

Reducing Explicit and Implicit Outgroup Prejudice Via Direct and Extended Contact: The Mediating Role of Self-Disclosure and Intergroup Anxiety

Rhiannon N. Turner
University of Birmingham

Miles Hewstone
University of Oxford

Alberto Voci
University of Padova

In 4 studies, the authors investigated mediators of the effect of cross-group friendship. In Study 1, cross-group friendship among White elementary school children predicted more positive explicit outgroup attitude toward South Asians, mediated by self-disclosure and intergroup anxiety. In Study 2, cross-group friendship and extended contact among White and South Asian high school students positively predicted explicit outgroup attitude, mediated by self-disclosure and intergroup anxiety. Study 3 replicated these findings in a larger independent sample. In all 3 studies, exposure to the outgroup positively predicted implicit outgroup attitude. Study 4 further showed that self-disclosure improved explicit outgroup attitude via empathy, importance of contact, and intergroup trust. The authors discuss the theoretical and practical implications of these findings, which argue for the inclusion of self-disclosure as a key component of social interventions to reduce prejudice.

Keywords: cross-group friendship, extended contact, self-disclosure, intergroup anxiety, explicit and implicit attitudes

The contact hypothesis (Allport, 1954/1979) proposed that interacting with members of another group, under conditions of common goals, equal status, cooperation, and institutional support,

can lead to more positive attitudes toward that group. Recently, Pettigrew (1998) proposed a reformulation of the theory, suggesting that potential for friendship was an important facilitator of the effect of intergroup contact, because it was expected to result in close interactions that would induce friendship-developing mechanisms like self-disclosure. He also argued for a greater focus on affective processes, including reduced intergroup anxiety (Islam & Hewstone, 1993; Stephan & Stephan, 1985). Research subsequent to the reformulation has revealed the importance of cross-group friendship (Levin, van Laar, & Sidanius, 2003; Paolini, Hewstone, Cairns, & Voci, 2004) and has shown that intergroup anxiety mediates the negative relationship between intergroup contact and prejudice (Islam & Hewstone, 1993; Voci & Hewstone, 2003). In this article, we propose that although anxiety is a robust mediator of intergroup contact, self-disclosure—a process strongly implicated in the development and maintenance of friendships—may be particularly important in the context of cross-group friendships.

The present studies extend research and theory in four ways. First, across four studies, we showed that self-disclosure is an important mediator of the effect of two types of intergroup contact, cross-group friendship and extended contact (Wright, Aron, McLaughlin-Volpe, & Ropp, 1997), on outgroup attitudes. Second, we tested two mediators (self-disclosure and intergroup anx-

Rhiannon N. Turner, School of Psychology, University of Birmingham, Birmingham, United Kingdom; Miles Hewstone, Department of Experimental Psychology, University of Oxford, Oxford, United Kingdom; Alberto Voci, Department of General Psychology, University of Padova, Padova, Italy.

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Correspondence concerning this article should be addressed to Rhiannon N. Turner, who is now at the Institute of Psychological Sciences, University of Leeds, Leeds LS2 9JT, United Kingdom. E-mail: r.n.turner@leeds.ac.uk

iety) of both types of contact simultaneously, highlighting the relative importance of those mediators. Third, we showed that intergroup contact influences explicit and implicit outgroup attitudes via different routes. Fourth, we showed more precisely in our final study some of the mechanisms through which self-disclosure reduces prejudice.

Self-Disclosure

Recent evidence indicates that compared with other forms of intergroup contact, cross-group friendship is especially effective in reducing intergroup prejudice (Pettigrew & Tropp, 2006). In an extensive European survey, Pettigrew (1997) found that people who had cross-group friends showed reduced prejudice not only toward the outgroup in question but also toward a variety of other minority groups. The effects of co-worker and neighborhood contact were considerably weaker. One factor that may be important in explaining the impact of cross-group friendship is self-disclosure, the voluntary presentation of information that is of an intimate or personal nature to another person (Miller, 2002). Self-disclosure is an important aspect of interpersonal relationships and features prominently in theories of friendship development, which posit that close relationships develop as a result of an escalation of the breadth and intimacy of the information that two individuals reciprocally disclose to one another (Altman & Taylor, 1973; Reis & Shaver, 1988). Numerous studies show that when people disclose to us, we not only feel greater attraction toward them, but we also disclose more in return, leading to mutual interpersonal attraction (Berg & Wright-Buckley, 1988; Worthy, Gary, & Kahn, 1969). In the current article, we argue that in parallel to its role in interpersonal relationships, self-disclosure is also an essential component of intergroup friendships. In the sections following, we outline the rationale for this premise.

Self-Disclosure as a Mediator of Cross-Group Friendship

Recent research indicates that self-disclosure can be applied in an intergroup context to reduce prejudice (Dovidio et al., 1997). Ensari and Miller (2002) found that when a typical outgroup member disclosed personal information to a participant during a cooperative task, that individual and the outgroup in general were subsequently evaluated more positively by the participant. Similarly, Harwood, Hewstone, Paolini, and Voci (2005) found that reciprocal self-disclosure with one's closest grandparent mediated the effect of contact on perceived outgroup variability. Several theorists have suggested that self-disclosure should be a particularly important component of friendship contact. Miller (2002) argued that self-disclosure should reduce prejudice during personalized intergroup interactions by promoting familiarity, perceived similarity, and better processing of individuating information about outgroup members, whereas Pettigrew (1998) suggested that self-disclosure might explain why cross-group friendships are more effective than other forms of intergroup contact. To date, however, the role of self-disclosure as a mediator of cross-group friendship has not been tested.

We have identified three specific mechanisms through which self-disclosure during cross-group friendships might reduce prejudice. First, self-disclosure should lead to a more positive evaluation of the outgroup by generating empathy, a vicarious emotional state triggered by witnessing and understanding the thoughts and feelings of another (Stephan & Finlay, 1999). Interpersonal rela-

tions theorists have suggested that self-disclosure leads to intimacy only if the listener has understood, accepted, and appreciated what the discloser was saying and has responded appropriately, alluding to the potential importance of empathy during self-disclosure (Reis & Shaver, 1988). In line with this premise, self-disclosure during intergroup friendships should promote empathy (Miller, 2002), which, in line with previous research (Batson et al., 1997), should lead to more positive outgroup attitudes.

Second, self-disclosure should reduce prejudice by increasing the perceived importance of cross-group friendships. Van Dick and colleagues (2004) found that cross-group friendships reduced prejudice because they were personally important and valuable in helping those involved achieve certain goals, for example, allowing people to develop skills in interacting with members of other groups and to benefit from new experiences. Extending this reasoning, we believe that friendships involving self-disclosure should be perceived as being particularly important. According to the self-expansion model, people seek close friendships to "enhance their potential efficacy by increasing the physical and social resources, perspectives, and identities that facilitate achievement of any goals that might arise" (Aron, Aron, & Norman, 2001, p. 478). Such self-efficacy is achieved through intense self-disclosure. In essence, cross-group friends stand to acquire a lot of new and valuable information through self-disclosure, resulting in their personal development. If outgroup friends are seen as instrumental in the acquisition of important goals, then attitudes toward outgroups are likely to be more positive.

Third, self-disclosure should reduce prejudice by promoting reciprocal trust (Miller, 2002). Trust is an expression of confidence in another person or group of people that one will not be put at risk or harmed by their actions. Kerr, Stattin, and Trost (1999) proposed that trust develops over time as a result of experiences that show that a person's behavior is predictable and dependable. The more we learn about someone through his or her disclosures, the more certain we are that we can predict that individual's future behavior in critical, integrity-testing situations. Accordingly, Kerr and colleagues (1999) found that children's self-disclosure to their parents predicted parental trust. Clearly, we are unlikely to disclose personal information to another person in the first place if we suspect that it may be misused. Self-disclosure is, however, an escalating process as a relationship develops (Altman & Taylor, 1973). Thus, as two acquaintances get to know one another, and realize that the information they disclose is safe with the recipient, the intimacy of their self-disclosures and their trust in one another should increase. Trust should, in turn, lead to more positive attitudes; Petty and Mirels (1981) argued that self-disclosure implies a trust and confidence in the recipient and that people trust and like those who trust them.

Intergroup Anxiety as a Mediator of Intergroup Contact

To determine the importance of self-disclosure as a mediator of cross-group friendship, we compared it to intergroup anxiety, an established mediator of intergroup contact. Stephan and Stephan (1985) argued that intergroup anxiety is likely to arise as a consequence of negative expectations of rejection or discrimination during cross-group interactions. It is thought to lead to contact avoidance and a narrowed focus of attention, which can lead to simplified, expectancy-confirming processing, resulting in a reli-

ance on stereotypes when evaluating a member of another group (Wilder & Simon, 2001). Positive intergroup encounters have, however, been shown to reduce intergroup anxiety. Voci and Hewstone (2003), for example, found that Italian students' quality and quantity of contact with African immigrants was associated with more positive outgroup attitudes and less subtle prejudice, mediated by reduced intergroup anxiety.

Despite these findings, we believe that self-disclosure may be a more powerful mediator of cross-group friendship for two reasons. First, self-disclosure is crucial to the development and maintenance of friendships (Reis & Shaver, 1988), but intergroup anxiety typically exists when there has been little prior contact and people are unsure of how to behave and what to expect. This is less of an issue during established intergroup relationships. Second, although intergroup anxiety is primarily considered to be an affective mediator, self-disclosure has both affective and cognitive components, increasing intimacy on the one hand and providing individuating information about the outgroup on the other. Consequently, it should have a more powerful, dual impact on prejudice than intergroup anxiety in the context of cross-group friendship. The current research compares the respective contributions of self-disclosure and intergroup anxiety as mediators of cross-group friendship.

The Route to Changing Explicit and Implicit Outgroup Attitudes

Researchers have recently begun to consider the effect of intergroup contact on implicit attitude¹ measures. Whereas explicit attitudes are conscious, deliberative, and controllable (and are usually captured by traditional self-report measures), implicit attitudes are unintentionally activated by the mere presence (actual or symbolic) of an attitude object and are therefore less likely to be influenced by social desirability than are explicit measures. Wilson, Lindsey, and Schooler (2000) proposed that explicit attitudes change relatively easily, whereas implicit attitudes are like old habits, which are much more difficult to change. There is, however, a growing literature that implicit attitudes can be altered by changing the social context (e.g., Dasgupta & Asgari, 2004; Dasgupta & Greenwald, 2001). Concerning the relationship between contact and implicit outgroup attitudes, Aberson and Haag (in press) found that intergroup contact with African Americans was associated with lower levels of implicit intergroup bias among White participants.

In the current research, we investigated the relationship between intergroup contact and implicit outgroup attitude, measured using the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998). We expected intergroup contact to predict explicit and implicit outgroup attitudes via two different routes. Explicit attitudes should be influenced by the quality of the intergroup interaction; cross-group friendship should reduce prejudice because the conscious and deliberative nature of friendship changes people's perceptions of the outgroup through increased self-disclosure and reduced intergroup anxiety (Ensari & Miller, 2002; Paolini et al., 2004). In contrast, because they are automatic rather than deliberative, implicit attitudes should be influenced more directly by exposure to the outgroup. This premise is supported by recent meta-analytic findings that showed that exposure to outgroup members—regardless of the quality of that experience—led to more positive outgroup attitudes (Pettigrew & Tropp,

2006). Exposure to the outgroup may be particularly likely to directly produce more positive implicit outgroup attitudes; Dasgupta and Asgari (2004), for example, found that participants exposed to pictures and biographies of famous women leaders were subsequently more likely to associate women with leadership qualities on a measure of implicit gender bias.

