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# When the direct route is blocked: The extended contact pathway to improving intergroup relations

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### ABSTRACT

Direct intergroup contact can be described as the “royal road” to reducing prejudice and intergroup conflict. Although direct contact with an outgroup member may be limited, a promising alternative route is that of extended (indirect) contact. According to extended contact theory, awareness that ingroup members have outgroup friends can improve people’s relations with the outgroup. A key issue that has not been addressed is how the *amount* of direct and extended contact interact to affect intergroup relations. Three field-based studies demonstrated that when direct contact is low, higher levels of extended contact predict lower prejudice and higher voluntary engagement with outgroup culture, both cross-sectionally (Studies 1 and 2) and longitudinally (Study 3). However, when direct contact is high, extended contact does not affect intergroup relations. These findings show that only when there is limited opportunity for direct contact, awareness of larger numbers of ingroup-outgroup friendships can be very effective for improving intergroup relations.

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Previous research has demonstrated that when there is no high-quality direct contact with outgroup members, extended intergroup *friendship* (i.e., knowledge that one’s ingroup *friend* has a close relationship with an outgroup member) can improve intergroup attitudes. Unfortunately, neither high-quality direct contact nor high-quality extended contact are very common occurrences (Dixon, Tredoux, Durrheim, Finchilescu, & Clack, 2008). Therefore, it is important to establish whether extended intergroup contact per se can be sufficient to improve intergroup relations regardless of whether the contact involves personal friendship. More specifically, no research to date has tested: (a) how mere quantities of direct contact and extended contact (i.e., knowledge that an ingroup *member* has a close relationship with an outgroup member) combine to predict intergroup prejudice and voluntary engagement with outgroup culture, (b) whether their combined effects are reproducible in different intergroup contexts, and (c) whether they are sustained longitudinally. These are the main goals of the present research. By “engagement”, we refer to both the passive acceptance of exposure to the outgroup culture and positively approaching the outgroup culture for whatever reason. Whether passive or active, engagement should provide a basis for better understanding of the outgroup.

Intergroup contact theory and research (Allport, 1954; Pettigrew, 1998) has shown that positive direct intergroup contact may be the royal road to reducing prejudice and intergroup conflict. Considerable emphasis has been placed on the role of the highest *quality* contact, direct intergroup friendships, in promoting positive intergroup attitudes (Binder et al., 2009;

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Brown & Hewstone, 2005; Pettigrew & Tropp, 2006). However, spontaneous direct intergroup friendships may be relatively rare so there would be significant practical challenges for implementing interventions that generate intergroup friendships on a large scale.

Given these limitations, one of the most promising developments in recent years has been the discovery of the potential of extended (indirect) contact for reducing prejudice. The *extended contact hypothesis* (Wright, Aron, McLaughlin-Volpe & Ropp, 1997) proposes that the mere awareness that an ingroup member has an outgroup friend can improve intergroup relations. This implies that indirect intergroup contact can be sufficient to promote widespread reduction of prejudice.

A key distinction for our goals is between *extended contact* (knowledge that an *in-group member* has a close relationship with an outgroup member, Wright et al., 1997), and *extended friendship* (knowledge that an *in-group friend* has a close relationship with an outgroup member). Just as researchers have found that direct intergroup friendship can improve intergroup attitudes, extended friendship can affect prejudice reduction (i.e., Christ et al., 2010; Mendoza-Denton & Page-Gould, 2008; Page-Gould, Mendoza-Denton, Alegre & Siy, 2010; Page-Gould, Mendoza-Denton & Tropp, 2008). However, it may also be difficult to implement interventions that depend on the establishment of extended friendship. For example, some people have fewer friends than others, and the fewer friends someone has the less likely it would be that they would have a friend with an outgroup friend. However, extended contact *may be* modified in terms of heightening the *perception* that ingroup members have close relationship with outgroup friends (Cameron & Rutland, 2006; Cameron, Rutland, Brown, & Douch, 2006), which suggests it could be an especially effective technique for improving intergroup relations and increasing intercultural harmony.

