CURRENT RESEARCH IN SOCIAL PSYCHOLOGY

http://www.uiowa.edu/~grpproc/crisp/crisp.html

Volume 11, Number 7
Submitted: December 7, 2005
First Revision: January 9, 2006
Accepted: January 9, 2006
Published: January 9, 2006

A PEOPLE'S *ENTENTE CORDIALE*? THE ROLE OF IMPLICIT ATTITUDE IN THE RELATIONSHIP BETWEEN ENGLISH-FRENCH CONTACT, LEVELS OF CATEGORIZATION, AND EXPLICIT INTERGROUP ATTITUDES

Anja Eller
University of St Andrews

Dominic Abrams
University of Kent

ABSTRACT

The Common Ingroup Identity Model (CIIM) holds that four levels of categorization (the interpersonal, intergroup, and particularly, superordinate group, and dual identity levels) mediate the intergroup contact-bias relationship. CIIM was tested in an Anglo-French intergroup context with explicit and implicit (IAT) measures of prejudice. Results showed that the intergroup level partially mediated an increase in bias and all other levels partially mediated a reduction in bias. Implicit attitude moderated three effects of contact and levels of categorization on intergroup anxiety. Contact, superordinate and dual identity levels of categorization were associated with reduced anxiety when implicit bias was high, but not when it was low.

INTRODUCTION

This article presents data testing Gaertner and Dovidio′s (2000) Common Ingroup Identity Model (CIIM) in an English-French intergroup context. We assess the intergroup bias-reducing effects of the perception of a common ingroup (and other levels of categorization) on explicit measures. We also examine whether implicit associations either add to or moderate the relationships between contact or categorization and explicit attitudes, a question that has not previously been explored in the intergroup contact literature.

The Common Ingroup Identity Model

The CIIM (Gaertner & Dovidio, 2000; Gaertner et al., 1993) holds that intergroup relations can be improved when cognitive representations during contact are modified from "us" and "them" to a more inclusive "we". The model specifies that the relationship between several antecedents (different types of intergroup interdependence and cognitive, perceptual, linguistic, affective, and environmental factors) and consequences (cognitive, affective, and behavioral) are mediated by four levels of categorization; an inter*personal* level ("separate individuals, *de*categorization"), inter*group* level ("two groups, categorization"), superordinate group level ("one group, *re*categorization") and dual identity level ("two subgroups in one group, *re*categorization").

Pleasant interactions with *typical* outgroup members can have beneficial effects on intergroup relations (Brown & Hewstone, 2005), but overly salient group memberships may increase intergroup anxiety (Stephan, Diaz-Loving, & Duran, 2000), and thus prevent the desired generalization of positive outgroup attitudes (e.g. Islam & Hewstone, 1993). Given these potentially negative consequences when contact is categorized as an *intergroup* encounter the CIIM advocates contact at other levels. For example, Gaertner et al. (1989) found that structural interventions to induce members of two separate laboratory groups to decategorize or recategorize themselves altered perceived intergroup boundaries and decreased intergroup bias. Decategorization decreased the attractiveness of former ingroup members while recategorization increased the attractiveness of former outgroup members. Gaertner and Dovidio (2000) accord a special, bias-reducing role to recategorization, hence emphasizing the more inclusive process.

The role of recategorization as an important mediator between favorable contact and anxiety and prejudice reduction has been demonstrated in numerous laboratory and field studies involving artificial groups, university affiliation, multi-ethnic high school students, corporate mergers, stepfamilies, and language school students (Eller & Abrams, 2003; Gaertner & Dovidio, 2000). Limited support for the model was also found in an elementary school setting (Houlette et al., 2004). However, the causal direction assumed by the model is sometimes absent or even reversed (Eller & Abrams, 2004; but also see Banker, 2002). Moreover, it should be noted that in intergroup contexts involving memberships of broad categories, such as nationality, the presence of a single, inclusive group identity may be perceived as threatening to social identity, particularly by lower-status group members (Gonzalez, 2000; Hornsey & Hogg, 2000). In these cases, a *dual identity* may be more effective in educing positive outgroup evaluations. Dual identity is defined as an amalgam of salient categorization and recategorization, in which original

group identities are maintained, but within the context of a superordinate identity (Gaertner & Dovidio, 2000). When a dual identity is salient, the superordinate component should be slightly less effective in producing positive attitudes in the immediate contact situation, but the salient categorization component should facilitate the generalization of contact effects to the outgroup as an entity ("trade-off hypothesis," Gaertner & Dovidio, 2000).

Implicit Attitudes

Although implicit measures have steadily gained in prominence within social psychology (Fazio & Olson, 2003), as far as we are aware, the relationship between levels of categorization and implicit associations has not been examined previously in intergroup contact research. During the past few decades, blatant expressions of ethnic and racist prejudice and discrimination have generally been declining in the U.S. and Western Europe, while more subtle manifestations of arguably the same phenomena have been on the rise (Dovidio, Kawakami & Beach, 2001). These changes in the mode and magnitude of expressed prejudice have called for new measurement techniques. Maass, Castelli, and Arcuri (2000) proposed a continuum of prejudice measures to characterize the ease or difficulty with which people can inhibit prejudiced responses. At one end are measures, such as old-fashioned racism, open discrimination, and racial slurs, which are explicit, deliberate, mindful, and easy to control. At the other end of the continuum are measures, such as physiological reactions, Stroop-like tasks, and the Implicit Association Test (IAT; Greenwald, McGhee & Schwartz, 1998), which are labeled implicit, spontaneous, mindless, and difficult to control.

Both the IAT and the CIIM involve measures that reflect a psychological judgment of similarity between the ingroup and outgroup. Whereas the IAT taps whether evaluative associations are distinctive for each group, the measures used in the CIIM assess explicitly whether the categories are distinctive (separate groups) or have more in common (superordinate group, dual identity, and by default, decategorized perception).