The Present Research

The main purpose of these studies was a systematic investigation of self-disclosure as a mediator of the effect of cross-group friendship and vicarious experiences of such friendship. We also sought to extend our understanding of the consequences of intergroup contact and the routes by which it improves intergroup relations by considering explicit and implicit measures of outgroup attitude. We conducted four cross-sectional studies in the context of relations between South Asians,² the largest minority group in the United Kingdom, and the White majority. Given that a classroom environment provides an ideal opportunity to bring together members of two different ethnic groups under optimal contact conditions of cooperation and institutional support, we conducted Studies 1–3 among British school students.

Study 1

Our initial study investigated two potential processes underlying the effect of cross-group friendship, self-disclosure, and intergroup anxiety among elementary school students. We included an explicit measure (self-reported evaluation of the outgroup) and an implicit measure of outgroup attitude (the IAT; Greenwald et al., 1998). To circumvent the problem posed by limited reading ability, we developed a picture-based IAT.

We expected cross-group friendship among elementary school children to predict more positive explicit outgroup attitudes. We expected self-disclosure to be a more powerful mediator of this relationship than reduced intergroup anxiety for two reasons. First, although intergroup anxiety is likely to arise during the development of intergroup relationships, it is less likely to be an issue during established intergroup friendships. Second, unlike intergroup anxiety, which is primarily an affective process, self-disclosure has both an affective and a cognitive component and should therefore have a more powerful dual-pronged impact. We expected friendship to have an unmediated positive relationship with implicit outgroup attitudes. We did not expect explicit and implicit attitudes to be correlated with one another, because they frequently diverge for socially sensitive issues (Dovidio & Fazio, 1992).

Method

Participants

Sixty White participants (27 males and 33 females between the ages of 8.1 and 11.9 years, with a mean age of 10.0 years) were

¹ For the purposes of clarity, implicit measures of bias are referred to as implicit attitudes. However, we acknowledge the controversy regarding whether implicit attitudes are an evaluation of the target group (Greenwald & Banaji, 1995) or merely reflect associations we hold as a consequence of influences in society (Karpinski & Hilton, 2001).

² South Asians (i.e., those of Bangladeshi, Indian, or Pakistani origin) are referred to in the United Kingdom simply as "Asian" people.

recruited from two elementary schools in Sheffield, a city in the north of England. The neighborhood in which the schools are situated is an ethnically homogeneous community (97.8% White) with a very small Asian population (0.6%), but the percentage of Asian residents in the city is 4.6%, equal to the national Asian population (U.K. Office of National Statistics, 2001).

Materials

Questionnaire items were rated on a 5-point scale. For items that required participants to indicate their agreement with a statement, textured response strips were used to make these items more visual and therefore easier for children to understand (Pretzlik & Sylva, 1999). Five squares were used to represent different levels of agreement, an unshaded square representing *strongly disagree*, a highly shaded square representing *strongly agree*, and intermediate levels of shading representing *slightly agree*, *neutral*, and *slightly disagree*. The questionnaire was assessed by an elementary school teacher and completed by a sample of 8- and 9-year-old children to ensure that questions were appropriate for participants' reading levels. In this study and all subsequent studies, measures consisted of the mean score on the reported items.

Predictor variable. The cross-group friendship measure consisted of two items ($r = .69$): "I often spend time with Asian children outside school" and "I often have Asian friends around to my house." Higher scores indicated greater cross-group friendship.

Mediator variables. The intergroup anxiety measure ($\alpha = .78$) was adapted from the work of Stephan and Stephan (1985) to be suitable for children. Participants were asked, "Imagine being put in a class where you were the only White student in a class of Asian students. How would you feel?" They responded on three 5-point semantic differential items—*happy–unhappy*, *pleased–worried* and *comfortable–tense*—coded so that higher scores reflected more anxiety. To measure self-disclosure, we asked participants whether they would disclose (a) a problem they were worried about and (b) an exciting secret to a member of the outgroup (both items, 1 = *definitely not*, 5 = *definitely*; $r = .65$). We measured intent to self-disclose rather than actual self-disclosure because we were concerned that, given the lack of Asian classmates, participants would have had little opportunity to actually self-disclose to the outgroup.

Explicit outgroup attitudes. The scale consisted of four items ($\alpha = .71$), including a 5-point scale against which participants indicated whether they preferred Asian or White people and three 5-point semantic-differential items: *friendly–unfriendly*, *cool–not cool*, and *like them–hate them*. These items used a "smiley-face" scale, consisting of very happy to very sad faces, to facilitate understanding. Items were coded so that a higher score indicated a more positive outgroup evaluation. To confirm that cross-group friendship and outgroup attitude items were distinct from one another, we conducted an exploratory factor analysis (principal axis with oblimin rotation), retaining eigenvalues greater than 1. The analysis revealed two distinct factors, with friendship items loading strongly onto one factor ($> .66$) and the attitude items loading strongly onto another factor ($> .86$).

Implicit outgroup attitude. We used Inquisit software (by Millisecond) to adapt the measure of implicit outgroup attitude, the IAT (Greenwald et al., 1998) into a word-free version suitable for children. The IAT involves repeatedly categorizing target stimuli

and attributing stimuli that are randomly presented one at a time on a computer screen. Target stimuli were photographs of eight Asian faces and eight White faces, half of which were female and half of which were male. A pilot study ($N = 23$) with Asian and White participants revealed no difference in the perceived attractiveness of the Asian and White stimulus faces, $t(22) = -.35$, $p < .73$. Attribute stimuli were eight "positive" cartoon faces (happy and smiling) and eight "negative" cartoon faces (frowning or grimacing).

Participants engaged in five tasks, each split into practice and test trials, in which they were required to use two keys (one on each side of the keyboard) to categorize stimuli into one of two groups. In the first task, they were required to classify cartoon faces as being either positive or negative. In the second task, they were asked to classify photographs of faces as being Asian or White. In the third task, participants were presented with cartoon faces and photographs, which they were required to classify as either (a) White or positive or (b) Asian or negative. The fourth task was a repeat of the second, with the category labels swapped around so participants would have to classify Asian and White faces onto the side of the screen opposite from that they had become accustomed to using. The fifth task was the same as the third trial except that participants had to classify stimuli as either (a) Asian or positive or (b) White or negative. The third trial and the fifth trial were the critical trials from which we derived implicit attitude scores. We expected that participants would show faster reaction times on the third, attitude-congruent trial than on the fifth, attitude-incongruent trial. The side of the screen on which stimuli were presented and the order of the critical trials were counterbalanced.

Procedure

Participants were first presented with photographs of Asian and White people in order to ensure that they were aware of this categorical distinction prior to the study. Participants completed the IAT on a PC laptop and the questionnaire on a Macintosh (Apple, Cupertino, CA) laptop with SuperLab software, Version 2.0 (2003; Cedrus). The order in which predictor, mediator, and criterion variables were presented was randomized by the computer, and participants were randomly assigned to complete either the IAT or the questionnaire first. A White female researcher remained with each participant throughout the study to read out instructions and questions when necessary. After completion of the study, participants were then thanked and debriefed in simplified terms.

Results and Discussion

Transforming IAT Scores

Raw IAT data were transformed using Greenwald, Nosek, and Banaji's (2003) improved scoring algorithm; these authors have recommended that practice and test trials be included in the analysis, that trials with latencies greater than 10,000 ms be removed from analyses, and that participants who have more than 10% of trials with any latencies of less than 300 ms also be removed from analyses. We dropped 29 trials (0.14% of trials) from the analysis because their latencies were over 10,000 ms. An average standard-

ized difference score between latencies for attitude-congruent trials (classifying stimuli as positive or White or as negative or Asian) and attitude-incongruent trials (classifying stimuli as positive or Asian or as negative or White) was computed to create a standardized score (d). A positive d score indicated a positive attitude toward the outgroup relative to the ingroup, whereas a negative d score indicated a positive attitude toward the ingroup relative to the outgroup. We evaluated internal consistency by splitting each critical trial into four parts and applying the scoring algorithm separately to each part, yielding Cronbach's $\alpha = .80$.

Preliminary Analyses

Means, standard deviations, and correlations between measures are presented in Table 1. Cross-group friendship was positively correlated with implicit outgroup attitude. Cross-group friendship and self-disclosure were positively correlated with explicit outgroup attitude, whereas intergroup anxiety was negatively correlated with explicit outgroup attitudes. Explicit and implicit outgroup attitudes were not significantly correlated with one another.

Path Modeling

Using LISREL (Version 8; Jöreskog & Sörbom, 1996), we conducted path analysis with observed variables (rather than with latent variables) because of the small sample size (MacCallum & Austin, 2000). All paths were estimated; this was therefore a saturated model, meaning that the fit of the model was perfect. Figure 1 shows only the significant paths in the model. As predicted, cross-group friendship was directly associated with more positive implicit outgroup attitude ($\gamma = .29, p < .05$). It also predicted more positive explicit outgroup attitude, but this relationship was indirect; cross-group friendship was associated with greater likelihood of self-disclosure to an outgroup member ($\gamma = .41, p < .001$), which, in turn, was associated with more positive explicit outgroup attitude ($\beta = .56, p < .001$). A Sobel test confirmed that the relationship between cross-group friendship and explicit outgroup attitude was mediated by self-disclosure ($z = 2.88, p < .01$). The relationship between cross-group friendship and explicit outgroup attitude was also mediated by intergroup anxiety ($z = 2.10, p < .05$), although as predicted it appeared to be slightly less powerful a mediator than self-disclosure; friendship was associated with lower levels of intergroup anxiety ($\gamma = -.44, p < .001$), which was subsequently associated with more positive outgroup attitude ($\beta = -.26, p < .05$).

In order to determine whether the relationship between self-disclosure and outgroup attitude ($\beta = .56, p < .001$) was significantly stronger than the relationship between anxiety and outgroup attitude ($\beta = -.26, p < .05$), we ran a model in which we constrained to equality these two paths and compared the fit of this model with one in which the two paths were free to be different. In line with our predictions, the path from self-disclosure to attitude was marginally stronger than the path from anxiety to attitude, $\Delta\chi^2(1) = 3.01, p < .08$. Together, cross-group friendship and its mediators explained 57% of the variance in explicit outgroup attitude, whereas cross-group friendship alone explained 7% of the variance in implicit outgroup attitude.

To assess the overall effect exerted by each variable on the criterion variables and the strength of the mediations, we decomposed the effects of the correlations between each pair of variables. The total covariance (correlation) was decomposed into direct causal effects (the effect of one variable on another controlling for all prior variables and all mediating variables), indirect causal effects (the total causal effect minus the direct effect), and noncausal effects (or spurious components). Noncausal effects were all small. The total causal effects (TE) of friendship on self-disclosure (TE = .41, $p < .01$), intergroup anxiety (TE = -.44, $p < .001$) and explicit outgroup attitude (TE = .41, $p < .01$) were strong. Moreover, the indirect effect (IE) that cross-group friendship exerted on explicit outgroup attitudes was also significant (IE = .34, $p < .001$), confirming the mediating role of self-disclosure and intergroup anxiety between friendship and attitude.