### 1. Advantages of extended contact

Theoretically there are several advantages of extended, compared with direct, contact as a vehicle for improving intergroup relations (Wright et al., 1997). First, extended contact could reduce prejudice even in the absence of direct contact. Second, relationships that cross intergroup boundaries may well be more salient as *intergroup* relationships to an observer than to the partners themselves, which should facilitate the generalization of favorable judgments to the outgroup as a whole (Brown & Hewstone, 2005). Third, whereas direct contact may induce anxiety about the interaction (Stephan & Stephan, 2000), being an observer of a cross-group relationship should be a relatively unthreatening experience. This is pivotal because anxiety about direct intergroup interactions can lead to hostility and total avoidance of these interactions (Plant & Devine, 2003). Thus, extended contact should reduce affective prejudice, defined as the lack of sympathy and admiration towards outgroup members. Fourth, a group member may share with their ingroup the experience of outgroup friendships. Consequently, extended contact may well be sufficient to promote active voluntary exposure to, and discovery about, the outgroup culture. This is an important outcome because such increased understanding is likely to reduce cognitive bases of prejudice, such as assumptions of outgroup homogeneity, and affective bases of prejudice that might follow from unfamiliarity (Eller & Abrams, 2003, 2004; Eller, Abrams, & Zimmermann, 2011; Pettigrew & Tropp, 2008; Stephan & Stephan, 1984).

Associations between extended contact and lower prejudice have been observed among (racial) majority and minority group participants in the USA (Wright et al., 1997) and Spain (Gómez, Tropp, & Fernández, 2011), Catholics and Protestants in Northern Ireland (Paolini, Hewstone, Cairns, & Voci, 2004), and White and South Asian participants in England (Turner, Hewstone, & Voci, 2007). Pettigrew, Christ, Wagner, and Stellmacher (2007) showed that both direct and extended contact were related to less anti-foreign and anti-Muslim prejudice in Germany. Similar findings have been obtained in educational settings, in Finland (Liebkind & McAlister, 1999) and the UK (Cameron & Rutland, 2006; Cameron, Rutland, & Brown, 2007; Cameron et al., 2006), involving outgroups, such as foreigners, refugees, and disabled children. Finally, Eller, Abrams, Viki, and Imara (2007) showed that extended contact was associated with more positive attitudes toward the police among UK students. In summary, the small but growing body of research demonstrates that extended contact can reduce prejudice and improve intergroup relations (Dovidio, Eller, & Hewstone, 2011).

An important limitation of previous work is that it is based on cross-sectional data and does not illuminate longer-term effects of extended contact. Pettigrew (1998) highlighted that even direct contact might require a long period of time to have effects, and expressed concern about the scarcity of longitudinal evidence on effects of contact in naturalistic, real-world settings. Another reason why longitudinal research is crucial is the concern that cross-sectional effects may diminish or even reverse over time. For example, Eller and Abrams (2004, Table 4) found that quantity of contact can have positive effects in the short run but negative effects in the long run.

A key issue that now needs to be addressed is: *When* is extended contact most effective and how may this work in conjunction with direct contact? Direct and extended contact are likely to be positively correlated (Pettigrew et al., 2007). If the correlation is sufficiently high, a mundane possibility is that their co-occurrence might statistically preclude establishing either of the two forms of contact as a distinct predictor of criterion variables. However, we contend that there is an obvious but important qualification that affects the impact of the two forms of contact on prejudice and other outcomes. Extended contact only (or primarily) impacts on intergroup relations when people have no or little direct contact.

Christ et al. (2010) showed that when participants had few direct intergroup friendships, *extended friendship* (having ingroup friends with outgroup friends) was cross-sectionally associated with lower prejudice. Longitudinally, extended friendship predicted more favorable behavioral intentions among people with fewer direct friendships. Extended friendship (contact through one's own close friends) is one very particular form of extended contact (Paluck, 2010). Christ et al.'s significant findings showed relatively small effect sizes (ranging from  $r = .075$  to  $r = .115$ ). It seems possible that this may be

because intergroup friendship, whether achieved naturally or by intervention, is a high threshold to set for intergroup contact, so high that it may be quite rare, especially if there is a degree of mistrust or previous conflict between groups. Scarcity of extended friendship across a sample would militate against a strong relationship between extended friendship and other variables. Therefore, in the absence of direct contact, it remains very important to establish whether extended contact “per se” can have positive effects simply by virtue of awareness of friendships between ingroup and outgroup members without the stipulation that the particular ingroup member should be one’s own friend. This is a much less exacting criterion for extended contact, though it is the original definition of extended contact (Wright et al., 1997). If this criterion turns out to be sufficient, it holds out great practical promise for improving intergroup relations. Importantly, perception that an *ingroup member* has a close relationship with an outgroup member may be relatively easier to induce, via information and salient exemplars, than perception that an *ingroup friend* has a close relationship with an outgroup member, which depends on the number of one’s ingroup friends, on at least one of those having an outgroup friend, and on being aware of that intergroup friendship. The distinction between extended contact and extended friendship is significant because although focusing on extended friendship makes the door for intervention ajar, extended contact could open it to a much wider range of novel and effective techniques for improving intergroup relations.

