type of intervention, High quality direct contact, Low quality direct contact and Age regressed on the children's intended friendship behavior scores. Age (in months), High and Low quality direct contact were entered as continuous variables. In line with the procedures recommended by Aiken and West (1991), the variables were centered within the regression and their two and three-way interactions were entered in successive steps in the analysis. Significant interactions were examined further using simple slopes analysis.

This regression analysis found a main effect of High quality direct contact, $\beta = .26$, $t = 2.63$, $p < .01$, $R^2 = .19$, $F (12, 137) = 2.44$, $p < .01$, on children's intended behavior. Children with greater levels of high quality direct contact showed significantly more positive intended behavior than those with a lower level of high quality direct contact. Importantly, as predicted, there was also a significant interaction between Intervention-control and High quality direct contact, $\beta = −.26$, $t = −2.58$, $p < 01$.

To examine this interaction, simple slopes (see Figure 1) were calculated to indicate the relationship between Intervention-control and High quality direct contact at 1 standard deviation above and below the mean level of high quality direct contact for the sample (Aiken & West, 1991). Simple slopes analysis showed that the slope between Intervention-control and
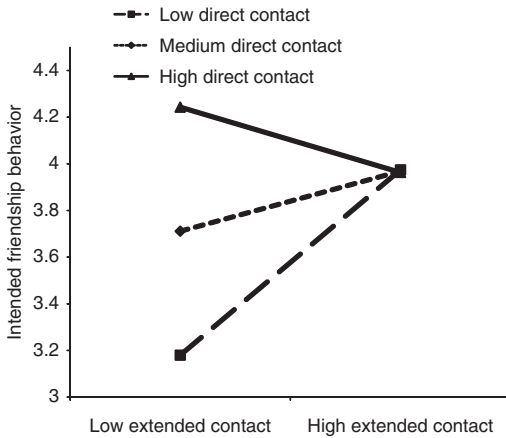
**Figure 1.** Intended friendship behavior as a function of extended contact and high quality (i.e., cross-ethnic friendship) direct contact.



**Figure 2.** Intended friendship behavior as a function of extended contact and age.

intended friendship behavior was significant for children with lower levels of high quality direct contact ($t = 2.38$, $p < .05$), but not for children with a medium level of high quality direct contact ($t = 1.45$, $p = .15$) and a high level of high quality direct contact ($t = -.79$, $p = .43$). These findings show that the extended contact interventions were most effective in promoting more positive intended friendship behavior towards the out-group when children had lower rather than medium or higher levels of high quality direct contact.

There was also a significant interaction between Intervention-control and Age, $\beta = -.17$, $t = -1.96$, $p = .05$. Simple slopes were calculated to show the relationship between Intervention-control and Age at 1 standard deviation above and below the mean age for the sample (see Figure 2). Simple slopes analysis showed that the slope between Intervention-control and intended friendship behavior was significant for younger (i.e. low age) children ($t = 2.72$, $p < .001$), but not for the medium age children ($t = 1.40$, $p = .16$) and high age children ($t = -.54$, $p = .58$). These results suggest that the extended contact interventions were better at producing more positive intended friendship behaviors amongst younger rather than older children.
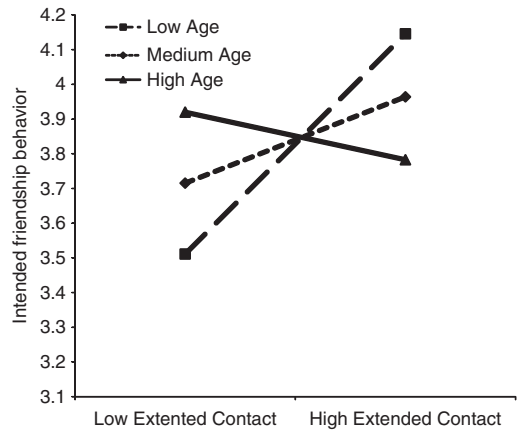
## Perceived out-group norm for cross-group friendship