A recurrent theme in the literature is whether implicit attitudes are malleable, and if so, what factors are necessary to alter them (cf. Bargh, 1999; Dovidio et al., 2001; Wilson, Lindsey & Schooler, 2000). Banse, Seise and Zerbes (2001) showed that implicit attitudes towards homosexuality could not be changed by persuasive messages. In contrast, Brinol, Horcajo, Becerra, Falces, and Sierra (2002) demonstrated that strong arguments in favor of vegetable consumption resulted in implicit, but not explicit attitude change. Implicit attitude modification of more value-laden and socially relevant attitude objects than vegetables has been observed with a variety of methods. For example, Karpinski and Hilton (2001; Study 3) found that participants exposed to elderly = good (as opposed to youth = good) associations showed an attenuation of the IAT bias in favor of youth.

Similarly, Kawakami et al. (2000) instructed respondents across three studies to say "no" to traditional, stereotypic photograph-trait combinations related to Black and White racial categories or to skinheads. In comparison to the non-trained groups, participants in the stereotype-negating conditions exhibited weaker implicit attitudes for a 24-hour period. A 24-hour effect in the reduction of implicit bias was also achieved by Dasgupta and Greenwald (2001) who exposed participants to pictures of admired outgroup members (Blacks or older

people) and disliked ingroup members (Whites or younger people). Thus, although there is evidence that implicit associations are sometimes related to explicit bias, it is not clear what determines whether they exert an independent influence on explicit bias or will remain unrelated to explicit bias.

A more "naturalistic" vehicle of change in implicit attitudes might be intergroup contact, which, if characterized by high quality, has widely been shown to reduce intergroup bias on explicit measures (Pettigrew & Tropp, in press). With respect to implicit measures, Lowery, Hardin and Sinclair (2001) demonstrated in four experiments that European American (and sometimes, Asian American) participants expressed less prejudice on the IAT in the presence of a Black than a White experimenter. Although these findings are contrary to the social cognitive stance that stereotype activation is an inevitable consequence of exposure to a member of the stereotyped group, they are corroborative of the tenets of the contact hypothesis and shared reality theory.

In contrast, Dijksterhuis, Aarts, Bargh & Knippenberg (2000) revealed detrimental effects of intergenerational contact for university students. In their Experiment 2, they showed that prior contact with the elderly increased stereotypic associative strength--measured with a lexical decision task with subliminal primes--which in turn led to memory impairment on a word recall task when the category "elderly" was activated. The authors hence suggest that past contact is a determinant of stereotype activation effects on behavior. Similarly, Jelenec and Steffens (2002) found no relationship between contact with elderly people and implicit bias against this group and Teachman and Brownell (2001) showed that contact with the obese did not predict implicit anti-fat bias.

However, it is important to note that these studies employed measures of *quantity* of contact only, while it has been widely recognized that *quality* of contact is much more potent in reducing stereotypes and prejudice. This notion is corroborated by Schwartz and Simmons (2001) who found that young adults′ quality, but not the frequency, of contact with the elderly was associated with more positive implicit attitudes towards that group. Similarly, people with close African American or Latino, respectively, friends demonstrated less implicit bias against these groups than did people without such friends (Aberson, Shoemaker, & Tomolillo, 2004). Finally, Rudman, Ashmore and Gary (2001) showed in two quasi-experimental studies that enrolment in a semester-long prejudice and conflict seminar reduced explicit as well as implicit anti-Black biases, compared with attitudes of control students enrolled in a research methods course.

The Present Study

Taking the literature reviewed above into account, it appears that intergroup contact sometimes, but not always, leads to a reduction in implicit bias. When it is shown to be successful, it is usually accompanied by certain conditions that render contact to be of high quality. Accordingly, we predict that intergroup contact under favorable conditions should be associated with reduced intergroup bias, measured *explicitly and implicitly*, mediated by the CIIM′s constituent levels of categorization.

A further consideration is the nature of the potential relationship between implicit associations and explicit measures of prejudice. In the present research we use as dependent variables three

commonly used measures, namely social distance from the outgroup, general evaluation of the outgroup, and intergroup anxiety. These are often quite highly intercorrelated (Eller & Abrams, 2004; Plant & Devine 2003). However, it seems likely that these may differ in the extent that they map onto uncontrollable, implicit, responses. In particular, social distance is clearly a highly controlled response, or decision, about future contact. General evaluations are conscious judgments about the outgroup. In contrast, intergroup anxiety may reflect less controllable apprehension about intergroup encounters and it seems probable that it is more closely related to implicit associations. The relationship between implicit and explicit judgments is also a focus of the present research.

One of the main goals of the current research is to examine the role implicit attitudes play within the CIIM. Keeping in mind those cases in which contact does *not* affect implicit bias, it is possible that despite transitory variations in level, implicit attitudes are generally rather stable intra-individually and are able to influence other variables (Banse et al., 2001; Towles-Schwen & Fazio, 2003). Hence, it is plausible that implicit attitudes *interact* with contact or categorization. Therefore, we will investigate the possibility that implicit bias measured by IAT scores may moderate effects of contact and categorization on explicit measures of prejudice.

There is little guidance form previous evidence as to what form the effects of implicit attitude might take. However, it is possible to make theory-based predictions based on the assumption that implicit associations reflect a relatively chronic form of bias. First, implicit attitude could moderate the effect of contact on explicit reactions independently of categorization effects. In particular, people with more negative implicit associations may be more prone to anticipatory anxiety when thinking about interactions with members of an outgroup. High-quality contact has been demonstrated to effectively reduce such anxiety (e.g. Islam & Hewstone, 1993). This mechanism might be particularly effective for people with a higher baseline of implicit bias, rather than those whose implicit associations are more positive.

Implicit associations could also moderate the effect of levels of categorization on explicit reactions. Similar to the interactive effect with contact, we might expect that explicit recategorization would have a stronger effect on explicit biases among people who hold stronger implicit biases. In particular, recategorizing outgroupers as ingroupers should counteract, or render irrelevant, the implications of the (negative) implicit association with the outgroup, and hence reduce anticipatory anxiety.