Based on previous research we can assume that people who have direct intergroup contact will base their perceptions of the outgroup on their own direct experience rather than the experiences of other ingroup members (cf. Fazio, 1990). However, when direct contact is low or absent it seems highly likely that they will draw on their perceptions of intergroup friendships. Even if their personal ingroup friends do not have outgroup friends, awareness that some ingroup members do have outgroup friends should ‘open the door’ to more positive intergroup attitudes and openness. It should be harder to assume that all outgroup members are alike (i.e., to generalize), and easier to form a psychological connection with the outgroup. Therefore, our specific prediction is that although when direct contact is high extended contact will be largely irrelevant (have no or small effects), when direct contact is low, extended contact will be associated with reduced prejudice and greater voluntary engagement with outgroup culture.

## 2. The present research

We investigate this interaction hypothesis in three studies across different contexts, with the outcomes of affective prejudice and voluntary engagement with outgroup culture, cross-sectionally as well as longitudinally.

We first investigate how amounts of direct and extended contact relate to affective prejudice (Pettigrew & Meertens, 1995). Intergroup friendship may not be necessary for higher quantity of direct contact to improve intergroup relations. Indeed, the quantitative variability in mere outgroup contact should be greater than that of intergroup friendship, providing more scope to evaluate its impact on other variables. These effects should be greater if larger numbers of ingroup members have outgroup friends, i.e., if extended contact is more pervasive.

Second, we examine contact effects on voluntary engagement with outgroup culture. Engagement with outgroup culture, as we operationalize it, involves watching films and television programs of the culture of the outgroup, listening to music, and learning the language. This engagement is highly likely to increase *knowledge* of the outgroup and its culture. Both direct and extended contact theories propose that contact should improve knowledge about the outgroup (labeled ‘ignorance reduction’ in extended contact theory). The flipside of knowledge, ignorance, promotes misperceptions, prejudice, and anxiety, which can result in unsuccessful intergroup interactions. Therefore, improved knowledge is a vehicle for improving outgroup views (Pettigrew, 1998; Wright et al., 1997). It is known that direct contact can improve intergroup knowledge (Eller & Abrams, 2003, 2004; Stephan & Stephan, 1984), and recently this has also been shown for extended contact (Eller et al., 2011). In this paper we investigate a preliminary step to outgroup knowledge, encapsulating the process of engaging with another culture.

Third, we test these ideas in three different intergroup contexts – USA, Mexico, and UK. Importantly, these contexts have different direct and extended contact baselines (i.e., amounts of contact), they encompass two different participant populations (US Americans and British, and also allow us to examine whether the hypotheses are supported in an equal-status intergroup context (Anglo-French) and when a specific group (Americans) are in a numerical minority or majority.

Study 1 was conducted in California, USA (majority-status group country, within the context of Mexican–US relations) and Study 2 in Mexico (minority-status group country). Study 3 examined English participants and their relationships with the French in a roughly equal-status context, over one year. Study 1 examines the interactive effects of direct and extended contact on affective prejudice, while Studies 2 and 3 focus on their effects on engagement with outgroup culture.

## 3. Study 1

Study 1 involved students from the University of California, Santa Cruz. Mexicans and (Anglo-) Americans differ in terms of their history, religion, ethnic origin, and language, and Mexican/American relations have traditionally been characterized by difficulties, and even war (Riding, 1985). The two countries are also asymmetrical in terms of power and status; Mexico’s total gross product compares to that of California (Gilmer, 2002). Despite these differences and animosities, Mexico and the US have constant interactions (Eller & Abrams, 2003, 2004). This is particularly true for California, a border state, which has the largest Mexican immigration in the US.

**Table 1**Simple slopes of direct  $\times$  extended contact interactions.

Dependent variables	Direct contact = low			Direct contact = high		
	<i>B</i>	<i>t</i>	<i>p</i>	<i>B</i>	<i>t</i>	<i>p</i>
Study 1						
Affective prejudice	−0.61	−4.02	0.001	0.31	1.06	0.29
Study 2						
Engagement with outgroup culture	1.19	3.59	0.001	0.27	0.79	0.43
Study 3 (longitudinal)						
Engagement with outgroup culture	0.95	3.18	0.003	−0.33	−1.09	0.28

Note. For the moderation effects, we used 1 SD below and above the mean for high vs. low direct contact. *B*: raw regression coefficient.

### 3.1. Method

#### 3.1.1. Participants and procedure

These were 70 (71.4% women) White US American undergraduate psychology students, mean age = 20.2 years (range = 16–27). Participants completed questionnaires during class, after which they were thanked and informed about the aim of the research.