Study 2

In Study 2, we extended our investigation in two ways. First, we asked participants whether the opportunities existed in everyday life to meet outgroup members. Although opportunity for contact does not directly reduce antipathy toward the outgroup (Wagner, Hewstone & Machleit, 1989), it predicts greater levels of meaningful contact, such as cross-group friendship (DuBois & Hirsch, 1990) which may then result in positive intergroup attitudes (Phinney, Ferguson, & Tate, 1997). Opportunity for contact can also serve as a measure of exposure to the outgroup. If it is truly the case that friendship was associated with more positive implicit outgroup attitude in Study 1 because it increased exposure to the outgroup, opportunity for contact should be associated with more positive implicit outgroup attitudes over and above the effect of cross-group friendship. Second, we tested the extended contact hypothesis (Wright et al., 1997): the proposition that simply know-

Table 1
Means, Standard Deviations, and Correlations Between Predictor, Mediator, and Criterion Variables in Study 1

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Cross-group friendship	1.82	1.12	—				
2. Intergroup anxiety	3.62	1.07	-.44***	—			
3. Self-disclosure	2.79	1.23	.41**	-.49**	—		
4. Outgroup attitudes	3.11	.75	.41**	-.56***	.71***	—	
5. Implicit Attitudes Test (IAT)	-0.31	.39	.24†	-.01	.06	.05	—

Note. $N = 60$.

† $p < .07$. ** $p < .01$. *** $p < .001$.

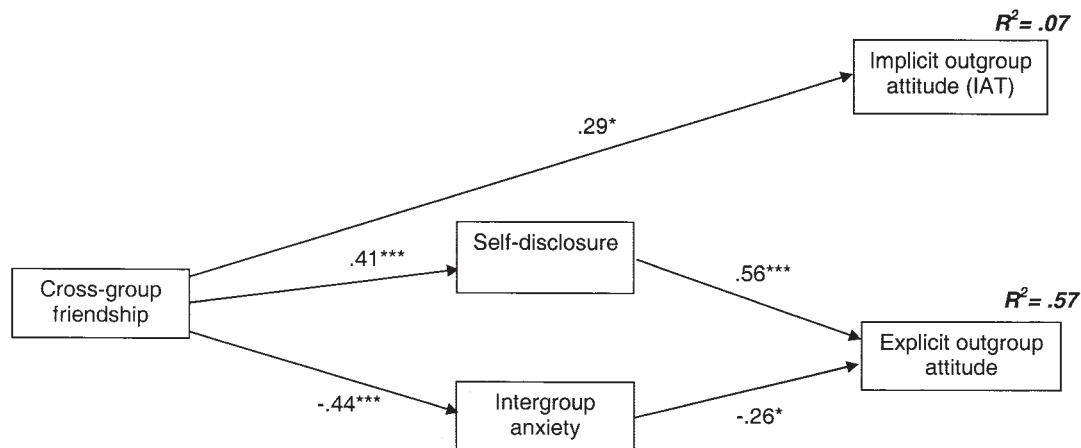


Figure 1. Path model of the effects of cross-group friendship on implicit and explicit attitudes toward Asians among White elementary school children ($N = 60$), showing mediation via intergroup anxiety and self-disclosure (Study 1). Coefficients are standardized; only significant paths are reported. Correlations: self-disclosure–intergroup anxiety = $-.31^{**}$; implicit–explicit outgroup attitudes = $.00$. * $p < .05$. ** $p < .01$. *** $p < .001$.

ing ingroup members who have outgroup friends is sufficient to reduce prejudice.

Wright et al. (1997) found that the more extended outgroup friends that a participant had, the less prejudiced they were, a finding that has been replicated in a number of intergroup contexts, among adults (Paolini et al., 2004) and children (Cameron, Rutland, Brown, & Douch, 2006; Liebkind & McAlister, 1999). Extended contact may be particularly useful in contexts in which intergroup conflict and segregation are high and the opportunity for contact—and therefore the potential for friendship—is low. It also has two additional advantages. First, it increases the likelihood that group membership will be salient during the observed interaction. Because an outside observer is not acquainted with the individuating features of the outgroup member, there is a greater likelihood that positive attitude change toward that individual will generalize to the entire outgroup (Hewstone & Brown, 1986). Second, because interaction with the outgroup is not, at this stage, experienced first hand, intergroup anxiety is less likely (Wright et al., 1997).

Study 2 was conducted among Asian and White high school students in Bradford, a town in northern England in which there were riots between the Asian and White communities in 2001 and in which segregation of neighborhoods and schools has led to the two communities' leading "parallel lives" (U.K. Home Office, 2003 p. 9). Because direct contact between the two groups was so limited, Bradford provided a good setting in which to test the impact of extended contact.

We expected opportunity for contact to be positively associated with cross-group friendship but not directly with more positive explicit outgroup attitude. We also expected opportunity for contact, rather than cross-group friendship, to directly predict more positive implicit outgroup attitude because it acts as a proxy for exposure to the outgroup. If Study 2 results replicated those of Study 1, cross-group friendship should be indirectly associated with explicit outgroup attitudes via the mediating mechanisms of self-disclosure and, to a lesser extent, lowered intergroup anxiety.

We expected both disclosure and anxiety to explain the effect of extended contact. Because extended contact does not involve an interpersonal relationship with an outgroup member, we did not expect to observe differences in their mediating power. Wright et al. (1997) predicted that extended contact would reduce participants' anxiety at the prospect of interacting with outgroup members, a premise supported by Paolini et al. (2004). Extended contact should also work by increasing self-disclosure. According to social learning theory (Bandura, 1977), observing the behavior of others and realizing that it has no adverse consequences reduces inhibition and increases perceptions of self-efficacy, motivating participants to perform the behavior themselves. Thus, observing a cross-group friendship—of which self-disclosure is an integral part—should increase the likelihood that the observer would disclose to the outgroup themselves.

Finally, we predicted a significant correlation between implicit and explicit outgroup attitudes. Although we found no such relationship in Study 1, which was set in a context with no explicit conflict between Asians and Whites, the recent conflict between the two communities in the context of the present study was likely to have increased the perceived legitimacy of expressing a negative explicit attitude toward the outgroup, thus increasing consistency between implicit and explicit attitude (Florack, Scarabis, & Bless, 2001).

Method

Participants

Ninety-six male participants, between the ages of 11.8 and 15.8 years, with a mean age of 13.3 years, were drawn at random from two secondary schools in Bradford, a town with a high Asian population (18.9%) compared with the national average of 4.6%. Forty-eight participants were of an Asian ethnic background and attended a secondary school in an ethnically diverse area of Bradford (37.6% Asian, 58.4% White; U.K. Office of National Statistics, 2001). Despite this diversity, however, 98% of students at the

school itself were Asian. Forty-eight participants were White and attended a secondary school in an area of the city with a very low Asian population (1.1% Asian, 97.4% White; U.K. Office of National Statistics, 2001), where approximately 96% of students are White.

Materials

Participants completed a questionnaire that for Asian participants referred to experiences with Whites and for White participants referred to experiences with Asians.

Predictor variables. We ascertained opportunity for contact from participants' responses about the proportion of outgroup members in the participants' neighborhood and the proportion of ingroup to outgroup members who would be seen on a "typical day" ($r = .55$; both items, 1 = *none*, 2 = *quite a few*, 3 = *about half*, 4 = *most*, 5 = *almost all*). The cross-group friendship measure ($\alpha = .81$) consisted of three statements with which participants had to indicate agreement. The first two items were very similar to those used in Study 1: "I spend a lot of time doing things with Asian/White friends," and "Asian/White friends often come around to my house." A third item was also included to create a more comprehensive scale: "I often go around to the houses of friends who are Asian/White" (all items, 1 = *strongly disagree*, 2 = *slightly disagree*, 3 = *not sure*, 4 = *slightly agree*, 5 = *strongly agree*). Two items ($r = .53$) were used to gauge levels of extended contact, regarding how many ingroup friends the participants had and how many family members had friends who were in the outgroup (both items, 1 = *none*, 2 = *one*, 3 = *between two and five*, 4 = *between five and ten*, 5 = *more than ten*).

Mediator variables. For intergroup anxiety, participants were asked, "Imagine being moved to a new school where you were the only person in your class who was Asian/White. How would you feel?" Participants responded on four semantic differential scales ($\alpha = .85$): *relaxed–nervous*, *comfortable–tense*, *pleased–worried* and *scared–not scared*. As a measure of intentions regarding self-disclosure, participants were asked, "How likely would it be that you would disclose a personal problem to a member of the outgroup?" (1 = *not at all likely*, 2 = *quite unlikely*, 3 = *not sure*, 4 = *quite likely*, 5 = *very likely*). As in Study 1, frequency of self-disclosure was not measured because, given the segregated

context of the study, we expected participants to have little opportunity to disclose to members of the outgroup.

Criterion variables. Four items ($\alpha = .83$) measured explicit outgroup attitudes. Participants indicated their degree of warmth toward the outgroup (1 = *very warm*, 2 = *quite warm*, 3 = *neutral*, 4 = *quite cold*, 5 = *very cold*), and their agreement with three items "I really like Asian/White people," "Asian/White people are really friendly," and "I trust Asian/White people" (latter three items, 1 = *strongly disagree*, 2 = *slightly disagree*, 3 = *not sure*, 4 = *slightly agree*, 5 = *strongly agree*). The measure of implicit outgroup attitude was identical to that of Study 1, except that instead of using positive and negative cartoon faces, eight positive words (e.g., *rainbow*, *smile*) and eight negative words (e.g., *nasty*, *horrible*) were used for the attribute stimuli to suit the older age of the participants. The d score for the IAT was computed as it was for Study 1. Internal reliability, computed using a four-part Cronbach's alpha (see Study 1), was acceptable ($\alpha = .73$).

Procedure

The procedure was identical to that of Study 1, including all counterbalancing, except that following initial instructions from a White female researcher, participants completed the questionnaire and IAT unaided.

Results and Discussion

Descriptive Analyses

We computed means and standard deviations for each variable across the entire sample. Table 2 shows that participants reported higher levels of extended contact than of direct friendship, consistent with the idea that extended contact can influence a broader range of people. We also considered whether responses differed depending on ethnic group, although it is important to note that Asian and White participants attended different schools, so differences in responses reflect the different context in which these individuals live rather than different perspectives on the same intergroup context. Independent samples t tests showed that Asian participants reported significantly greater opportunity for contact, $M_{\text{Asians}} = 2.23$ vs. $M_{\text{Whites}} = 1.80$, $t(94) = 2.28$, $p < .05$; more

Table 2
Means, Standard Deviations, and Correlations Between Predictor, Mediator, and Criterion Variables in Study 2

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. Opportunity for contact	2.02	0.94	—						
2. Cross-group friendship	2.01	1.06	.37***	—					
3. Extended friendship	2.78	0.87	.12	.54***	—				
4. Intergroup anxiety	3.53	0.95	-.25*	-.30**	-.37***	—			
5. Self-disclosure	2.24	1.14	.31**	.50***	.43***	-.41***	—		
6. Outgroup attitudes	2.97	1.08	.08	.48***	.60***	-.43***	.53***	—	
7. Implicit Attitudes Test (IAT)	-0.49	0.47	.32**	.12	.09	-.15	.01	.20†	—

Note. $N = 96$.

^a Marginal difference between the correlations for Asian and White participants. Separate correlations for each ethnic group are Asian $r = .65^{***}$, White $r = .40^{**}$ ($z = 1.67$, $p < .10$).