In summary, high-quality contact should be associated with reduced explicit intergroup bias, and the CIIM would predict that this reduction is mediated by levels of categorization. Although previous evidence is mixed (Aberson et al., 2004; Dijksterhuis et al., 2000; Jelenec & Steffens, 2002) it may be reasonable to anticipate that positive contact and more inclusive levels of categorization would also be related to less negative implicit associations. However, the potential independence of implicit associations from explicit judgments suggests that implicit attitude operates as an independent variable, such that contact and categorization may have larger effects on explicit bias when implicit bias is high than when it is low.

Our chosen intergroup context is that of English university students engaging in contact with their French counterparts. This is a real-world and very topical setting (Eller & Abrams, 2004),

especially in the light of the recent (2004) centenary celebrations of the *Entente Cordiale*, a colonial-era deal between Britain and France that ended centuries of military hostility. Thus, the context is one in which intergroup differences are generally salient but there is also the presence of a relevant and available superordinate level of categorization.

METHOD

Participants

Participants were 107 (17 men, 90 women) first-year psychology students at the University of Kent. All non-English participants were removed from the analyses in order to avoid potential confounding effects. Participants included in the analyses were 16 men and 73 women (N=89) with an age range of 18-49 (*M*=20.6).

Procedure

Data collection required some 25 minutes and took place during two consecutive laboratory sessions. Participation was voluntary, but students earned course credits and were entered in a £20 draw. It was stressed that the survey was completely confidential. We instructed respondents to complete questionnaires alone. On completion we handed respondents instruction sheets detailing the procedure to be followed for the IAT. After having finished, we informed participants about the research aim and thanked them. The decision to measure explicit attitudes prior to the IAT was based on the lower controllability of IAT responses relative to explicit measures, and to avoid the possibility that the IAT might prime questionnaire responses. However, we recognize that the explicit measures could potentially prime categorical responses on the IAT, possibly inflating any correlation between the two.

Measures

Questionnaire Measures

Unless otherwise indicated, we adapted contact measures from Eller and Abrams (2003). We measured *quantitative contact* by asking about the amount of contact with French people at university. Scaling ranged from *never* (1) to *always* (7), with higher scores denoting quantitatively more contact. We constructed a mean index of *qualitative contact* (Cronbach′s alpha = .70) from the following items: amount of contact as close friends, personal importance of contact (see van Dick et al., 2004), equality, voluntariness, intimacy, and cooperation during contact. We scored responses on seven-point scales, with higher scores representing higher quality of contact.

To assess the different levels of categorization during contact we followed previous relevant research (e.g., Eller & Abrams, 2003; Gaertner, Dovidio, & Bachman, 1996) that used single-item measures. We used four measures following the question, "When you have contact with French people, how often do you perceive them as…" (a) "…individual people?" [interpersonal level], (b) "…people from a group that is different from your own?" [intergroup level], (c) "…people with whom you share a common group membership?" [superordinate group level],

and (d) "…people from a different group that, *at the same time*, share a common group membership with you?" [dual identity level]?" We rated responses to each of these four questions on seven-point scales (*never--always*), such that higher scores indicated stronger categorization on that particular level.

For the criterion variables, we measured anticipated *intergroup anxiety* using a shortened version of Stephan and colleagues′ (2000) scale. We asked respondents to "show how you would feel when interacting with French people:"Comfortable, threatened, confident, anxious, at ease, awkward." We scored items on seven-point scales (*not at all--extremely*; three items were reverse-scored), with higher scores indicating higher anxiety, alpha of mean index = .85. We measured *social distance* with a modified version of Bogardus′ (1933) Social Distance Scale that asked respondents to what extent they would like to have a French person as their: (a) fellow student, (b) best friend, (c) boyfriend/girlfriend. Responses were reverse-scored on seven-point scales (*not at all--very much*), such that higher scores indicated more social distance, alpha of mean index = .91. We measured *general evaluations* with the General Evaluation Scale (Wright, Aron, McLaughlin-Volpe & Ropp, 1997), which instructed respondents to "indicate how you feel about the French in general" by using the following bipolar adjective pairs separated by a seven-point scale: *cold--warm, negative--positive, friendly--hostile, suspicious--trusting, respect--contempt, disgust--admiration* (pairs three and five were reversed). We scored responses such that the more positive adjective received the higher score, alpha of mean index = .90.

IAT Measure

This was a word-based task based on Greenwald et al. (1998), using a computer program written by A. B. Milne in 1999. This task presented 32 stimulus words: Eight French names (Virginie, Laurent, Jacques, Monique, Brigitte, Marie, Jean-Claude, Pierre), eight English names (Julian, Abigail, Edward, Margaret, Charles, Victoria, Henry, Linda), eight positive words (friend, paradise, happy, gift, peace, love, pleasure, freedom), and eight negative words (agony, evil, cancer, poverty, tragedy, disaster, death, murder). We took positive and negative words from Greenwald et al. (1998) and piloted English names in a previous IAT study with the same participant sample several months earlier. The French names were rated to be the most typical by second-year psychology students at the University of Kent.

We randomly allocated participants to two conditions to control for order effects. There were seven blocks, three of which (Blocks 1, 2, and 5) were simple training blocks with 16 trials each (name discrimination, adjective discrimination, and reversed name discrimination). Two blocks (3 and 6) were combination training blocks with 32 trials each, and a further two blocks (4 and 7) were the critical ones used for analysis. The combination blocks, counterbalanced according to condition, were either prejudice-*consistent* (British names were paired with positive words and French names with negative words) or prejudice-*inconsistent* (French names were paired with positive words and British names with negative words). We presented items on a randomly determined order, with each item being presented once. At the commencement of each block, we told participants what kind of category judgments (e.g. adjectives) the following block would entail. We told participants to respond as quickly and accurately as possible, with the "C" or "M" key. We used a 500-ms inter-trial interval, during which category label and key reminders were

still displayed. In between blocks, we gave participants a self-paced break and brief instructions for the next block.