#### 3.1.2. Measures

*Extended contact* was measured by asking respondents to indicate the number of Americans that they know who have Mexican friends [0, 1–4, 5–10, 10 or more, scored as 1–4], adapted from Turner, Hewstone, and Voci (2007).

*Direct intergroup contact* (Eller & Abrams, 2003, 2004), a two-item scale, was measured by asking about frequency of informal conversations with Mexicans, and frequency of visits to a Mexican home. Scaling ranged from 1 (*not at all*) to 7 (*very often*), Cronbach's  $\alpha = .86$ .

The *affective prejudice* subscale is a particularly important component of Pettigrew and Meertens' (1995) 20-item Blatant and Subtle Prejudice Scale, asking respondents how often they had felt sympathy and admiration towards outgroup members. Inspired by Dovidio, Mann, and Gaertner's (1989) findings that the lack of positive emotion, rather than the presence of negative emotion, best predicts subtle prejudice, this scale was designed to provide a measure of emotional response to the target outgroup. This measure was scored on a 7-point scale from 1 (*never*) to 7 (*always*), with higher scores denoting greater affective prejudice,  $\alpha = .74$ .

### 3.2. Results and discussion

In line with previous research (Pettigrew et al., 2007), analysis revealed a positive and significant correlation between direct and extended contact,  $r(68) = .52, p < .001$ . Participants who had more direct contact with Mexicans also knew more Americans with Mexican friends. Participants' level of direct contact ( $M = 4.47, SD = 1.52$ ) was significantly different from both scale end points [vs. 1:  $t(69) = 19.04, p < .001$ ; vs. 7:  $t(69) = -13.92, p < .001$ ]. The same was true for extended contact [ $M = 3.31, SD = 0.86, t(69) = 22.50, p < .001$  and  $t(69) = -6.67, p < .001$ ]. Thus, the two forms of contact were not subject to restrictions of range and both were moderately common.

After mean centering direct and extended contact (Aiken & West, 1991) we used simultaneous multiple regression analysis to test the effects of direct and extended contact and their interaction on affective prejudice. As predicted, the direct  $\times$  extended contact interaction was significant,  $\beta = 1.33, t(68) = 2.41, p < .02$ . Analyses of simple slopes (Cohen, Cohen, West, & Aiken, 2003) showed that extended contact was significantly associated with decreased affective prejudice when direct contact was low but not when it was high (see Table 1 and Fig. 1). The main effect of direct contact was significant,  $\beta = -1.34, t(68) = -2.30, p < .03$ , but that of extended contact was not,  $\beta = .08, t(68) = .56, p = .58, R^2 = .96, F(3,69) = 428.31, p < .001$ .

Study 1 supports the hypothesis that when direct contact is low, extended contact reduces affective prejudice, but when direct contact is high, extended contact does not influence affective prejudice. Specifically, among US Americans who have little direct contact with Mexicans, those who know more ingroup members with Mexican friends show lower affective prejudice against Mexicans. It was a little surprising that there was no significant main effect of extended contact on affective prejudice. However, on reflection we note that it is in line with research by Paolini, Hewstone, and Cairns (2007) who found that extended contact is linked to cognitive rather than affective prejudice, while the opposite holds true for direct contact.

## 4. Study 2

Study 2 addressed two questions. First, it may be that findings from the majority-status group country (USA) might not generalize to a different contact setting in the minority-status group country (Mexico). Thus, complementing Study 1, Study 2 involves the US–Mexican intergroup context, but was conducted among Americans (macro-societal majority status members) in the minority status group country (Mexico).

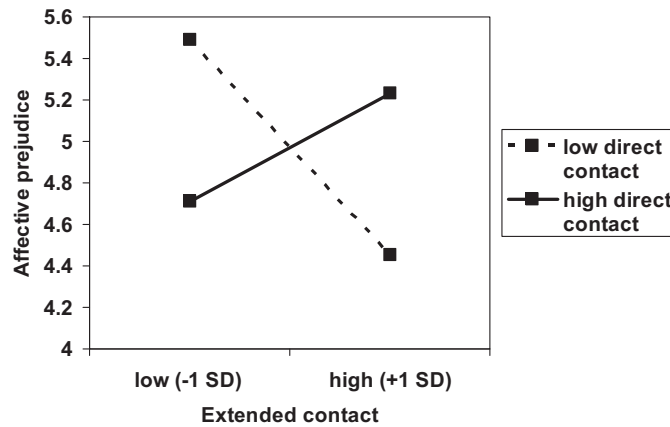


Fig. 1. Study 1: Extended  $\times$  direct contact interaction on affective prejudice. Plotted values represent values 1 SD above and below the mean on the independent variables.