† $p < .06$. * $p < .05$. ** $p < .01$. *** $p < .001$.

positive explicit outgroup attitudes, $M_{\text{Asians}} = 3.22$ vs. $M_{\text{Whites}} = 2.71$; $t(94) = 2.33$, $p < .05$; and more positive implicit outgroup attitude, $M_{\text{Asians}} = -.28$ vs. $M_{\text{Whites}} = -.71$; $t(91) = 4.93$, $p < .001$, than did White participants.

The finding that minority (Asian) participants had a more positive explicit outgroup attitude than did majority (White) participants is in line with other recent findings (Tropp & Wright, 2003). Although we are typically motivated to favor our own group over other groups (Tajfel, 1981), responses of Asians, generally perceived in society to be of lower social status than Whites, may be constrained by the realities of the social context (Ellemers, Van Dyck, Hinkle, & Jacobs, 2000). The more positive implicit outgroup attitude for Asian participants might be explained by certain characteristics of the IAT. In the current study, the IAT was used essentially as an estimate of the strength of association of the category Asian or White with positivity or negativity. Fazio and Olson (2003) argued that even if an individual does not have a personal belief that associates a category with negativity, that individual may recognize that the group is generally portrayed negatively by the majority group in society. Consequently, this negative knowledge may come to that person's mind more easily than his or her own positive associations. Despite this, however, it is important to note that Asian participants still showed implicit ingroup favoritism.

Correlational Analyses

Table 2 shows correlations between the variables across all participants. Opportunity for contact was associated with greater cross-group friendship but not with explicit outgroup attitude. Opportunity for contact, not cross-group friendship, was significantly correlated with implicit outgroup attitude. Cross-group

friendship, extended contact, and self-disclosure were positively correlated with outgroup attitude, and intergroup anxiety was negatively correlated. Explicit and implicit outgroup attitudes were correlated with one another, albeit marginally; the overt intergroup conflict may have legitimized the expression of negative explicit outgroup attitudes, increasing the association with implicit attitude (Florack et al., 2001). We also compared correlations for Asian and White participants by creating a z score for the difference between each pair of standardized correlations, but this yielded no significant differences.

Path Modeling

We tested a causal path model with observed variables using LISREL, Version 8 (Jöreskog & Sörbom, 1996). Opportunity for contact, cross-group friendship, and extended contact were entered as predictors, intergroup anxiety and self-disclosure as mediators, and explicit and implicit outgroup attitudes as criterion variables. We tested a saturated model in which all paths were estimated. We conducted one set of analyses including all respondents and another testing whether the reported relationships depended on ethnic group by testing interactions between each predictor and the participants' ethnic group. The latter analyses revealed no significant interactions; thus, the relationships observed did not differ for Asian and White participants. The path model reported below therefore represents our findings across all participants.

Figure 2 shows that opportunity for contact, not cross-group friendship, was associated with implicit attitude toward the outgroup ($\gamma = .33$, $p < .01$); having opportunities to meet the outgroup was associated with more positive implicit outgroup attitudes. Mere exposure to the outgroup therefore appears to be a more important predictor of implicit outgroup attitude than the

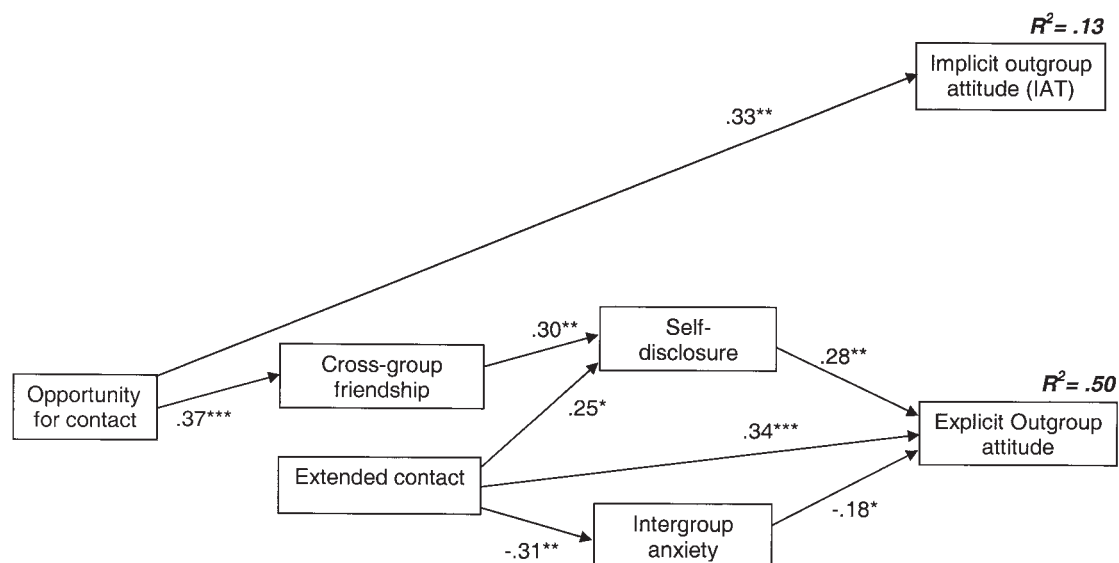


Figure 2. Path model of the effects of direct and extended contact on explicit and implicit outgroup attitudes among Asian and White adolescents ($N = 96$), showing mediation via intergroup anxiety and self-disclosure (Study 2). Coefficients are standardized; only significant paths are reported. Correlations: cross-group friendship–extended contact = .50***; self-disclosure–intergroup anxiety = $-.19^*$; implicit–explicit outgroup attitudes = .17*. * $p < .05$. ** $p < .01$. *** $p < .001$.

more affective friendship measure. Because we did not include opportunity for contact as a variable in Study 1, this important relationship only emerged in Study 2. As expected, opportunity for contact was positively associated with cross-group friendship ($\gamma = .37, p < .001$) but not with explicit outgroup attitude. Although opportunity for contact increased the likelihood that cross-group friendships would develop, the mere presence of outgroup members was not sufficient to promote more positive explicit attitudes.

Cross-group friendship was indirectly associated with explicit outgroup attitudes, through the mediating process of self-disclosure. Greater cross-group friendship was associated with greater self-disclosure to the outgroup ($\beta = .30, p < .01$), which in turn was associated with more positive explicit outgroup attitudes ($\beta = .28, p < .01$). A Sobel test confirmed this mediating effect, $z = 2.03, p < .05$. In contrast to Study 1, intergroup anxiety did not mediate the relationship between cross-group friendship and outgroup attitudes. However, when extended contact was excluded from the model, anxiety marginally mediated the relationship ($z = 1.81, p < .07$).

Extended contact was directly associated with more positive explicit outgroup attitudes ($\beta = .34, p < .001$), but this relationship was marginally mediated by intergroup anxiety ($z = 1.72, p < .09$). Extended contact was associated with lower intergroup anxiety ($\beta = -.31, p < .01$), which in turn was associated with more positive outgroup attitudes ($\beta = -.18, p < .05$). Self-disclosure was also a marginally significant mediator ($z = 1.88, p < .06$); extended contact was associated with greater intent to disclose personal information to outgroup members ($\beta = .25, p < .05$), which was subsequently associated with more positive outgroup attitudes ($\beta = .28, p < .01$).

Finally, although the relations between both types of intergroup contact and outgroup attitude were mediated, simple exposure to the outgroup, assessed via a measure of opportunity for contact, had a direct, positive relationship with implicit outgroup attitude, supporting the argument that the effect of contact on implicit and explicit attitudes operates via two different routes.

Overall, the model showed that direct and extended contact and the two mediators, outgroup disclosure and intergroup anxiety, explained 50% of the variance in explicit attitudes toward the outgroup. Exposure to the outgroup explained 13% of the variance in implicit outgroup attitude. Effects decomposition analysis revealed that although the direct effect (DE) of cross-group friendship on outgroup attitudes was not significant (DE = .16, $p < .11$), the indirect effect (IE) was significant (IE = .10, $p < .05$). This confirms that friendship influenced explicit outgroup attitudes through self-disclosure. The direct (DE = .34, $p < .001$) and indirect (IE = .12, $p < .01$) effects of extended contact on explicit outgroup attitudes confirm that extended friendship influences attitudes both directly and indirectly through self-disclosure and intergroup anxiety.

Study 3

To confirm the findings from our first two studies, we conducted a third study with an independent sample of White British high school students. This study involved a larger sample, enabling us to undertake more rigorous statistical analysis using structural equation modeling (SEM) with latent variables to test the path model produced in Study 2. Given the emerging importance of

self-to-outgroup disclosure in Studies 1 and 2, we also created a more comprehensive measure of self-disclosure. First, we measured frequency of actual self-disclosure, in addition to measures of intent to self-disclose, to confirm that participants' intentions to self-disclose were related to their frequency of actual disclosure to members of the outgroup. Second, given that the amount and intimacy of information disclosed tends to be reciprocal (Jourard, 1959; Petty & Mirels, 1981), we also measured reciprocal self-disclosure for this study. Thus, participants indicated the extent to which they disclosed to members of the outgroup and the extent to which outgroup members disclosed to them.

We expected to replicate our findings from Study 2 in all but one respect. Given the lack of overt conflict between the Asian and White communities (as in Study 1), we did not expect implicit and explicit attitudes to be correlated with one another.

Method

Participants

One hundred and sixty-four White participants (85 female and 79 male, between the ages of 11.4 and 15.8 years, with a mean age of 13.6 years) were drawn at random from two high schools in Buckinghamshire, England. In this region, 4% of the population is Asian, and 93.4% is White (U.K. Office of National Statistics, 2001).

Materials

Predictor variables. The opportunity for contact measure consisted of one item regarding the proportion of outgroup members in the participants' neighborhood (1 = *none*, 2 = *quite a few*, 3 = *about half*, 4 = *most*, 5 = *almost all*). To improve upon the cross-group friendship items included in the previous studies, we had participants answer four questions ($\alpha = .82$) about the number of outgroup friends they had and the frequency with which they spent time with those friends. Items were as follows: "How many close friends do you have at school who are Asian?" "How many close friends do you have outside school who are Asian?" (both items, 1 = *none*, 2 = *one*, 3 = *between two and five*, 4 = *between five and ten*, 5 = *more than ten*), "How often do you spend time with Asian friends when you are at school?" and "How often do you spend time with Asian friends outside school?" (both items, 1 = *never*, 2 = *occasionally*, 3 = *sometimes*, 4 = *quite a lot*, 5 = *all the time*). Extended contact was measured using two items ($r = .67$): "How many of (a) your White friends and (b) your family members have Asian friends?" (both items, 1 = *none*, 2 = *one*, 3 = *between two and five*, 4 = *between five and ten*, 5 = *more than ten*).

Mediator variables. As a measure of intergroup anxiety, participants were asked, "Imagine being moved to a new school where you are the only White person in your class and everyone else is Asian. How would you feel?" Participants responded on four 5-point semantic differential scales ($\alpha = .89$): *comfortable-tense*, *pleased-worried*, *scared-not scared* and *confident-unconfident*, which were coded so that higher scores reflected greater anxiety. Six items ($\alpha = .76$) measured self-disclosure between the participant and Asian people. As a measure of intended self-disclosure, participants were asked, "Imagine you had a problem that was worrying you. How likely would it be that you would tell someone Asian?" "Imagine you had an important secret. How likely would

it be that you would choose someone Asian to tell?" "If an Asian person was worried about something, how likely would it be that he or she would tell you about the problem?" and "If an Asian person had an exciting secret, how likely would it be that he or she would tell you about the secret?" (four items, 1 = *not at all likely*, 2 = *quite unlikely*, 3 = *not sure*, 4 = *quite likely*, 5 = *very likely*). As a measure of frequency of actual self-disclosure, participants were asked, "How often do you talk about how you are feeling to someone Asian?" and "How often do Asian people talk to you about how they are feeling?" (both items, 1 = *never*, 2 = *occasionally*, 3 = *sometimes*, 4 = *quite a lot*, 5 = *all the time*).