Next we tested the unconditional mediation hypothesis that the effect of extended contact on children's intended friendship behavior was mediated by their perceived out-group norms about cross-ethnic friendship. We focused on the Intervention-control rather than the Type of intervention contrast since only the former was significantly related to the children's intended friendship behaviors. Multiple regression analysis showed, as expected, that Intervention-control had a significant effect on children's intended friendship behavior, $\beta = .18$, $t = 2.17$ ($R^2 = .03$, $F(1, 148) = 4.69$, $p < .05$), which was reduced to non-significance when perceived out-group friendship norm was included in the model, $\beta = .07$, $t = .96$, $p = .34$ ($R^2 = .29$, $F(2, 144) = 28.45$, $p < .01$). According to the Sobel Test, as specified in Baron and Kenny (1986) and MacKinnon, Warsi, & Dwyer (1995), this reduction was significant, $Z = 2.06$, $p < .05$). Finally, satisfying the criteria for mediation, perceived out-group friendship norms was significantly related to Intervention-control, $\beta = .18$, $t = 2.15$, $p < .05$ ($R^2 = .03$, $F(1, 146) = 4.64$, $p < .05$) and intended friendship behavior, $\beta = .52$, $p < .001$ ($R^2 = .28$, $F(1, 144) = 56.00$, $p < .01$). This finding shows extended contact interventions resulted in more

positive intended friendship behavior by making the children think that the out-group would be more positive about cross-ethnic friendships.

We then examined whether there was moderated mediation (i.e., conditional mediation), namely that the mediation relations described above were contingent on the children's level of high quality direct contact. Using the method of moderated mediation described by Preacher, Rucker and Hayes (2007, see Model 5), we tested whether within the mediation model (a) the path between Intervention-control and children's perceived out-group norm for cross-group friendship was moderated by their level of high quality direct contact; (b) the path between children's perceived out-group norm for cross-group friendship and intended friendship behavior was moderated by their level of high quality direct contact. The interaction between Intervention-control and High quality direct contact on perceived out-group norm for cross-group friendship as non-significant, $\beta = -.16$, $t = -1.34$, $p = .18$. The interaction between Perceived out-group norm for cross-group friendship and High quality direct contact on intended friendship behavior was also non-significant, $\beta = .23$, $t = 1.12$, $p = .26$. These findings demonstrate that the significant indirect effect of Intervention-control on intended behavior through perceived out-group norms was not contingent on the children's level of high quality direct contact.

### Perceived in-group norm for cross-group friendship

Next we tested the unconditional mediation hypothesis that the effect of extended contact on children's intended friendship behavior was mediated by their Perceived in-group norms about cross-ethnic friendship. Regression analysis found no significant relationship between Intervention-control and children's Perceived in-group norms about cross-ethnic friendship, $\beta = -.04$, $t = -.49$, $p = .63$, and therefore, the unconditional mediation hypothesis was not confirmed.

However, a significant unconditional mediation effect does not constitute a prerequisite for examining a conditional mediation effect (Preacher, et al.,

2007). Therefore, we next examined whether there was moderated mediation (i.e., conditional mediation), namely that an indirect effect of Intervention-control on children's intended behavior through Perceived in-group norms was contingent on the children's Age. Using the method of moderated mediation described by Preacher, Rucker and Hayes (2007, see Model 2), we tested whether within the mediation model the path between Intervention-control and children's Perceived in-group norm for cross-group friendship was moderated by the children's Age. Firstly, we found that Intervention-control was significantly related to children's intended behavior, $\beta = .13$, $t = 2.19$, $p < .05$. The analysis also showed that children's Perceived in-group was significantly related to children's intended behavior, $\beta = .50$, $t = 4.67$, $p < .001$. This demonstrated that the more the children perceived their in-group had a positive norm about cross-ethnic friendships the more positive their intended behavior towards the out-group. Finally, we found the interaction between Intervention-control and Age on perceived out-group norm for cross-group friendship was significant, $\beta = -.01$, $t = -2.00$, $p < .05$. The sign of the interaction is consistent with the interpretation that the indirect effect of Intervention-control on children's intended behavior through perceived in-group norms is significantly larger for older children.