RESULTS

IAT Effect

Usually, IAT studies (e.g. Greenwald et al., 1998) use the arithmetic means of response times to calculate the IAT effect. However, these means are often skewed by long response times latencies and thus need to be log-transformed and recoded. The *median*, on the other hand, is less affected by the latency distribution, which renders the adjustment procedures unnecessary (Karpinski & Hilton, 2001). Hence, we used the median in the present analyses. A look at the descriptive statistics confirms this choice: The medians show rather normal distributions, with few outliers. To establish any IAT effects, median response times of Blocks 4 and 7 must be examined. An independent-samples *t*-test showed that the order of stimulus presentation did not have any effect on overall IAT scores: t (72) = -.69, p = .49. Collapsing across order, the overall IAT score was M = 111 (SD = 112), that is, participants responded on average 111 ms faster for prejudice-consistent than -inconsistent stimuli. This score was significantly different from zero (t (73) = 8.53, $p < .001$).

Interrelationships Among Variables

Means and standard deviations are shown in Appendix A; correlations among variables are shown in Appendix B. All of the significant relationships are consistent with the predictions of the CIIM. In line with previous evidence, qualitative contact is significantly related to the majority of dependent variables but quantitative contact is only significantly related to qualitative contact and social distance. Therefore our analyses focus on the impact of qualitative contact. It is noteworthy that IAT scores are not significantly related to any of the other variables. This rules out the possibilities that contact affects implicit attitude either directly or that the effects of contact are mediated by levels of categorization. We will therefore start by examining the conventional hypothesis, that effects of contact on explicit measures are mediated by levels of categorization, before exploring the possibility that implicit attitude acts as an independent variable that may moderate the effects of contact or categorization on explicit attitudes.

Levels of Categorization as Mediators Between Contact and Explicit Measures

Table 1 shows the regression analyses testing the extent to which each level of categorization mediates the effect of qualitative contact on each dependent variable. First, in line with predictions from intergroup contact theory (Pettigrew, 1998) and the CIIM (Gaertner & Dovidio, 2000), qualitative contact is associated with lower endorsement of the intergroup level of categorization but higher endorsement of interpersonal, superordinate group, and dual identity levels. Higher-quality contact is also related to lowered intergroup anxiety. In addition, whereas a higher level of intergroup categorization is associated with more social distance and less positive outgroup evaluations, higher levels of interpersonal and superordinate categorization are associated with lowered social distance and more positive evaluations of the French. In addition,

a higher level of dual categorization is associated with a decrease in anxiety. Once again, these relationships are highly consistent with hypotheses from the CIIM and intergroup contact theory.

Table 1: Mediating Effects of Levels of Categorization on the Relationship Between Quality of Contact (QC) and Explicit Measures of Intergroup Bias

Potential mediator	**QC-Med. rel.**		**DV**	**QC-DV rel.**		**Med.-DV rel.**		**Sobel test (z)**
	Beta	**t**		**Beta**	**t**	**Beta**	**t**	
IP level	.45	4.70***	IG anxiety	-.40	-3.63***	-.15	-1.24	0.15
IP level			Soc. distance	-.62	-6.72***	-.35	-3.41***	1.80+
IP level			Gen. eval.	.63	6.85***	.33	3.00**	1.38
IG level	-.39	-3.89***	IG anxiety	-.40	-3.63***	.05	0.44	0.09
IG level			Soc. distance	-.62	-6.72***	.23	2.31*	1.57
IG level			Gen. eval.	.63	6.85***	-.22	-2.06*	1.33
SO level	.38	3.80***	IG anxiety	-.40	-3.63***	-.06	-0.49	0.44
SO level			Soc. distance	-.62	-6.72***	-.27	-2.78**	1.42
SO level			Gen. eval.	.63	6.85***	.22	2.13*	0.77
DI level	.22	2.11*	IG anxiety	-.40	-3.63***	-.30	-2.48*	1.28
DI level			Soc. distance	-.62	-6.72***	-.11	-1.09	1.04
DI level			Gen. eval.	.63	6.85***	.10	0.99	1.02

Note. IP = Interpersonal, IG = Intergroup, SO = Superordinate group, DI = Dual identity, Med. = Mediator, rel. = relationship, DV = Dependent variable, Soc. = Social, Gen. eval. = General evaluation. + $p = .07$; * $p < .05$; ** $p < .01$; *** $p < .001$.

Formal examination of the potential mediating role of different levels of categorization indicates that inclusion of the mediators as a block reduces the qualitative contact--intergroup anxiety relationship from *beta* = -.40, $t = -3.53$, $p < .001$, *R square adjusted* = .14, F (1, 72) = 12.46, $p = .001$ to *beta* = -.35, $t = -2.71$, $p < .01$, *R square adjusted* = .19, F (5, 68) = 4.52, $p = .001$.; the contact--social distance relationship is reduced from *beta* = -.63, $t = -6.82$, $p < .001$, *R square adjusted* = .38, F (1, 72) = 46.55, $p < .001$ to *beta* = -.41, $t = -3.92$, $p < .001$, *R square adjusted* = .48, F (5, 68) = 14.71, $p<.001$; and the contact--general evaluation relationship is reduced from *beta* = .63, $t = 6.87$, $p < .001$, *R square adjusted* = .39, F (1, 72) = 47.18, $p < .001$ to *beta* = .46, $t = 4.30$, $p < .001$, *R square adjusted* = .44, F (5, 68) = 12.58, $p < .001$. Hence, contact alone explains 14% of variance in intergroup anxiety, 38% of variance in social distance, and 39% of variance in general evaluation, while contact and levels of categorization together explain 19% of variance in anxiety, 48% of variance in social distance, and 44% of variance in general evaluations.