To test whether or not intended self-disclosure and frequency of self-disclosure should be considered together or separately, we conducted a principal-components analysis retaining eigenvalues greater than 1. The analysis revealed that all six items loaded strongly onto a single factor that accounted for 48.0% of the variance. Ingroup-to-outgroup self-disclosure and outgroup-to-ingroup disclosure items were also highly correlated with one another ($r = .59, p < .001$), supporting the premise that self-disclosure is a reciprocal process.

Explicit outgroup attitude. We measured explicit attitudes toward the outgroup using six 5-point semantic-differential items ($\alpha = .91$). Participants were asked, "Think about Asian people in general. What do you think about Asian people as a group? Do you think they are . . . (*unfriendly–friendly*, *cold–warm*, *negative–positive*, *bad–good*, *horrible–nice*, *mean–kind*)." Items were coded so that a higher mean score indicated more positive explicit outgroup attitudes.

Implicit outgroup attitude. The measure of implicit outgroup attitude and subsequent transformation of IAT data was identical to that used in Study 2. Internal reliability was acceptable ($\alpha = .73$).

Procedure

The procedure was identical to that of Study 2, including all counterbalancing.

Results and Discussion

Preliminary Analyses

Table 3 shows the mean value and standard deviation for each variable and correlations between each pair of variables. Participants reported low levels of cross-group friendship but, as in Study 2, higher levels of extended contact. Opportunity for contact was

positively correlated with implicit outgroup attitude. Cross-group friendship, extended contact, and self-disclosure were positively associated with outgroup attitude, whereas intergroup anxiety was negatively associated with outgroup attitude. Implicit and explicit attitudes were not correlated with one another.

Structural Equation Modeling

We analyzed data using SEM with latent variables (LISREL, Version 8, Jöreskog & Sörbom, 1996). Opportunity for contact, extended contact, and implicit outgroup attitude were each measured with a single indicator. For all other constructs, we created multiple indicators by adopting the partial disaggregation approach (Bagozzi & Heatherton, 1994). This involved creating subsets of items (see Appendix A) that were then averaged to create two indicators for cross-group friendship, self-disclosure, and intergroup anxiety and three indicators for explicit outgroup attitudes.

Starting from the results of the previous studies, we first tested a reduced model, in which we excluded a priori the direct paths from both cross-group friendship and extended contact to the criterion variables in order to test the prediction that the relationship between contact and explicit attitude was fully mediated by self-disclosure and intergroup anxiety. The goodness of fit of this model was assessed using the chi-square test, the root-mean-square error of approximation (RMSEA), the standardized root-mean-square residual (SRMR), and the comparative fit index (CFI). An acceptable fit between the data and the model is indicated by a nonsignificant chi-square test, an RMSEA value of less than .06, an SRMR value of less than .08, and a CFI value greater than .95 (see Hu & Bentler, 1999). The tested model fit the data well, $\chi^2(40, N = 164) = 44.92, p = .27$, RMSEA = .018, SRMR = .031, CFI = .99, showing that the exclusion of the direct paths between contact and outcome variables was acceptable.

Next, we compared our predicted model to three alternatives. First, we tested the fit of a nonreduced model, in which the direct paths from both contact measures to outgroup attitude were estimated. The fit was quite similar, $\chi^2(36, N = 164) = 44.18, p = .16$, RMSEA = .030; SRMR = .03, CFI = .99, and was not sufficiently better to justify the rejection of the first model, which was more parsimonious. We then tested two further models in order to determine whether the order of constructs that we proposed best fit the data. An interesting possibility is that initial attitudes, whether explicit or implicit, might shape participants' subsequent experience of intergroup contact. We therefore first

Table 3

Means, Standard Deviations, and Correlations Between Predictor, Mediator, and Criterion Variables in Study 3

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. Opportunity for contact	2.21	0.77	—						
2. Cross-group friendship	1.82	0.77	.30***	—					
3. Extended friendship	2.45	1.05	.13	.62***	—				
4. Intergroup anxiety	3.12	1.03	-.08	-.29***	-.30***	—			
5. Self-disclosure	1.93	0.75	.11	.53***	.52***	-.17*	—		
6. Outgroup attitudes	3.28	0.82	.04	.25**	.26**	-.30***	.40***	—	
7. Implicit Attitudes Test (IAT)	-0.41	0.44	.21**	.09	.05	-.10	.04	.01	—

Note. $N = 164$.

* $p < .05$. ** $p < .01$. *** $p < .001$.

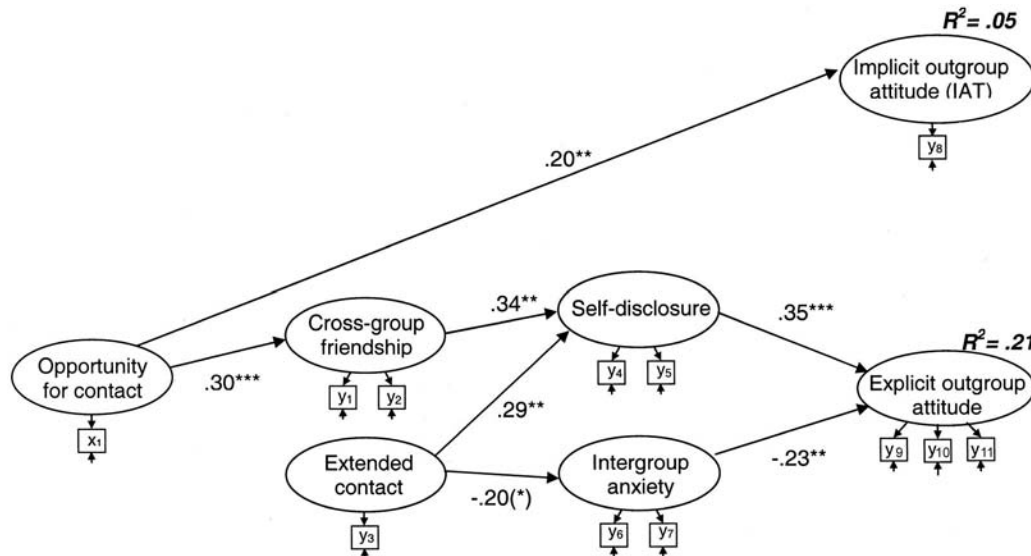


Figure 3. Structural equation model of the effects of direct and extended contact with Asians on explicit and implicit outgroup attitudes among White adolescents ($N = 164$), showing mediation via intergroup anxiety and self-disclosure (Study 3). Coefficients are standardized; only significant paths are reported. Correlations: cross-group friendship–extended contact = .62***; self-disclosure–intergroup anxiety = $-.01$; implicit–explicit outgroup attitudes = .03. (*) $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

tested a model in which opportunity was placed at the first level, implicit and explicit attitudes at the second level, friendship and extended contact at the third level, and anxiety and self-disclosure as criterion variables. The fit of this model was, however, not as good as that of our predicted model. In particular, the chi-square test was significant, and the SRMR was close to the cutoff criterion: $\chi^2(40, N = 164) = 62.50, p = .013$, RMSEA = .051, SRMR = .075, CFI = .98. In the third alternative model, the contact measures remained as the predictors, attitude was treated as the mediator, and anxiety and self-disclosure were treated as criterion variables. Again, the fit of this model was not as good as our predicted model: $\chi^2(40, N = 164) = 89.33, p = .00$, RMSEA = .083, SRMR = .097, CFI = .95.³ We therefore concluded that the order of constructs we proposed, in which self-disclosure and anxiety played the role of mediators between contact and attitude, best fit the data.

Figure 3 illustrates the chosen model. Opportunity for contact was associated with more positive implicit outgroup attitudes (standardized, $\gamma = .20, p < .01$). It was also positively associated with cross-group friendship ($\gamma = .30, p < .001$). Cross-group friendship was indirectly associated with more positive explicit outgroup attitudes; it predicted self-disclosure ($\beta = .34, p < .01$), which in turn predicted more positive explicit outgroup attitudes ($\beta = .35, p < .001$). As in Study 2, intergroup anxiety did not mediate the relation between cross-group friendship and outgroup attitudes because the relation between friendship and anxiety was not significant ($\beta = -.15$), but it did play a mediating role when extended contact was excluded from the model (the relation between friendship and anxiety was, in this case, $\beta = -.30, p < .01$). Extended contact was indirectly associated with explicit outgroup attitude through both mediators; it was positively related to self-disclosure ($\beta = .29, p < .01$), which, in turn, was positively

associated with outgroup attitude ($\beta = .35, p < .001$). It was also marginally negatively associated with intergroup anxiety ($\beta = -.20, p = .10$), which, in turn, was negatively associated with outgroup attitude ($\beta = -.23, p < .01$).

Overall, the model showed that opportunity for contact, direct and extended contact, and the two mediators, self-disclosure and intergroup anxiety, explained 21% of the variance in explicit attitudes toward the outgroup and 5% of the variance in implicit outgroup attitudes. Effects decomposition analysis revealed that the indirect effects of cross-group friendship and extended contact on outgroup attitudes were modest but significant (cross-group friendship to outgroup attitudes, IE = .16, $p < .01$; extended contact to outgroup attitudes, IE = .16, $p < .01$), confirming that each type of contact played a significant role in predicting both explicit criterion variables, through the mediating processes of intergroup anxiety and self-disclosure.

Study 4

Our aim in this final study was to explore in more detail how self-disclosure affects explicit outgroup attitude. Earlier, we identified three mechanisms that might be important. First, learning about thoughts and feelings from the perspective of an outgroup member should generate empathy, which, in turn, should lead to more positive attitudes toward the outgroup in general (Batson et

³ A further possibility is represented by a model in which anxiety and disclosure were placed immediately after opportunity, friendship, and extended contact were treated as mediators and explicit attitude remained as the criterion variable. Given that we estimated all the paths from opportunity for contact to the other constructs and then the mediated paths, the fit of this model was the same as that of the third alternative model.

al., 1997). Second, self-disclosure should reduce prejudice because it is personally significant and important (Van Dick et al., 2004), enabling those involved to achieve personal goals such as broadening their horizons and learning new interpersonal skills. Third, self-disclosure may reduce prejudice by promoting reciprocal trust (Miller, 2002; Petty & Mirels, 1981); the more we learn about outgroup members, the more certain we can be that they will behave with integrity. Study 4 tested these proposed mediators of the effect of self-disclosure on explicit outgroup attitudes. For the sake of simplicity and because we wanted to focus on self-disclosure rather than its predictors, we included only one measure of contact, cross-group friendship. Given that the effect of intergroup contact on implicit outgroup attitude was not mediated by self-disclosure, the implicit attitude measure was excluded from the present study.