## Discussion

### When does extended contact work amongst children?

Firstly our findings, as predicted, suggest that extended contact is most effective when children have less high quality direct contact (i.e., cross-ethnic friends). This study is the first to show this quasi-experimentally. We also found that low quality direct contact did not moderate the extended contact effect. These findings suggest that children who have a higher level of direct cross-group friendships do not readily benefit from extended contact interventions; as they most probably already hold favorable intended friendship behaviors towards the out-group in

addition to perceiving positive in-group and out-group norms about cross-ethnic friendships.

Interestingly, in contrast to previous research (e.g., Cameron, et al., 2006), we found some evidence that the extended contact interventions were more effective amongst younger children. The most parsimonious explanation for this effect is the different levels of direct contact likely amongst younger and older children. Unlike Cameron and colleagues, we sampled from children from relatively ethnically diverse settings so they typically had some chance of direct contact with the ethnic out-group. In such a context, younger children most probably have less experience of interaction with the out-group over their lifespan than older children. In fact, this is reflected in the marginally significant or significant correlations between age and high quality or low quality direct contact, respectively. We think it is reasonable, therefore, to conclude that in the context of our study age was at least in part acting as a proxy for direct contact.

## *Why does extended contact work amongst children?*

Secondly, this research enriches our understanding of "why" extended contact generates positive out-group attitudes among ethnic majority children, because we showed for the first time quasi-experimentally that out-group norm is an underlying mechanism for the extended contact effect. This unconditional mediation effect means extended contact leads to more positive intended friendship behavior by making the children think that the out-group would be more positive about cross-ethnic friendships. In contrast, we did not find unconditional mediation of the relationship between extended contact and children's intended behavior by in-group norms about cross-ethnic friendships. Previous research involving adolescents and adult has shown in-group norms about cross-group friendships mediate the extended contact effect (De Tezanos-Pinto, et al., 2010; Turner, et al., 2008).

Importantly, however, we did find evidence of moderated mediation involving children's perceived in-group norms about intergroup friendships. This showed that the indirect effect of extended contact

on children's intended behavior through perceived in-group norms is significantly larger for older children. In particular, this significant model of moderated mediation showed that only amongst older children did the extended contact intervention result in the perception of more positive in-group norms, which in turn, lead to more positive out-group intended behavior.

To our knowledge, this is first study to show that age moderates the mediation of the extended contact effect by in-group norms about intergroup friendships. Previous research (Turner, et al., 2008; Wright, et al., 1997) has shown that, provided in-group identification is strong, an in-group member who is friends with an out-group member (i.e., extended contact) provides an important source of information regarding in-group norms about how one should behave and feel towards an out-group (also see Terry & Hogg, 1996). This information should then be positively related to the children's own out-group attitudes (Crandall, Eshleman, & O'Brien, 2002; Rutland, Brown, Cameron, Ahmavaara, Arnold, & Samson, 2007).

One explanation for the fact we found in-group norms only mediated the extended contact effect amongst older children might be differences in the strength of in-group identification between younger and older children. Developmental research suggests that children's ethnic identification is still developing during middle childhood, the age range studied within our research (i.e., 6–11-year olds), with collective or group identification becoming more central and meaningful for children's self concept with age (see Ruble, Alvarez, Bachman, Cameron, Fuligni, & Coll, 2004). Therefore, it is possible, within our study, that younger children had relatively weaker in-group identification than older children, and this, at least in part, might explain why in-group norms only mediated the extended contact effect amongst older children. We can't be sure of this, however, since we did not include a measure of in-group identification within our study. Future research into group norms as a mediator of the extended contact effect amongst children should include an in-group identification measure.

Previous research has also suggested that positive in-group norms regarding the out-group might mediate the extended contact effect because of the understanding adults have of group dynamics (De Tezanos-Pinto, et al., 2010; Turner, et al., 2008). This includes an awareness that in-group members will not be socially excluded for showing a positive attitude towards the out-group, even if this contravenes the generic in-group norm of loyalty (see Abrams, Hogg, & Marques, 2005; Marques, Abrams, Paez, & Hogg, 2001). Recent developmental research on children's understanding of subjective group dynamics suggests that younger children are less aware than older children that normative and deviant members of a group will be differentially excluded depending on their adherence to an in-group norm (Abrams & Rutland, 2008; Abrams, Rutland, Pelletier, & Ferrell, 2009).