Inspection of the effects of each potential mediator separately reveal seven potential indirect effects, i.e. cases where the potential mediator and qualitative contact both had significant relationships with dependent variables (see Table 1). Mediation occurs when the independent variable relates to the mediator, the independent variable relates to the dependent variable, the mediator relates to the dependent variable while controlling for the independent variable, and

once the potential mediator is included in the regression analysis, the relationship between the independent and dependent variable reduces in size, and particularly when it reduces to non-significance (Baron & Kenny, 1986). There was evidence of mediation of the effects of contact on general outgroup evaluation and on social distance by the interpersonal, intergroup, and superordinate levels of categorization. There was also evidence of mediation of the effect of contact by the dual identity level on intergroup anxiety. All of these relationships are consistent with the CIIM. Table 1 also provides the statistics for tests of the size of mediation for each level of categorization. This shows that although all effects of contact were partially mediated, as evidenced by a reduction in the effect of contact when the levels of categorization were included, the amount of mediation was not large enough to be statistically significant according to the Sobel test. However, we note, firstly, that this test is highly conservative (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002), and secondly, that the four mediators as a block do reduce the strength of association between contact and outcome variables and, in combination with contact, do explain substantially higher percentages of variance in the three dependent variables than contact alone.

IAT Effect as Moderator

Appendix B shows that IAT scores are unrelated to any of the explicit measures of intergroup bias. This is consistent with previous evidence that implicit and explicit measures are sometimes unrelated (Wilson et al., 2000). Given that IAT is not linearly associated with either contact or with the explicit measures it is reasonable to treat IAT and contact as statistically independent predictors of explicit prejudice, and therefore to examine the potential moderating effects of the IAT effect within the CIIM. To do this, we added a second step to the analyses reported above, using hierarchical multiple regression. After entering main effects (of centered predictor variables) at the first step, we examined effects of interactions between the IAT effect and contact and between the IAT effect and each level of categorization on the explicit bias measures. This incorporated a moderated mediation analysis (Baron & Kenny, 1986; James & Brett, 1984; Muller, Judd & Yzerbyt, 2004). The moderator variable (IAT score) can either qualify a mediating effect or its interaction term can itself be mediated.

The contact x IAT interaction term had no effect on any of the levels of categorization, indicating the absence of mediated moderation. Similarly, contact x IAT did not predict social distance or general evaluation. Further, there were no interaction effects between levels of categorization and IAT on these two dependent measures (all betas < .20). In contrast, and in line with our hypotheses about the potential moderating effect of implicit associations on intergroup anxiety, there were two significant and one marginal interaction effects, all affecting anxiety. There was a significant superordinate categorization x IAT interaction on anxiety, *beta* = -.42, t = -3.81, $p < .001$, *R square adjusted* = .16, F (3, 73) = 5.57, p = .002, *R square change* = .17, *F change* (1, 70) = 14.50, $p < .001$. Similarly, the dual identity x IAT interaction on anxiety was marginal, *beta* = -.23, t = -1.92, p = .06, *R square adjusted* = .05, F (3, 73) = 2.22, p = .09, *R square change* = .05, *F change* (1, 70) = 3.68, p = .06. Analyses of simple slopes within each interaction effect (see Aiken & West, 1991) revealed that these two levels of categorization were associated with significantly decreased anxiety when implicit bias was high, *beta* = -.66, t = -3.73, $p < .001$ and *beta* = -.36, t = -2.38, p = .02, respectively, but not when implicit bias was low, *beta* = .29, t = 1.89, p = .06 and *beta* = .07, t = .39, p = .70, respectively.

The beta for the main effect of dual identity categorization on anxiety reduced from .30 to .08 once the IAT x dual identity categorization interaction was included. Therefore, this is a case of moderated mediation: Dual identity mediates the effect of contact on anxiety, but implicit attitude moderates the effect of dual identity categorization on anxiety. More specifically, high quality contact is associated with higher endorsement of dual identity and this higher endorsement relates to less anxiety, but only for people with high implicit bias.

Finally, the effect of contact on anxiety was qualified by a significant contact x IAT interaction, *beta* = -.36, t = -3.47, p = .001, *R square adjusted* = .26, F (3, 70) = 9.40, $p < .001$, *R square change* = .12, *F change* (1, 70) = 12.05, p = .001. This remained highly significant when all four mediators were also entered into the regression equation, *beta* = -.35, t = -3.29, p = .002. Analysis of simple slopes showed that when implicit bias was high more positive contact was significantly related to decreased anxiety, *beta* = -.86, t = -5.12, $p < .001$, whereas when implicit bias was low, contact had no significant effect on anxiety, *beta* = .02, t = .15, p = .88.

DISCUSSION

The present study tested Gaertner and Dovidio′s (2000) CIIM in an Anglo-French intergroup context, with explicit and implicit dependent variables. The finding that all mediating and dependent variables were associated with qualitative contact, and that quantity of contact was related only to its quality and one other variable, underlines the importance of friendship potential and certain conditions during contact, such as equality and cooperation (Allport, 1954; Pettigrew, 1998). The effects of qualitative contact were generally in line with the predictions of the CIIM. Higher-quality contact was associated with stronger application of categorization at interpersonal, superordinate, and dual identity levels, and weaker application at the intergroup level. Contact was also associated with lower intergroup anxiety and social distance and improved general evaluations. Stronger interpersonal and superordinate group levels of categorization were related to less distance and more positive evaluations, while intergroup categorization was associated with increased bias. Anxiety was decreased by dual identity categorization. All four levels of categorization partially mediated the relationship between contact and intergroup bias and as a block, they added to the percentage of variance in outcome variables explained in relation to contact alone, as predicted by the CIIM.

Although superordinate categorization is accorded a special prejudice-reducing role by the CIIM, it was a slightly less effective vehicle of change than interpersonal categorization and it was equally strongly related to prejudice as intergroup categorization (in opposite directions). This might be partly accounted for by the present intergroup context of English and French university students. One potential superordinate category is that of students, a perhaps more salient and relevant one is Europe, or the European Union (EU). Generally, the British have been less than enthusiastic about the EU, so perceiving themselves and the French as part of one inclusive group with little emphasis on national distinctiveness might threaten their social identity (Hornsey & Hogg, 2000). Perceiving each other as mere individuals, in contrast, might be less anxiety-provoking in the current setting.