In line with our findings in Studies 1–3, we expected self-disclosure to mediate the relationship between cross-group friendship and outgroup attitude. On the basis of our earlier predictions, we expected empathy, trust, and the perceived importance of intergroup encounters to mediate the relationship between self-disclosure and explicit outgroup attitude. We acknowledge, however, that an alternative prediction could be made regarding trust. It is conceivable that trust may precede self-disclosure, because cross-group friendship may be more likely to generate self-disclosure to the outgroup when the outgroup is seen as trustworthy. Interpersonal relations theories (e.g., Reis & Shaver, 1988) imply that self-disclosure has a reciprocal effect, whereby trust and liking increase the likelihood of self-disclosure, but self-disclosure in turn promotes trust and liking. We therefore tested trust as a mediator of the effect of friendship on disclosure, as well as between disclosure and explicit outgroup attitude.

Method

Participants

One hundred and forty-two (68 male and 74 female) White British undergraduate students were recruited from a British university. Participants were between 17 and 26 years, with a mean age of 19.9 years. The region has an Asian population of 4.8%, compared with the national average of 4.6%.

Materials

The order of items in the questionnaire was counterbalanced; half the participants completed predictor variables first, and half completed the criterion variable first.

Predictor variables. The cross-group friendship measure consisted of two items ($r = .63$): “How many Asian friends do you have at university?” (1 = *none*, 2 = *one*, 3 = *between two and five*, 4 = *between five and ten*, 5 = *more than ten*), and “How often do you spend time with Asian friends when you are at university?” (1 = *never*, 2 = *occasionally*, 3 = *sometimes*, 4 = *quite a lot*, 5 = *all the time*).

Mediator variables. Six items ($\alpha = .95$) measured self-disclosure between the participant and South Asians. We measured intended self-disclosure by asking participants, “Imagine you had a problem that was worrying you. How likely is it that you would tell someone Asian?” and “Imagine you had an important secret.

How likely is it that you would choose someone Asian to tell?” (both items, 1 = *very unlikely*, 7 = *very likely*). We measured frequency of self to outgroup disclosure by asking participants, “How often do you talk about how you are feeling to someone Asian?” and “How often do you discuss intimate or personal issues with people who are Asian?” We measured the frequency of outgroup to self-disclosure by asking participants, “How often do Asian people talk to you about how they are feeling?” and “How often do Asian people discuss intimate or personal issues with you?” (all items, 1 = *never*, 7 = *all the time*). Empathy toward the outgroup was measured with two items ($r = .54$): “If I hear about the misfortunes of Asian people, it usually disturbs me a great deal” and “If I have to be honest, I really don’t have much empathy for Asian people.” (1 = *strongly disagree*, 7 = *strongly agree*, latter item reversed). Five items ($\alpha = .91$) measured how important interactions with the outgroup were: “How rewarding are the interactions you have with Asian people?” “How rewarding does it feel to have conversations with Asian people?” and “How rewarding do you find talking to Asian people about their thoughts and feelings?” (1 = *not at all rewarding*, 7 = *very rewarding*), “When you talk to Asian people, how valuable to you is the information that they tell you?” (1 = *not at all valuable*, 7 = *very valuable*), and “How important to you is the information you tend to learn from Asian people?” (1 = *not at all important*, 7 = *very important*). We measured intergroup trust using four items ($\alpha = .81$): “I can trust Asian people with personal information about myself,” “Asian people trust me with personal information about themselves,” “Asian people are trustworthy,” and “The Asian people I know think I am trustworthy” (all items, 1 = *strongly disagree*, 7 = *strongly agree*). We entered all mediator items into an exploratory factor analysis (principal axis with oblimin rotation), retaining eigenvalues greater than 1. Self-disclosure items ($>.82$) loaded strongly onto one factor, empathy items ($>.61$) onto a second factor, importance items ($>.69$) onto a third factor, and trust items ($>.61$) on a fourth factor.

Explicit outgroup attitude. We measured explicit outgroup attitude using five 7-point semantic differential items ($\alpha = .86$). Participants were asked, “On the basis of your experience, please rate the extent to which you have each of the following feelings about Asians in general: *warm—cold*, *negative—positive*, *friendly—hostile*, *respect—contempt*, *admiration—disgust*.” The latter two items were adopted in line with the greater verbal sophistication of adult participants. Items were coded so that a higher score indicated more positive explicit outgroup attitudes.

Procedure

Participants completed the questionnaire one at a time in the laboratory. A White female researcher was available nearby to deal with any queries. Participants were then thanked and debriefed.

Results and Discussion

Preliminary Analyses

Table 4 shows the mean value and standard deviation for each variable and correlations between each pair of variables. Cross-group friendship, self-disclosure, importance of contact, intergroup

Table 4
Means, Standard Deviations, and Correlations Between Predictor, Mediator, and Criterion Variables in Study 4

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Cross-group friendship	2.77	0.94	—					
2. Self-disclosure	3.22	1.66	.64***	—				
3. Empathy	5.51	1.20	.21*	.27***	—			
4. Intergroup trust	5.36	1.03	.43***	.45***	.31***	—		
5. Importance	4.76	1.06	.34***	.58***	.32***	.48***	—	
6. Outgroup attitudes	5.04	0.99	.22**	.37***	.41***	.43***	.52***	—

Note. *N* = 142.

* $p < .05$. ** $p < .01$. *** $p < .001$.

trust, and empathy were all positively correlated with explicit outgroup attitudes.

Structural Equation Modeling

We tested our predictions using a SEM with latent variables (LISREL, Version 8, Jöreskog & Sörbom, 1996). For both cross-group friendship and trust, we created one single indicator, whereas for the other constructs, we created multiple indicators by adopting the partial disaggregation approach (Bagozzi & Heatherton, 1994). This involved creating subsets of items (see Appendix B) that were then averaged to create two indicators for empathy, importance of contact, and explicit attitude and three indicators for self-disclosure.

Before testing potential mediators of the relationship between self-disclosure and explicit outgroup attitude, we first had to replicate the finding in Studies 1–3 that self-disclosure mediates the relationship between cross-group friendship and explicit outgroup attitude. We therefore tested a fully mediated model and found that cross-group friendship positively predicted self-disclosure (standardized, $\gamma = .62, p < .001$), which in turn positively predicted explicit outgroup attitude ($\beta = .35, p < .001$). The fit of this model was good, $\chi^2(8, N = 142) = 12.58, p = .13$; RMSEA = .06, SRMR = .019, CFI = .99, indicating that self-disclosure fully mediated the relationship between friendship and attitude. As a subsequent test, the direct path was included in the model. This path was not significant ($\beta = -.04$).

Starting from this point, we then analyzed the role of trust, empathy, and importance of contact in the impact of self-disclosure. In a fully mediated model, we tested whether self-disclosure mediated the relation between cross-group friendship and trust, empathy, and importance of contact and whether trust, empathy, and importance of contact mediated the relation between self-disclosure and explicit outgroup attitude (Model 1). This model fit the data very well, $\chi^2(36, N = 142) = 57.88, p = .012$, RMSEA = .058, SRMR = .034, CFI = .98. Although this pattern of results is supported by the self-disclosure literature, given that the data are cross sectional, we needed to rule out alternative ways in which trust, empathy, and importance of contact might operate if we were to have confidence in our predicted model. We therefore tested seven alternative models, in which we varied the position of each mediator in the relation between cross-group friendship and explicit outgroup attitude. In these fully mediated models, we tested whether empathy (Models 2, 4, 6, and 7), importance of contact (Models 2, 3, 6, and 8), and trust (Models 2,

5, 7, and 8) mediated between cross-group friendship and self-disclosure rather than mediating between self-disclosure and explicit outgroup attitude. As we did in Study 3, we also tested the possibility that initial outgroup attitudes shape one's experience of intergroup contact (Model 9). Of the nine models tested, summarized in Table 5, only Model 1 fit the data well. We could therefore conclude that empathy, importance of contact, and trust mediate the relation between self-disclosure and explicit outgroup attitude.

Model 1 is presented in Figure 4. Cross-group friendship positively predicted self-disclosure (standardized, $\gamma = .63, p < .001$), which, in turn, was associated with greater empathy ($\beta = .28, p < .001$), greater perceived importance of the contact ($\beta = .59, p < .001$), and more trust ($\beta = .47, p < .001$). Subsequently, empathy ($\beta = .24, p < .01$), importance of contact ($\beta = .41, p < .001$), and trust ($\beta = .18, p < .06$) were positively associated with explicit outgroup attitude. Overall, the model showed that cross-group friendship, self-disclosure and its three mediators—empathy, importance of contact, and trust—explained an impressive 43% of the variance in explicit outgroup attitude. Effects decomposition analysis revealed that the indirect effect of cross-group friendship on explicit outgroup attitude was significant ($IE = .25, p < .001$), confirming that cross-group friendship played a significant role in predicting the criterion variable through the mediators of self-disclosure: empathy, importance of the disclosure, and trust. The indirect effect of self-disclosure on explicit outgroup attitude ($IE = .39, p < .001$) was also significant, indicating that disclosure predicted the criterion variable through the mediation of empathy, importance of contact, and trust.

These findings not only support our earlier studies regarding the importance of self-disclosure as a mediator between cross-group friendship and explicit outgroup attitude but also extend our understanding of how self-disclosure benefits intergroup relations. The more self-disclosure participants had experienced with outgroup members, the more empathy they felt toward the outgroup, the more important they felt contact with the outgroup were, and the more they trusted—and felt they were trusted by—the outgroup. In turn, empathy, importance of contact, and trust were each associated with a more positive explicit outgroup attitude.

General Discussion

Across four studies, we investigated the role of self-disclosure as a mediator of direct and extended contact. Although self-disclosure has only recently received consideration in the contact literature, the present findings indicate that it may be a key process

Table 5
Summary of the Alternative Models Tested in Study 4

Model	Level 2	Level 3	Level 4	χ^2	df	p	RMSEA	SRMR	CFI
1 ^a	Self-disclosure	Empathy, importance of contact, trust	N/A	57.88	36	.012	.058	.034	.98
2 ^a	Empathy, importance of contact, trust	Self-disclosure	N/A	129.64	36	.000	.12	.13	.93
3 ^a	Importance	Self-disclosure	Empathy, trust	143.14	39	.000	.12	.15	.92
4 ^a	Empathy	Self-disclosure	Importance of contact, trust	141.70	39	.000	.12	.17	.92
5 ^a	Trust	Self-disclosure	Empathy, importance of contact	117.08	39	.000	.11	.12	.94
6 ^a	Empathy, importance of contact	Self-disclosure	Trust	156.85	39	.000	.12	.16	.91
7 ^a	Empathy, trust	Self-disclosure	Importance of contact	128.09	39	.000	.12	.13	.93
8 ^a	Importance of contact, trust	Self-disclosure	Empathy	139.14	39	.000	.12	.18	.92
9 ^b	Cross-group friendship	Self-disclosure	Empathy, importance of contact, trust	114.70	38	.000	.10	.16	.94

Note. $N = 142$. RMSEA = root-mean-square error of approximation; SRMR = standardized root-mean-square residual; CFI = comparative fit index.

^a Level 1 = predictor (cross-group friendship), Level 5 = criterion (outgroup attitude). ^b Level 1 = attitude.

underlying the positive effects of both forms of friendship on explicit outgroup attitudes. In addition, we confirmed intergroup anxiety to be a mediator of the effect of direct and extended contact. Our findings are also some of the first to robustly illustrate the effect of exposure to the outgroup on implicit bias as measured with the IAT. In the following sections, we discuss these findings and outline their limitations and implications.