A second goal for Study 2 was to test the interaction hypothesis between direct and extended contact in relation to a different aspect of prejudice reduction, namely, the voluntary engagement with outgroup culture. Among participants with low but not high direct contact, we predict that those with higher extended contact should be more likely to actively engage with the outgroup and its culture. As well as feeling that there are fewer barriers to such engagement because they see less separation between the ingroup and outgroup, a further reason they might seek knowledge about the outgroup is that awareness of intergroup friendships may make them less inhibited by the possibility that other ingroup members would disapprove (De Tezanos-Pinto, Bratt, & Brown, 2010).

4.1. Method

4.1.1. Participants and procedure

Participants were 100 non-Hispanic US American language school students (79% women), with ages ranging from 13 to 75 ( $M=33.6$ ). These students spent a few weeks at a language school in Cuernavaca, Mexico, to learn Spanish. Data were collected within the first week of participants' arrival in Mexico. Although US Americans are obviously in a numerical minority in Mexico, they enjoy higher status and power than Mexicans on a larger, macro-societal scale. Contact through the language school, staying with Mexican families and meeting locals, provided an ideal setting within which to test direct and extended contact effects. Participants completed the measures on voluntary basis, encouraged by a prize draw of \$50 in which 61.8% of respondents wished to be included.

4.1.2. Measures

*Extended contact* was measured by asking respondents to indicate the number of Americans that they know who have at least one Mexican friend (0, 1–4, 5–10, 10 or more, scored as 1–4).

*Quantity of direct contact*, a two-item scale, was measured by asking about the amount of contact with Mexicans at the language school and with the Mexican host family. Scaling ranged from *never* (1) to *always* (7),  $\alpha = .69$ .

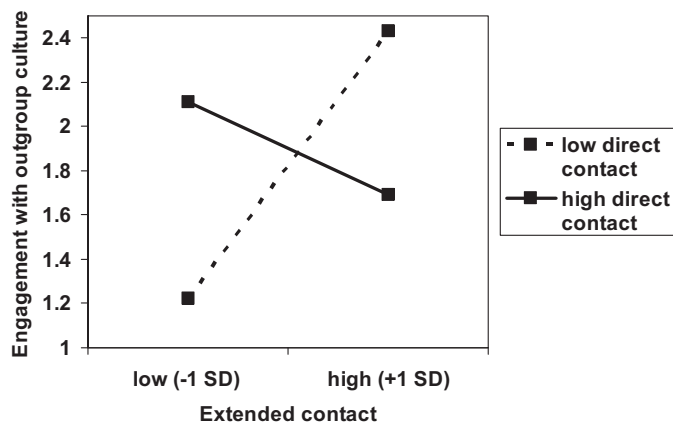
*Engagement with outgroup culture* was assessed by asking respondents how often they (a) watched Mexican movies (*never–always*), (b) watched television programs produced in Mexico, (c) listened to Mexican music, (d) read Mexican newspapers or magazines, and (e) how well they spoke Spanish (*not at all–fluently*). Another question was “How much do you learn about Mexicans and Mexican culture every week by watching TV, reading the newspaper, listening to the radio, or surfing in the Internet?” (*nothing–very much*). All items ranged from (1) to (7),  $\alpha = .75$ .

4.2. Results and discussion

The correlation between direct and extended contact was positive, but very low and non-significant,  $r(97) = .07, p = .53$ . Participants' level of direct contact was high ( $M = 6.15, SD = 1.12$ ) but was significantly different from both scale end-points [ $t(97) = 35.06, p < .001, t(97) = -8.07, p < .001$  for low and high, respectively]. Participants' level of extended contact was moderate ( $M = 2.57, SD = 1.00$ ) and was also, significantly different from both scale end-points [ $t(96) = 18.43, p < .001, t(96) = -12.21, p < .001$  for low and high, respectively].

The multiple regression analysis on engagement with outgroup culture showed a significant direct  $\times$  extended contact interaction,  $\beta = -.70, t(96) = -2.12, p < .04$ . Analyses of simple slopes showed that extended contact was significantly associated with increased engagement with outgroup culture when direct contact was low but not when direct contact was high (see Table 1 and Fig. 2). There were also significant main effects of direct and extended contact,  $\beta = .68, t(96) = 2.05, p < .05$ ,

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**Fig. 2.** Study 2: Extended  $\times$  direct contact interaction on engagement with outgroup culture. Plotted values represent values 1 SD above and below the mean on the independent variables.

and  $\beta = .35$ ,  $t(96) = 3.66$ ,  $p < .001$ ,  $R^2 = .16$ ,  $F(3,93) = 6.08$ ,  $p = .001$ , respectively, such that higher direct and extended contact was associated with higher voluntary engagement with outgroup culture.