In contrast to some previous research (e.g. Aberson et al., 2004; Schwartz & Simmons, 2001) we found no support for our first hypothesis that contact or levels of categorization would affect implicit attitude. However, in alignment with our alternative hypothesis, implicit attitude did exert an influence on the relationships between contact, levels of categorization, and explicit outcome measures, revealing interactive patterns. Higher qualitative contact and stronger superordinate group or dual identity categorization were all associated with reduced anxiety when implicit bias was high, but not when it was low. In all three cases, the relationships with intergroup anxiety were negative, medium to very large, and significant when implicit bias was high, and positive, very small to medium, and non-significant when implicit bias was low. This is seen most clearly in the relationship between contact and anxiety. When implicit bias was high the beta value approached -.90, whereas when implicit bias was low the relationship was near zero. These findings show that implicit associations have quite a large impact in terms of influencing the effectiveness of key prejudice-reducing variables, such as quality of contact.

A particularly important aspect of the findings is that these interactive effects were restricted to intergroup anxiety and did not affect general evaluations of the outgroup or social distance, despite the fact that these three explicit measures are all highly significantly correlated with each other. Thus, the effects of implicit association are distinctively related to the explicit measure that is likely to reflect the less controllable aspects of bias. This pattern of results is plausible when one considers that contact and inclusive levels of categorization have the highest anxiety-reducing potential for people who are implicitly biased -- and who probably have relatively higher baseline intergroup anxiety -- than for those who are not. Somewhat surprisingly, when implicit bias was low, the superordinate level had a (non-significant) anxiety-*increasing* effect of moderate magnitude (.29). This is the first instance in the present data in which the superordinate level has bias- or anxiety-augmenting effects, which contradicts the predictions of the CIIM, but may be consistent with the idea that categorization on a superordinate level might sometimes have identity-threatening consequences.

Limitations

The cross-sectional design of the present study clearly limits the extent to which one can infer causality. Hence, while it makes sense that, for instance, high-quality contact leads to a lower endorsement of an intergroup level of categorization, which then lowers intergroup anxiety, one could make the case that high levels of anxiety foster endorsement of an intergroup level of categorization, which then makes people perceive contact to be less positive. However, previous experimental (Gaertner & Dovidio, 2000) and longitudinal (Eller & Abrams, 2003; but also see Eller & Abrams, 2004) evidence has supported the proposed causal direction of the CIIM, and therefore the presumption of causal direction has a strong basis in prior theory and evidence.

A further potential limitation is that we operationalized quality of contact with six items and quantity of contact with a single item. This could have increased measurement errors for quantitative relative to qualitative contact and might explain why quality was much more effective at reducing intergroup bias than quantity. However, research using single items to measure quantity and quality of contact (Eller & Abrams, 2004, Studies 1 and 2), respectively, also revealed a much superior role of qualitative contact.

Conclusions

The CIIM has been tested widely and successfully with a range of outcome measures in the affective, cognitive, and behavioral realm (Gaertner & Dovidio, 2000). The present research is the first, to our knowledge, to examine the impact of the CIIM′s levels of categorization on implicit attitudinal processes and to test the possibility that implicit attitude may operate as an independent rather than a concurrent dependent variable with explicit measures in the contact-prejudice relationship.

Our findings for explicit attitudes largely converge with those of previous tests of the CIIM, but the effects did not extend to the implicit level. Instead, implicit attitudes seem to play a crucial role in shaping the extent to which qualitative contact and inclusive levels of categorization can promote more beneficial intergroup relations on an explicit level, particularly by reducing intergroup anxiety. These results are in concordance with the notion that implicit attitudes are associations learned over time from the social environment rather than target evaluations (see Karpinski & Hilton, 2001). The finding that implicit attitude can strongly moderate the effects of intergroup contact on an explicit measure of intergroup anxiety suggests that different strategies may be required to reduce explicit bias depending on a person′s level of implicit bias. This attests to the value of measuring bias at both implicit and explicit levels rather than assuming one is a truer or better measure than the other (Dovidio et al., 2001).

As for the CIIM, the current research has shown that despite the general bias-reducing properties of superordinate categorization, in certain circumstances and intergroup contexts, a complete dissolution of group boundaries might threaten people′s social identity, which then manifests in heightened intergroup bias. This has important ramifications for applied settings, such as the present one, the EU. For the *Entente Cordiale* to work on a citizens′ level then, commonalities as well as differences between the British and French should be stressed, as is the case with the dual identity level. As Karl Marx once noted, English workers need beer while French proletarians need wine (in Althusser, 1971).

REFERENCES

Aberson, C. L., Shoemaker, C., & Tomolillo, C. M. (2004). Implicit bias and contact: The role of interethnic friendships. *Journal of Social Psychology, 144,* 335-347.

Aiken, L.S., & West, S.G. (1991) *Multiple regression: Testing and interpreting interactions.* Newbury Park, CA: Sage.

Allport, G. W. (1954). *The nature of prejudice*. Reading, MA: Addison-Wesley.

Althusser, L. (1971). Lenin and philosophy and other essays. New Left Books: London.

Banker, B. S. (2002). Intergroup conflict and bias reduction in stepfamilies: A longitudinal investigation of intergroup relations processes. Unpublished doctoral dissertation: University of Delaware: Newark.

Banse, R., Seise, J. & Zerbes, N. (2001). Implicit attitudes towards homosexuality: Reliability, validity, and controllability of the IAT. *Zeitschrift für Experimentelle Psychologie, 48(2)*, 145-160.

Bargh, J.A. (1999). The cognitive monster: The case against the controllability of automatic stereotype effects. En S. Chaiken & Y. Trope (Eds.), *Dual-process theories in social psychology* (pp. 361-382). New York, NY: Guilford Press.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51,* 1173-1182.

Bogardus, E. S. (1933). A social distance scale. *Sociology and Social Science Research, 17,* 265-271.

Brinol, P., Horcajo, J., Becerra, A., Falces, C. & Sierra, B. (2002). Cambio de actitudes implícitas [Implicit attitude change]. *Psicothema, 14(4)*, 771-775.