This research might help explain our moderated mediation effect involving age. It suggests that the in-group norm might be less informative for younger compared to older children, because younger children do not readily calculate that a positive in-group norm means children in their group will not be excluded by the group for showing a positive attitude towards the out-group. Future research should explore this possibility by measuring children's understanding of subjective group dynamics, or related phenomena like "Theory of Social Mind" (see Abrams, et al., 2009), when examining the mediation of the extended contact effect by in-group norms about intergroup friendships.

## Category salience and extended contact

We found, as predicted, the Dual identity and Common in-group identity forms of extended contact were both effective in promoting positive out-group intended friendship behaviors. This suggests that the ethnic sub-group category, as well as the common in-group identity, were salient even in the Common-in-group identity form of extended contact. In other words, both versions of extended contact followed the "Dual identity" format. Our prediction was based upon the premise that in our children's ethnically

homogeneous school environments their ethnic sub-group categories were readily salient. This is in contrast to the school environments studied by Cameron and colleagues (2006), which were ethnically homogenous and had no non-white refugees enrolled. However, to strike a note of caution, our study did not contain a measure of how salient the children's ethnic sub-categories were in their school environments. Moreover, we have no way of comparing the level of ethnic sub-category salience within our study and the previous research by Cameron and colleagues (2006).

Further research is required before drawing any firm conclusions about the value of sub-group category salience when designing extended contact interventions for use amongst school children. This research should compare the Dual identity and Common in-group identity approaches to extended contact within contexts that differ in terms of ethnic diversity and sub-group category salience. This would require the research to either measure the salience of sub-group categories in the different contexts, or directly manipulate category salience within the school contexts. Nonetheless, given the limitations of our study, the findings still underline the importance of emphasizing a common in-group category when promoting extended contact since this was present in all our extended contact interventions conditions but not in the control condition (Gaertner & Dovidio, 2005; Houlette, Gaertner, Johnson, Banker, Riek, & Dovidio, 2004).

Importantly extended contact must not be viewed as a substitute for direct contact, especially contact of high quality, but rather it is a useful technique which can be used to promote positive out-group attitudes in situations where direct contact is not possible (Turner, Hewstone, et al., 2007). In their review, Turner and colleagues argue that extended contact could be used prior to direct contact in order to promote positive group norms and reduce anxiety or negative expectations about future inter-group contact. This would lead subsequent interactions with out-group members to run more smoothly, allowing maximal impact on general out-group attitudes. However, future research is required to test whether, subsequent to extended contact,

intergroup interactions are more common and run more smoothly, as predicted.

In line with Paluck and Green's (2009) recommendation, the present research evaluated an extended contact intervention in the field amongst children in a school setting. In so doing the research has expanded our knowledge of the conditions that facilitate effective extended contact amongst children (i.e., "when does it work?") and what factors underlie effective extended contact in childhood (i.e., "why does it work?"). In this way the research has further specified the conditions and the individuals with whom the intervention is likely to be most beneficial. This is important because in many countries, including the United Kingdom, state schools are now being encouraged to promote children's positive attitudes towards people from different ethnic backgrounds, and challenge ethnic stereotypes. In fact currently in the United Kingdom schools are required by the state to challenge stereotypes, increase inter-cultural knowledge and acceptance and promote an appreciation of diversity among children from a young age.

Overall our findings highlight that extended contact interventions in schools are most effective amongst children who have less high quality direct contact (i.e., cross-ethnic friendships). Additionally, this research suggests that when designing extended contact interventions for children practitioners should focus on encouraging positive out-group norms regarding cross-group friendships, and also positive in-group norms especially amongst older children. Finally we think the findings of this study suggest that direct contact interventions, such as school twinning and exchanges, may well be most effective when preceded by extended contact interventions.

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