As in Study 1, the direct  $\times$  extended contact interaction hypothesis was supported. While focusing on the same intergroup relationship, but in different contexts, Studies 1 and 2 have both shown that extended contact is only associated with positive intergroup relations when there is little direct contact with the outgroup. Moreover, Study 2 showed that this interaction applies to engagement with outgroup culture, a novel outcome variable in extended contact research. In passing, it is notable that this interaction effect was significant despite the near zero correlation between direct and extended contact.

This non-significant correlation between the two forms of contact, in contrast to significant correlations in both Studies 1 and 3, might be due to the particular intergroup context in Study 2. Participants were abroad and virtually all of them engaged in very high levels of direct contact with Mexicans. They had high intrinsic motivation to do so – in order to get to know the culture and learn Spanish better – irrespective of the cultural engagement of their fellow Americans. In contrast, Studies 1 and 3 took place on participants' home turf where the decision to engage or not to engage in intergroup contact might be much more driven by the normative forces inherent in extended contact (cf. De Tezanos-Pinto et al., 2010).

## 5. Study 3

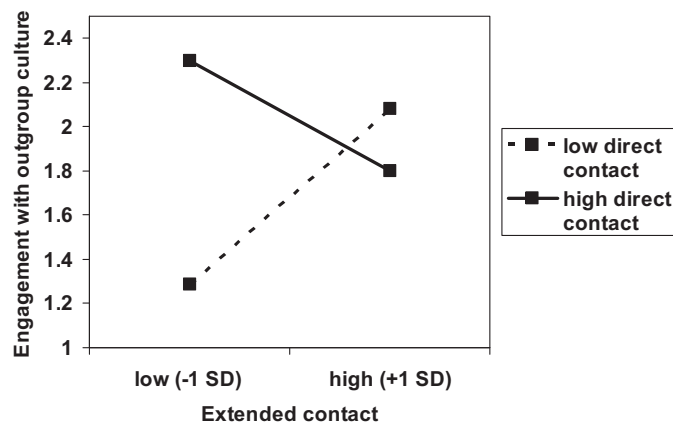
While the preceding findings clearly support the direct  $\times$  extended contact interaction hypothesis, a stronger causal interpretation and evaluation of more enduring effects requires a longitudinal study. Because affect can fluctuate but engagement with outgroup culture is likely to have a cumulative effect as a person accumulates more knowledge over time it seemed appropriate to examine this second variable as the outcome variable for Study 3. This study is longitudinal with two time points, separated by one year, within an Anglo-French intergroup context.

Anglo-French relations have historically been characterized by antagonism, distrust, and isolationism, continuing into the present time (Brown, Maras, Masser, Vivian, & Hewstone, 2000). However, the institution of the E.U. has meant that the constituent countries have become increasingly interconnected in the realms of the political, the economic-financial, and the social. This is particularly true for France and Britain, given their proximity and their recent physical connection through the Eurotunnel. In contrast to the US–Mexican intergroup context (Studies 1 and 2), the English and French are relatively equal-status and numerical national groups.

### 5.1. Method

#### 5.1.1. Participants and procedure

Participants were English first-year undergraduate psychology students ( $N_s = 101$  and  $55$  for  $T_1$  and  $T_2$ , respectively) at a university in the south-east of the UK, all of whom received course credit for research participation and were entered into a draw for £25. This university recruits students from all over the UK but is based in a historic town that is geographically one of the closest to continental Europe, and specifically to France, and which is a popular tourist destination for French visitors. The university itself includes a sizable minority of international students, including some from France. This context afforded introductory-year students new potential opportunities for direct and extended contact. The longitudinally matched dataset included 52 participants (90.4% women) with an age range of 18–35 ( $M = 20.8$ ). Data were collected with paper-and-pencil questionnaires; time points were separated by one year.



**Fig. 3.** Study 3: Extended  $\times$  direct contact interaction on engagement with outgroup culture. Plotted values represent values 1 SD above and below the mean on the independent variables.

### 5.1.2. Measures

For practical reasons, direct contact was only measured at Time 1; all other measures were assessed at both time points.

*Extended contact* was measured by asking respondents to indicate the number of British people that they know who have at least one French friend (0, 1–4, 5–10, 10 or more).

*Quantity of direct contact* was measured by asking about the amount of contact with French people in the university town (one-item scale). Scaling ranged from *never* (1) to *1–6 times a year* (2) to *once a month* (3) to *once a week* (4) to *daily* (5), with higher scores denoting more contact.

*Engagement with outgroup culture* was assessed on 7-point scales by asking respondents how often they (a) watched French movies (*never–always*), (b) listened to French music, (c) read French newspapers or magazines, and (d) whether they spoke French (*not at all–fluently*); Cronbach's alpha at both time points = .72.