Brown, R.J., & Hewstone, M. (2005). An integrative theory of intergroup contact. *Advances in Experimental Social Psychology, 37*, 255-343.

Dasgupta, N. & Greenwald, A. G. (2001). On the malleability of automatic attitudes: Combating automatic prejudice with images of admired and disliked individuals. *Journal of Personality and Social Psychology, 81(5)*, 800-814.

Dijksterhuis, A.. Aarts, H., Bargh, J. A. & van Knippenberg, A. (2000). On the relation between associative strength and automatic behavior. *Journal of Experimental Social Psychology, 36*, 531-544.

Dovidio, J. F., Kawakami, K. & Beach, K. R. (2001). Implicit and explicit attitudes: Examination of the relationship between measures of intergroup bias. In R. Brown & S. L. Gaertner (Eds.), *Blackwell Handbook of Social Psychology: Intergroup Processes* (pp. 175-197). Blackwell: Oxford.

Eller, A. & Abrams, D. (2003). "Gringos" in Mexico: Cross-sectional and longitudinal effects of language school-promoted contact on intergroup bias. *Group Processes and Intergroup Relations, 6*, 55-75.

Eller, A. & Abrams, D. (2004). Come together: Longitudinal comparisons of Pettigrew′s reformulated intergroup contact model and the Common Ingroup Identity Model in Anglo-French and Mexican-American contexts. *European Journal of Social Psychology*, *34(3)*, 229-256.

Fazio, R. H. & Olson, M. A, (2003). Implicit measures in social cognition research: Their meaning and use. *Annual Review of Psychology, 54*, 297-327.

Gaertner, S. L. & Dovidio, J. F. (2000*). Reducing intergroup bias: The common ingroup identity model.* Philadelphia, PA: Psychology Press.

Gaertner, S. L., Dovidio, J. F., Anastasio, P. A., Bachman, B. A., & Rust, M. C. (1993). The common ingroup identity model: Recategorization and the reduction of intergroup bias. In W. Stroebe & M. Hewstone (Eds.), *European Review of social psychology* (Vol. 4. pp. 1-26). New York: John Wiley & Sons.

Gaertner, S. L., Dovidio, J. F., & Bachman, B. A. (1996). Revisiting the contact hypothesis: The induction of a common ingroup identity. *International Journal of Intercultural Relations, 20,* 271-290.

Gaertner, S. L., Mann, J., Murrell, A., & Dovidio, J. F. (1989). Reducing intergroup bias: The benefits of recategorisation. *Journal of Personality and Social Psychology, 57*, 239-249.

González, R. (2000). The contact hypothesis and levels of categorization: Maintaining a dual identity as strategy for reducing intergroup bias. Unpublished Ph.D. thesis: University of Kent, UK.

Greenwald, A. G., McGhee, D. E. & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The Implicit Association Test. *Journal of Personality and Social Psychology, 74*, 1464-1480.

Hornsey, M. J. & Hogg, M. A. (2000). Subgroup relations: a comparison of mutual intergroup differentiation and common ingroup identity models of prejudice reduction. *Personality and Social Psychology Bulletin, 26*, 242-256.

Houlette, M. A., Gaertner, S. L., Johnson, K. M., Banker, B. S., Riek, B. M. & Dovidio, J. F. (2004). Developing a more inclusive social identity: An elementary school intervention. *Journal of Social Issues, 60(1)*, 35-55.

Islam, M. R. & Hewstone, M. (1993). Dimensions of contact as predictors of intergroup anxiety, perceived out-group variability, and out-group attitude: An integrative model. *Personality and Social Psychology Bulletin, 19,* 700-710.

James, L. R. & Brett, J. M. (1984). Mediators, moderators, and tests for mediation. *Journal of Applied Psychology, 69(2)*, 307-321.

Jelenec, P., & Steffens, M. C. (2002). Implicit attitudes toward elderly women and men. *Current Research in Social Psychology, 7,* 275-293. Retrieved 18 May, 2005, from http://lime.weeg.uiowa.edu/~grpproc/crisp/crisp.7.16.htm.

Karpinski, A. & Hilton, J. L. (2001). Attitudes and the Implicit Association Test. *Journal of Personality and Social Psychology, 81(5)*, 774-788.

Kawakami, K., Dovidio, J.F., Moll, J., Hermsen, S., & Russin, A. (2000). Just say no (to stereotyping): Effects of training in the negation of stereotypic associations on stereotype activation. *Journal of Personality and Social Psychology*, *78*, 871-888.

Lowery, B. S., Hardin, C. D. & Sinclair, S. (2001). Social influence effects on automatic racial prejudice. *Journal of Personality and Social Psychology, 81(5)*, 842-855.

Maass, A., Castelli, L. & Arcuri, L. (2000). Measuring prejudice: Implicit versus explicit techniques. In D. Capozza & R. Brown (Eds.), *Social identity processes* (pp. 96-116). London: Sage.

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G. & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods, 7(1)*, 83-104.

Muller, D., Judd, C. M., & Yzerbyt, V. (2004). When mediation is moderated and moderation is mediated. Unpublished manuscript: University of Colorado.

Pettigrew, T. F. (1998). Intergroup contact theory. *Annual Review of Psychology, 49,* 65-85.

Pettigrew, T. F., & Tropp, L. R. (in press). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology.*

Plant, E. A., & Devine, P. G. (2003). The antecedents and implications of interracial anxiety. *Personality and Social Psychology Bulletin, 29(6)*, 790-801.

Rudman, L. A., Ashmore, R. D. & Gary, M. L. (2001). "Unlearning" automatic biases: The malleability of implicit prejudice and stereotypes. *Journal of Personality and Social Psychology, 81(5),* 856-868.

Schwartz, L. K. & Simmons, J. P. (2001). Contact quality and attitudes toward the elderly. *Educational Gerontology, 27(2)*, 127-137.