Self-Disclosure

Across four studies, the relation between cross-group friendship and explicit outgroup attitude was mediated by self-disclosure. These findings are consistent with interpersonal relations theory (e.g., Reis & Shaver, 1988) and research (e.g., Jourard, 1959; Worthy et al., 1969) that show that reciprocal self-disclosure is

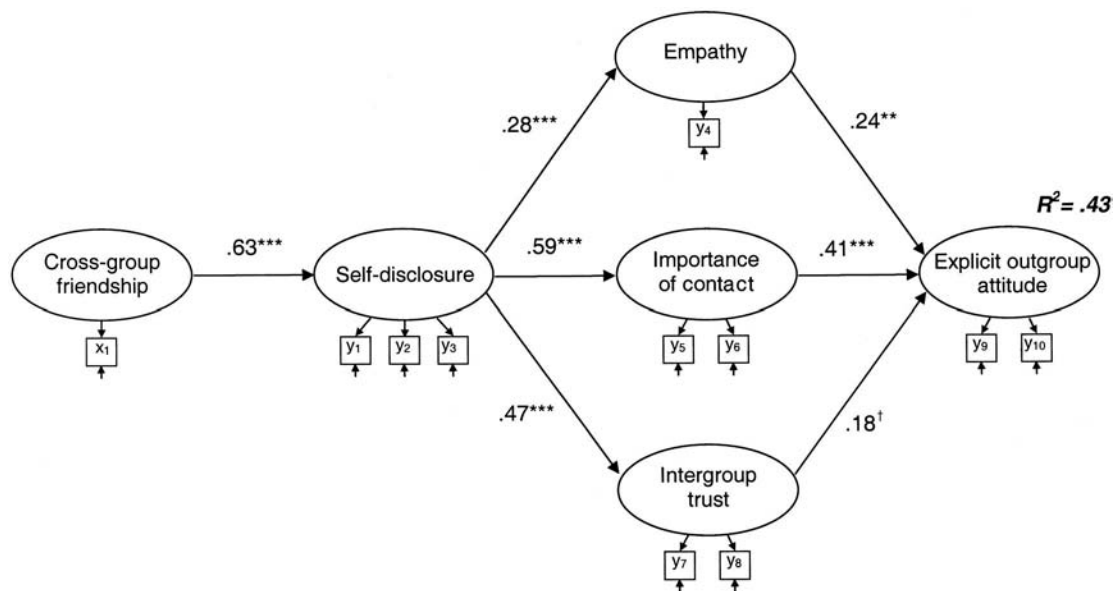


Figure 4. Final structural equation model (Model 1) of the effects of cross-group friendship and self-disclosure with Asians on outgroup attitudes in White British undergraduate students ($N = 142$), showing mediation via importance of contact, intergroup trust, and empathy (Study 4). Coefficients are standardized. Correlations: importance of contact–intergroup trust = .28***; importance of contact–empathy = .16*; intergroup trust–empathy = .20*. † $p < .06$. * $p < .05$. ** $p < .01$. *** $p < .001$.

essential in the development and maintenance of friendships, generating interpersonal attraction. Friendships that crossed group boundaries, whether direct or extended, were associated with higher levels of self-disclosure and, consequently, with an increase in mutual liking that generalized to the entire outgroup. Although we began by measuring intent to self-disclose in Studies 1 and 2, we later showed that measures of intent to self-disclose and actual self-disclosure are highly correlated with one another (Studies 3 and 4). In the course of this research, we also developed a more sophisticated measure of reciprocal self-disclosure as its importance became apparent.

These findings support recent advances in intergroup contact theory (Miller, 2002; Pettigrew, 1998) that have suggested that self-disclosure would be important in explaining the impact of personalized intergroup encounters. Accordingly, Ensari and Miller (2002) found cooperative contact to result in more positive outgroup evaluations when a typical outgroup member disclosed personal information, whereas Harwood et al. (2005) found contact with older adults led study participants to a more individuated perception of the outgroup via self-disclosure. However, the current article is the first to show self-disclosure as a mediator of the relation between direct and extended forms of cross-group friendship and outgroup attitude.

The current research also uncovered some of the mechanisms through which self-disclosure improved explicit outgroup attitudes. In their interpersonal process model of intimacy, Reis and Shaver (1988) emphasized the importance of being understanding and responsive to the discloser. Our findings provide the first direct evidence that self-disclosure is associated with more positive explicit outgroup attitudes because it generates empathy. The more participants had experienced reciprocal self-disclosure with outgroup members, the more they empathized with the outgroup and, in turn, the more positive their explicit outgroup attitude was. Imagining the feelings of another person may have led participants to a perception of increased overlap between the self and the other in which the outgroup member becomes included in an individual's self-representation (Aron, Aron, Tudor, & Nelson, 1991). When outgroup members are considered to be like oneself in this way, they are likely to be ascribed the same positive traits attributed to the self, leading to a more positive evaluation of these outgroup members that may generalize to the outgroup as a whole. Empathizing with the outgroup may also have led to a more positive outgroup attitude by increasing participants' perception that a common humanity and destiny is shared with the other group (Stephan & Finlay, 1999). If the two groups are seen as part of a common group as a result, previous intergroup differences will no longer be relevant and ingroup bias will be reduced (Dovidio et al., 2004).

Self-disclosure also led to a greater perception that contact with the outgroup was important and valuable. The more important such contact was considered to be, the more positive participants' outgroup attitudes were. This finding is consistent with the results of Van Dick and colleagues (2004), who found that Germans who had Turkish friends were more likely to perceive contact to be personally important and, in turn, had lower levels of antipathy toward Turks. They argued that participants who reported contact as being important and personally relevant did so because contact served their personal goals. We believe that this should particularly be the case for self-disclosure.

According to the self-expansion model (Aron et al., 2001), we seek close friendships so that we can enhance our efficacy and facilitate the achievement of personal goals. A key way in which individuals achieve this is through self-disclosure. In the current research, participants who had cross-group friends and had therefore experienced more self-disclosure were more likely to view their intergroup interactions as personally valuable and important because they served certain personal goals. Consequently, attitudes toward outgroups were more positive among participants who indicated that outgroup members were instrumental in helping to achieve personal goals.

Finally, self-disclosure was associated with more positive attitudes because it promoted reciprocal trust; participants who had reciprocally self-disclosed to the outgroup were more likely to trust—and feel trusted by—the outgroup. Reciprocal self-disclosure may lead to the development of trust for two reasons. First, self-disclosure over a period of time provides the perceiver with information which shows them that the discloser is dependable and trustworthy. Second, participants to whom outgroup members had disclosed personal information are likely to feel trusted by the outgroup. People trust and like those who trust them (Petty & Mirels, 1981). Accordingly, participants who trusted and felt trusted by the outgroup held a more positive outgroup attitude. Although there is reason to believe that trust is necessary for self-disclosure to occur in the first place (Altman & Taylor, 1973), self-disclosure also promotes an escalation of mutual trust.

Intergroup Anxiety

Intergroup anxiety mediated the relation between both forms of intergroup contact and explicit outgroup attitude, although its impact was less consistent than that of self-disclosure. Regarding cross-group friendship, intergroup anxiety mediated its relationship with explicit outgroup attitude in Study 1. Furthermore, in Studies 2 and 3, in a model in which extended contact was excluded, anxiety also played a mediating role. These findings support previous research; intergroup anxiety has been found to mediate the effect of quality and quantity of contact (Islam & Hewstone, 1993; Voci & Hewstone, 2003) and cross-group friendship (Paolini et al., 2004) on outgroup attitude.

In Study 1, however, self-disclosure had a marginally stronger relation with explicit outgroup attitude than did anxiety. Moreover, in Studies 2 and 3, when intergroup anxiety was placed in a model with both forms of intergroup contact as predictors, the path between cross-group friendship and intergroup anxiety was no longer significant. These findings suggest that self-disclosure is a more powerful mediator of cross-group friendship than is intergroup anxiety. We have suggested two main reasons for this. First, unlike intergroup anxiety, which is more likely to be present during intergroup encounters with strangers or acquaintances, self-disclosure plays a critical role in friendships. Second, self-disclosure has both an affective component, generating intimacy, and a cognitive component, providing information about the outgroup. In contrast, intergroup anxiety has only an affective component. Thus, the dual impact of self-disclosure may mean it has a stronger impact.

Intergroup anxiety did, however, mediate the relationship between extended contact and outgroup attitude in Studies 2 and 3. This is consistent with Wright et al.'s (1997) contention that

observing a positive intergroup encounter from a safe distance reduces negative expectations and fears about interacting with the outgroup. Alleviating these fears, which can lead to contact avoidance and an increased reliance on stereotypes, helps to reduce intergroup prejudice (Paolini et al., 2004).

Cross-Group Friendship and Extended Contact

Our findings show that cross-group friendship, whether experienced first-hand or vicariously, is a key factor in reducing prejudice toward members of an ethnic outgroup. These findings are in line with recent theory, providing support for both the cross-group friendship hypothesis (Paolini et al., 2004; Pettigrew, 1998) and the extended contact hypothesis (Wright et al., 1997). The role of opportunity for contact offers some insight into the nature of both forms of contact. Although opportunity for contact predicted cross-group friendship in Studies 2 and 3, it was not directly associated with more positive explicit outgroup attitudes. These findings indicate that living in a neighborhood or attending the same school as members of the outgroup is not sufficient to improve intergroup relations (DuBois & Hirsch, 1990; Phinney et al., 1997). Instead it is vital that, where these opportunities exist, they are used as a springboard to forge close ties between members of different groups.

Although the relation between opportunity for contact and cross-group friendship might have negative implications where there is segregation between groups, notably, no relation emerged between opportunity for contact and extended contact in Studies 2 and 3. This gives us grounds for optimism because it shows that opportunity for contact is not necessary for extended friendship to have a positive influence on outgroup attitudes. Even those in segregated, ethnically homogeneous communities may benefit from knowing ingroup members who have friends in the outgroup.

The Differential Impact of Intergroup Contact on Explicit and Implicit Attitudes

Although cross-group friendship and extended contact were associated with more positive explicit outgroup attitudes because they increased self-disclosure and reduced intergroup anxiety, exposure to the outgroup had an unmediated effect on implicit outgroup attitudes. In other words, contact relates to explicit and implicit outgroup attitudes via two different routes, although we acknowledge that intergroup contact (and its mediators) consistently explain a greater proportion of the variance in explicit outgroup attitude than in implicit outgroup attitude. Our findings here support the proposition that two different aspects of contact are in operation. According to dual-attitude accounts (e.g., Fazio & Olson, 2003; Wilson et al., 2000), individuals hold a spontaneous, implicit attitude, which is automatic, and a deliberative, explicit attitude, which can be controlled. When an individual experiences cross-group friendship, that person is likely to make a conscious decision to disclose personal information to outgroup members. Such deliberative processes predict explicit outgroup attitudes. However, when an individual experiences intergroup contact—irrespective of how positive or intimate that contact is—that person is also subject to mere exposure effects. We believe that this aspect of contact exerts an important influence on implicit attitudes. Given the automatic nature of this route, it makes sense that

the conscious mediating processes of self-disclosure and intergroup anxiety do not play a role.