## 5.2. Results and discussion

### 5.2.1. Panel attrition and comparison of participants

A MANOVA across the T1 measures revealed no significant differences between the participants who completed both time points and those who were only involved at T1, multivariate  $F(3, 82) = .10, p = .96, \eta^2 = .004$ . Inspection of the univariate effects confirmed this finding.

The T1 correlation between direct and extended contact was positive and medium-sized,  $r(91) = .43, p < .001$ . Participants' level of direct contact was moderate ( $M = 2.17, SD = 1.31$ ) and differed significantly from both scale end-points [ $t(90) = 9.35, p < .001, t(90) = -37.04, p < .001$ , for lower and upper respectively]. Participants' level of extended contact was also moderate ( $M = 2.26, SD = 0.66$ ) and differed from both scale end-points [ $t(94) = 17.15, p < .001, t(94) = -23.59, p < .001$  for lower and upper, respectively].

We used multiple regression analysis to test the effects of T1 direct and extended contact (Step 1) and their interaction (Step 2) on T2 engagement with outgroup culture, controlling for T1 engagement with outgroup culture. Consistent with our predictions, there was a significant direct contact  $\times$  extended contact interaction,  $\beta = -.51, t(44) = -2.84, p = .007$ . Simple slopes analysis revealed that extended contact significantly predicted greater increases in engagement with outgroup culture when direct contact was low, while it was unrelated to increases in engagement when direct contact was high (see Table 1 and Fig. 3). Main effects were not significant,  $ps > .09, R^2 = .34, F(4,48) = 5.53, p < .001$ .

Study 3 demonstrates longitudinal support for our general prediction that extended contact has most impact when direct contact is low. Among participants who had high levels of direct contact, after a period of one year, differences in extended contact had no impact on their voluntary engagement with outgroup culture. In contrast, among participants who had low direct contact, those who had higher levels of extended contact showed higher levels of engagement, in line with our hypothesis.

## 6. General discussion

Three studies investigated the effects of direct and extended contact on affective prejudice (Study 1) and on engagement with outgroup culture (Studies 2 and 3), cross-sectionally (Studies 1 and 2) and longitudinally (Study 3), in three different intergroup contexts and with different participant populations.

The results show consistently that extended contact is only associated with reduced prejudice and increased engagement when direct contact is low and not when direct contact is high. This is the first systematic test that quantity of direct contact

and amount of extended contact can interact in this way. A further feature of this research is that it tests the generality of this interaction.

Specifically, regardless of whether direct and extended contact were inter-correlated, we obtained the interaction effect in minority-, majority- and equal-status contexts. Moreover, the interaction persisted when absolute levels of direct contact were quite high (Study 2), moderate (Study 1) and quite low (Study 3). We also note that the power for detecting interactions in non-experimental designs is notoriously low and yet the effect sizes were sufficient to yield reliable interactions. This adds to our confidence that the interaction effect is quite robust (cf. McClelland & Judd, 1993).

These findings demonstrate that extended contact is likely to be an effective avenue for prejudice reduction in those contexts that afford little or no opportunity for direct contact or where direct contact is low. Previous research shows that extended *friendship* is associated with lower prejudice when there is low direct friendship (Christ et al., 2010). The present research shows that it is also the case that extended *contact* (not necessarily involving extended friendship) can have a substantial effect when direct contact (not direct friendship) is low.

Moreover, as noted in the introduction, the quite small effect size of extended friendship across the studies by Christ et al. (2010) ranging from  $r = .075$  to  $.115$ , are almost doubled in the tests of the effects of extended contact in the present studies (which ranged from  $r = .211$  to  $.394$ ). Comparison of the effect sizes on prejudice, based on weighted  $N$ s, shows that it is significantly larger in the present research ( $Z = 12.17, p < .001$ ). This suggests that the statistical impact of quantitative extended contact is greater than that of extended friendship alone. One explanation may be that extended friendship is rather rare and this limits the scope for it to exert a large sample-wide effect. In the present research it is logically possible that all participants who reported extended contact actually had extended friendship, however that seems quite improbable. Therefore, even allowing for the possibility that our measure of extended contact included some ingroup friendships, not merely acquaintanceships, we conclude that positive effects of extended contact may substantially exceed those of the subset of extended friendship alone.

Turner, Hewstone, Voci, Paolini, and Christ (2007) pointed out that extended contact research has thus far examined a much more restricted range of outcome variables than direct contact research. We addressed this issue by testing and demonstrating effects on affective prejudice and on the previously under-explored variable of voluntary engagement with outgroup culture. The present findings offer the first empirical evidence that extended contact is associated with engagement with outgroup culture, both cross-sectionally and longitudinally. This important evidence makes us optimistic that extended contact provides not only an affective but also a further social psychological, quasi-behavioral contribution to prejudice reduction.