Stephan, W. G., Diaz-Loving, R., & Duran, A. (2000). Integrated threat theory and intercultural attitudes: Mexico and the United States. *Journal of Cross-Cultural Psychology, 31,* 240-249.

Teachman, B., & Brownell, K. (2001). Implicit anti-fat bias among health professionals: Is anyone immune? *International Journal of Obesity, 25,* 1525-1531.

Towles-Schwen, T. & Fazio, R. H. (2003). Choosing social situations: The relation between automatically activated racial attitudes and anticipated comfort interacting with African Americans. *Personality and Social Psychology Bulletin, 29(2)*, 170-182.

van Dick, R., Wagner, U., Pettigrew, T. F., Christ, O., Jackson, J. S., Petzel, T., Smith-Castro, V. & Wolf, C. (2004). The role of perceived importance in intergroup contact. *Journal of Personality and Social Psychology, 87(2),* 211-227.

Wilson, T. D., Lindsey, S., & Schooler, T. Y. (2000). A model of dual attitudes. *Psychological Review, 107(1)*, 101-126.

Wright, S. C., Aron, A., McLaughlin-Volpe, T., & Ropp, S. A. (1997). The extended contact effect: Knowledge of cross-group friendships and prejudice. *Journal of Personality and Social Psychology, 73*, 73-90.

APPENDIX A: DESCRIPTIVE STATISTICS

Measure	Mean	Standard deviation
Quantitative contact	3.04	1.54
Qualitative contact	3.84	0.82
Interpersonal level	5.52	1.41
Intergroup level	4.15	1.50
Superordinate group level	3.87	1.23
Dual identity level	4.26	1.31
Intergroup anxiety	3.39	1.01
Social distance	3.54	1.30
General evaluation	4.37	0.86
IAT score+	111	112

Note. + Median.

APPENDIX B: CORRELATION MATRIX

Mea-sure										
	1	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**
1		.13	.13	-.06	.02	.14	-.14	-.31**	.06	-.20
2		.45***	.45***	-.39***	.38***	.22*	-.43***	-.65***	.62***	-.08
3				-.31**	.16	.32**	-.31**	-.51***	.42***	-.22
4					-.20	-.20	.17	.44***	-.40***	.17
5						.22*	-.17	-.35***	.33**	.13
6							-.35***	-.28**	.32**	-.11
7								.47***	-.51***	-.10
8									-.60***	.11
9										-.01
10										

Note. 1 = Quantitative contact, 2 = Qualitative contact, 3 = Interpersonal level, 4 = Intergroup level, 5 = Superordinate group level, 6 = Dual identity level, 7 = Intergroup anxiety, 8 = Social distance, 9 = General evaluation, 10 = IAT score. * $p < .05$; ** $p < .01$; *** $p < .001$.

APPENDIX C: MEASURES

Questionnaire Measures

Quantitative Contact

In general, how often do you have contact with French people at university?

never 1 2 3 4 5 6 7 always

Qualitative Contact

In general, how often do you have contact with French people as close friends?

never 1 2 3 4 5 6 7 always

How important is this contact to you personally?

not at all 1 2 3 4 5 6 7 very

How would you rate your contact with French people?

never among equals	1	2	3	4	5	6	7 always among equals
mostly involuntary	1	2	3	4	5	6	7 mostly voluntary
mostly superficial	1	2	3	4	5	6	7 mostly intimate
mostly competitive	1	2	3	4	5	6	7 mostly cooperative

Levels of Categorization

When you have contact with French people, how often do you perceive them as…

a)…individual people never 1 2 3 4 5 6 7 always

b)…people from a group that is different from your own never 1 2 3 4 5 6 7 always

c)…people from a group with whom you share a common group membership never 1 2 3 4 5 6 7 always

d)…people from a different group that, <u>at the same time</u>, share a common group membership with you never 1 2 3 4 5 6 7 always

Intergroup Anxiety

Please show how you would feel when interacting with French people:

comfortable	not at all	1	2	3	4	5	6	7	extremely
threatened	not at all	1	2	3	4	5	6	7	extremely
confident	not at all	1	2	3	4	5	6	7	extremely
anxious	not at all	1	2	3	4	5	6	7	extremely
at ease	not at all	1	2	3	4	5	6	7	extremely
awkward	not at all	1	2	3	4	5	6	7	extremely

Social Distance

How much would you like to have a French person as:

your fellow student?	not at all	1	2	3	4	5	6	7	very much
your best friend?	not at all	1	2	3	4	5	6	7	very much
your boyfriend or girlfriend?	not at all	1	2	3	4	5	6	7	very much

IAT Measure

French names: Virginie, Laurent, Jacques, Monique, Brigitte, Marie, Jean-Claude, Pierre.
English names: Julian, Abigail, Edward, Margaret, Charles, Victoria, Henry, Linda.
Positive words: Friend, paradise, happy, gift, peace, love, pleasure, freedom.
Negative words: Agony, evil, cancer, poverty, tragedy, disaster, death, murder.

AUTHOR NOTE

We are grateful to Benjamin Arditi and Anja Zimmermann for their comments on earlier versions of this paper. We would also like to thank Frank Siebler for his help in designing the measures for this study. This research was supported by a University of Kent Studentship and is part of the first author's doctoral research, which was awarded the 2003 SPSSI Social Issues Dissertation Award. Writing this paper was aided by a British Academy Post-Doctoral Fellowship. Parts of this paper were presented at the Society for the Psychological Study of Social Issues 5th Biennial Convention, Washington DC, June 25-27, 2004.

AUTHOR BIOGRAPHIES

Anja Eller is a Lecturer at the School of Psychology, University of St Andrews, UK. Her research focuses on direct and indirect intergroup contact and social identification and categorization among different types of groups. E-mail: Anja.Eller@st-andrews.ac.uk.

Dominic Abrams is a Professor at the Department of Psychology, University of Kent, UK, and Director of the Centre for the Study of Group Processes. His research interests include social identity and intergroup relations, deviance, group consensus processes, and the self-concept and self-regulation of behaviour. E-mail: D.Abrams@kent.ac.uk.