There is a possible alternative interpretation of the observed relation between exposure to the outgroup and attitudes toward the outgroup that is important to consider. Although previous studies support our argument that exposure to group members has a direct effect on implicit attitudes and stereotypes toward those groups, these studies involved exposure to a positive subtype of the outgroup, for example, famous successful women or admired African Americans (Dasgupta & Asgari, 2004; Dasgupta & Greenwald, 2001). Asking participants about their exposure to the outgroup might therefore simply activate a positive subset of the outgroup, which, in turn, influences the implicit attitude measure. If this is the case, the effect of exposure on implicit attitudes toward the outgroup in general would be limited to positively regarded outgroup members. We suspect, however, that this explanation is unlikely, given the context of the current research. In particular, Study 2 was conducted in an environment characterized by intergroup tension. It is therefore unlikely that exposure to unknown outgroup members would generate a positive subset of outgroup members. Furthermore, we counterbalanced the order in which the contact measures and the implicit attitude measure were presented in Studies 1–3, so for at least half the sample, this is not a possible interpretation.

The current findings have important implications because implicit measures are associated with subtle, indirect, and spontaneous nonverbal behaviors (e.g., McConnell & Leibold, 2001). Unlike the deliberate behaviors associated with explicit outgroup attitudes, behaviors associated with implicit attitudes may be difficult to monitor and inhibit, yet may influence others' perceptions of us. Although we may think we are behaving in a positive manner toward the outgroup, it is our implicit attitudes and subsequent nonverbal behavior that really influence how others perceive us (Dovidio, Kawakami & Gaertner, 2002). If we inadvertently display negative nonverbal behaviors this may, reciprocally, lead to a negative response from outgroup members (Chen & Bargh, 1997). Knowing that intergroup contact, through mere exposure, is predictive of a more positive implicit outgroup attitude allows us to be more optimistic about our ability to avoid negative nonverbal behaviors and their consequences.

Theoretical Implications of the Present Research

These cumulative findings are theoretically important because they show how earlier opposing approaches to intergroup contact can be reconciled. Brewer and Miller (1984) contended that contact should be organized to maximize interpersonal similarities, whereas Hewstone and Brown (1986) stressed the mutual recognition of intergroup differences if the effect of contact is to generalize to the outgroup as a whole. Recently, however, Brown and Hewstone (2005) have proposed a theoretical integration of these perspectives. They argue that cross-group friendship and personalizing mediators like self-disclosure are not incompatible with the intergroup approach and can develop in conjunction with awareness and acknowledgement of respective group differences. Ensari and Miller (2002) reached the same conclusion in finding that self-disclosure and outgroup typicality resulted in the most positive generalized outcomes when they occurred in conjunction with one another. Our findings support the view that interpersonal

and intergroup dimensions are both important and that contact is most effective when it is high on both dimensions.

On the basis of the burgeoning intergroup contact literature, Brown and Hewstone (2005) also proposed a theoretical framework that incorporates dimensions of contact, mediators, and moderators of contact and generalized outcomes. Accordingly, we have found evidence for the impact of three dimensions of contact (opportunity for contact, direct contact, and extended contact), through five mediators (intergroup anxiety, self-disclosure, empathy, trust, and importance of interaction), on two generalized outcomes (explicit and implicit outgroup attitudes).

Potential Limitations of the Present Research

We acknowledge that the findings presented here are based on the analysis of cross-sectional data, making it difficult to rule out the possibility that prejudiced people may avoid intergroup contact. Experimental (e.g., Ensari & Miller, 2002) and longitudinal (e.g., Levin et al., 2003) designs have, however, provided evidence for the causal direction from contact to attitudes. Statistical methods that allow researchers to compare the two paths using cross-sectional data also reveal that the path from contact to reduced prejudice is generally stronger than the reverse path (Pettigrew, 1997). Finally, Wright et al. (1997) pointed out that because we cannot choose with whom our friends associate, the relation between extended contact and attitudes, partialing out the effect of direct friendship, is likely to reflect a path from contact to attitudes. This increases our confidence that contact with outgroup friends negatively influences prejudice.

A second potential issue concerns the conclusions that can be drawn from cross-sectional data when using SEM, as we have done. As MacCallum and Austin (2000) argued, care should be taken in making causal inferences. Conclusions drawn from SEM may also be limited to the particular sample and variables used. We have, however, increased our confidence in the reliability and generalizability of our results by carefully following the guidelines suggested by MacCallum and Austin (2000). We have conducted multiple studies with independent samples and moved from "measured" to methodologically superior "latent" variables. We also used multiple measures of fit of our model to the covariance matrix.

Practical Implications of the Present Research

Given the impact of friendship on attitudes, particularly through the mechanism of self-disclosure, there is evidence to suggest that contact schemes should be introduced in areas where segregation is high. These schemes might include school exchanges, community activities, and youth clubs aimed at linking White and South Asian communities in the United Kingdom; any form of integration that encourages friendship should be emphasized. When friendships arise, those involved are more likely to disclose personal information to one another. This will generate empathy and trust in the outgroup, which, in turn, should result in more positive intergroup relations. Interventions should also emphasize the benefits of outgroup self-disclosure for achieving personal goals, for example, learning more about other cultures and developing interpersonal skills. If people consider cross-group friendships and self-disclosure to be important, the likelihood of reducing preju-

dice will be increased (Van Dick et al., 2004). In addition, when cross-group friendships arise, they may provide access to friendship networks; by meeting other outgroup members through each existing outgroup friend, individuals may develop more cross-group friendships (Slavin, 1985). In turn, access to friendship networks may have positive knock-on effects for academic achievement and employment opportunities (Braddock & McPartland, 1987).

Despite the difficulties of instigating cross-group friendships in segregated settings, the impact of extended contact increases optimism about our ability to improve intergroup relations. One person who has outgroup friends has the potential to affect the attitudes of many individuals who do not. Indeed, Wright et al. (1997) considered a key benefit of extended contact to be the ease of implementing it on a large scale, without every group member having to have intergroup friends themselves. Structured interventions based on extended contact can also be implemented in schools; Liebkind and McAlister (1999) found that planned lessons in which students learned about other ingroup members' experiences of friendship with outgroup members helped to reduce intergroup bias.

Summary

The consistent findings from our research leave us optimistic about the importance of intergroup contact in improving intergroup relations for three reasons. First, they provide evidence that attempts to combat prejudice in childhood and adolescence, before attitudes toward the outgroup have crystallized, are worthwhile and that planned interventions should exploit the advantages of both direct and extended contact in parallel. Second, we have highlighted self-disclosure as a new underlying mechanism that helps to explain the effects of both direct and extended contact. Finally, our findings indicate that, via two different routes, aspects of intergroup contact with the outgroup may help to combat prejudice on both an explicit and implicit level. This dual-pronged attack has positive implications for changing both blatant and more subtle forms of prejudice.

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Appendix A: Correlation Matrix Between Latent Variables for Study 3

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Opportunity for contact	—											
2. Cross-group friendship (1)	.28***	—										
3. Cross-group friendship (2)	.31***	.78***	—									
4. Extended contact	.15	.56***	.60***	—								
5. Self-disclosure (1)	.16*	.35***	.34***	.38***	—							
6. Self-disclosure (2)	.12	.42***	.43***	.47***	.71***	—						
7. Intergroup anxiety (1)	-.07	-.25***	-.26***	-.27***	-.15	-.19*	—					
8. Intergroup anxiety (2)	-.11	-.21***	-.23**	-.27***	-.11	-.14	.76***	—				
9. Implicit outgroup attitude (IAT)	.17*	.14	.11	.07	-.02	.05	-.11	-.08	—			
10. Explicit outgroup attitude (1)	-.02	.19*	.24**	.27***	.37***	.34***	-.20*	-.26***	-.01	—		
11. Explicit outgroup attitude (2)	.07	.22**	.26***	.26***	.27***	.32***	-.25***	-.31***	.02	.79***	—	
12. Explicit outgroup attitude (3)	.03	.10	.15	.20***	.31***	.29***	-.16*	-.19*	.02	.79***	.83***	—

Note. $N = 164$. In the partial disaggregation approach, the following items were collapsed to form single indices. Cross-group friendship (1): "How many close Asian friends do you have at school?" and "How often do you spend time with Asian friends outside school?" Cross-group friendship (2): "How many close Asian friends do you have outside school?" and "How often do you spend time with Asian friends at school?" Self-disclosure (1): "How often do you talk about how you are feeling to someone Asian?" and "Imagine you had a problem that was worrying you. How likely is it that you would tell someone Asian?" and "If an Asian person had an exciting secret, how likely is it that he would tell you about it?" Self-disclosure (2): "How often do Asian people talk to you about how they are feeling?" "Imagine you had an important secret. How likely is it that you would choose someone Asian to tell?" and "If an Asian person was worried about something, how likely is it that he would tell you about the problem?" Intergroup anxiety (1): "Relaxed–nervous" and "Confident–unconfident." Intergroup anxiety (2): "Comfortable–tense" and "Pleased–worried." Explicit outgroup attitude (1): "Unfriendly–friendly" and "Bad–good." Explicit outgroup attitude (2): "Cold–warm" and "Horrible–nice." Explicit outgroup attitude (3): "Negative–positive" and "Mean–kind."

* $p < .05$. ** $p < .01$. *** $p < .001$.

(Appendixes continue)

Appendix B: Correlation Matrix Between Latent Variables for Study 4

	1	2	3	4	5	6	7	8	9	10	11
1. Cross-group friendship	—										
2. Self-disclosure (1)	.62***	—									
3. Self-disclosure (2)	.62***	.96***	—								
4. Self-disclosure (3)	.64***	.93***	.89***	—							
5. Empathy	.18*	.25**	.27**	.19*	—						
6. Trust (1)	.44***	.40***	.41***	.40***	.30***	—					
7. Trust (2)	.36***	.40***	.42***	.42***	.22**	.75***	—				
8. Importance of contact (1)	.33***	.55***	.57***	.55***	.30**	.42***	.42***	—			
9. Importance of contact (2)	.33***	.51***	.53***	.51***	.29***	.45***	.46***	.83***	—		
10. Outgroup attitude (1)	.21*	.35***	.33***	.29***	.38***	.37***	.38***	.46***	.52***	—	
11. Outgroup attitude (2)	.22**	.40***	.40***	.34***	.37***	.37***	.42***	.43***	.50***	.82***	—

Note. $N = 142$. In the partial disaggregation approach, the following items were collapsed to form single indices. Self-disclosure (1): “Imagine you had a problem that was worrying you and you wanted to tell someone. How likely is it that you would choose someone Asian to tell?” and “How often do Asian people talk to you about how they are feeling?” Self-disclosure (2): “Imagine you had an important secret and you wanted to tell someone. How likely is it that you would choose someone Asian to tell?” and “How often do you talk about how you are feeling to people who are Asian?” Self-disclosure (3) “How often do you discuss intimate or personal issues with people who are Asian?” and “How often do Asian people discuss intimate or personal issues with you?” Trust (1): “Asian people are trustworthy” and “The Asian people I know think I am trustworthy.” Trust (2): “I can trust Asian people with personal information about myself.” Importance of contact (1): “When you talk to Asian people, how valuable to you is the information that they tell you?” “How rewarding does it feel to have in-depth conversations with Asian people?” and “How rewarding do you find talking to Asian people about their thoughts and feelings?” Importance of contact (2): “How important to you is the information you tend to learn from Asian people?” and “How rewarding are the interactions you have with Asian people?” Outgroup attitude (1): “Negative–positive,” “Friendly–hostile,” and “Respect–contempt.” Outgroup attitude (2): “Warm–cold,” and “Admiration–disgust.”

* $p < .05$. ** $p < .01$. *** $p < .001$.

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