One of the limitations of the present research is that, like most field studies, it lacks high levels of experimental control. Laboratory-based experimental research would undoubtedly have allowed greater pinpointing of the potential effect of the two types of contact. However, we were interested not only in intergroup contexts as they happen in real life, outside the laboratory, but also in external effect sizes. Whereas laboratory experiments can show whether particular effects are possible, field studies show whether such effects actually arise outside the laboratory. When specific intergroup relationships have real-world significance it is obviously important to understand how direct and extended contact may affect them. For example, it is very useful to know that the extended/direct contact interaction occurs both when the two forms of contact are correlated but also when they are not, avoiding any potential problem of collinearity (Studies 1 and 3 vs. Study 2, respectively).

We are also aware that our data cannot speak unequivocally to issues of causal direction between contact and outcome variables. Although Study 3 is longitudinal, direct contact was not measured at Time 2, precluding reverse longitudinal analyses with T1 knowledge predicting the T2 direct  $\times$  extended contact interaction. Previous research indicates that although favorable attitudes can promote contact this effect is usually weaker than the impact of contact on attitudes (e.g. longitudinal studies by Brown, Eller, Leeds, & Stace, 2007; Eller & Abrams, 2004; but also see Eller & Abrams, 2003; Levin, van Laar, & Sidanius, 2003). Moreover, theory and logic would indicate that extended contact should influence prejudice more than vice versa. It seems unlikely, for example, that high levels of engagement with outgroup culture would *only* cause someone to report higher extended contact if they also had lower direct contact with that group. Moreover, if the reverse causal direction is plausible for the present findings this might also invite a revised, and in our view implausible, interpretation of Christ et al.'s (2010) findings to argue that people with favorable attitudes to immigrants in Germany would actively avoid making intergroup friendships while actively seeking ingroup friends who have outgroup friends.

As with all field research, there were practical limitations in the present studies. For example, it would have been useful to have larger numbers of participants in each study. Also, ideally we would have included more items or extensive measures of some constructs. Our choices were based on measures extant in the literature at the time that the studies were designed and also reflected the time constraints on what we could ask of participants. These limitations are, to some extent, mitigated by the replication of findings across studies, giving us greater confidence in the overall conclusions to be drawn from our research.

Previous research revealed that extended friendship can have some (albeit small) effects when direct friendship is absent (Christ et al., 2010). The present research shows that even when the quantity of direct contact is low, increased awareness of intergroup friendship can have quite substantial effects on both engagement with outgroup culture and prejudice. Whereas extended friendship is by its nature idiosyncratic and personalised, hence perhaps relatively rare, the more general awareness of intergroup friendship (extended contact) is likely experienced more commonly, and vary more in degree. Such awareness could affect perceived norms of intergroup contact (Cameron, Rutland, & Hossain, 2011) and the psychological overlap



between groups (Gaertner & Dovidio, 2000), which might explain why it has larger effects than those of extended friendship. The distinctive mediating processes for extended contact and extended friendship effects therefore offer important avenues for future research. It would also be interesting to know whether extended contact eventually provides a route to direct contact, or at least to formation of closer outgroup ties, and to related behavioral variables. Christ et al.'s measure of behavioral intentions suggests a useful step in this direction.

Last, but not least, this research points to interesting opportunities for improving intergroup relations. In social contexts and societies with quite high levels of institutional or informal segregation between groups, it may be difficult to promote rapid increases in the number of intergroup friendship. The opportunities may be limited and the social sanctions against such friendships could be hard to overcome. However, it may be much more feasible to increase awareness of those intergroup friendships that do exist and use this awareness as a vehicle for promoting greater openness and mutual appreciation from members of both groups. Mechanisms for increasing extended contact could be through mass media or education at schools. These are important avenues for future research.

## 7. Conclusion

The present findings reveal a consistent pattern of relationships. When direct contact is high, extended contact does not affect intergroup relations. However, when direct contact is low, extended contact predicts more positive intergroup relations, both cross-sectionally (Studies 1 and 2) and longitudinally (Study 3). Across three studies and two participant populations the evidence adds significantly to our confidence in extended contact theory. The evidence augments the theory by showing how direct and extended contact may work in conjunction and over a prolonged period of time. These findings shed light on the potential of extended and direct contact to affect intergroup relations and suggest that techniques for increasing extended contact can make a valuable contribution to improving intergroup relations among people who have only limited direct contact with outgroup members.

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