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# Intergroup Contact: Effects on Group Evaluations and Perceived Variability

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We argue that the two different components of group perceptions, namely group evaluations and perceptions of group variability, are affected by intergroup contact in rather different ways. Consistent with considerable existing research in the contact literature, we show that intergroup contact results in more positive target group evaluations, so long as the contact is cooperative and relatively pleasant. On the other hand, consistent with laboratory work in stereotype change, we show that changes in perceptions of group variability as a function of contact occur only when the contact is with someone who disconfirms the group stereotype but who is nevertheless regarded as typical of the group.

**keywords** contact hypothesis, perceived variability, stereotyping change, subtyping

THE CONTACT hypothesis ranks among the most heavily researched questions within the social sciences. This interest is sparked in large part by the seeming simplicity of a formula for reducing intergroup conflict that requires the group members merely to 'get to know one another'. In practice the implementation of contact interventions has been much less straightforward. Nevertheless, researchers have developed a fairly well articulated model of the consequences of contact under a variety of situational constraints (Allport, 1954; Amir, 1969; Cook, 1962, 1978, 1985; Pettigrew, 1998; Stephan, 1987, 1999; Stephan & Stephan, 1996). The bulk of the work suggests that contact can

result in more positive evaluations of an out-group, although this certainly is not always the case (Pettigrew, 1986, 1997, 1998; Stephan, 1987; Stephan & Stephan, 1996).

Work on the contact hypothesis can be grouped into two general categories. One line of

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research has examined the relationship between self-reported levels of previous contact and current intergroup attitudes. This work is correlational in nature. It asks whether a history of contact with a group covaries with more positive evaluations of that group. The research suggests that so long as the contact takes place under cooperative conditions, with equal status between the group members, and is generally pleasant, greater contact predicts more positive intergroup attitudes (e.g. Hamberger & Hewstone, 1997; Islam & Hewstone, 1993; Pettigrew, 1997; Stangor, Jonas, Stroebe, & Hewstone, 1996; Towles-Schwen & Fazio, 2001; Wright, Aron, McLaughlin-Volpe, & Ropp, 1997). In a meta-analysis of these sorts of correlational studies, Pettigrew and Tropp (2000) found a substantial negative relationship between contact and prejudice (average Cohen's  $d = .40$ ).

The second line of research has assessed intergroup attitudes following a contact intervention in which participants meet and interact with an outgroup member. Sometimes this work involves experimental interventions in which the outgroup member is a research confederate (e.g. Desforges et al., 1991; Wilder, 1984). Other studies have used quasi-experimental designs to assess the impact of contact, such as the classic Jigsaw classroom studies (Aronson & Bridgeman, 1979; Aronson & Osherow, 1980). In their meta-analysis, Pettigrew and Tropp (2000) report a negative relationship between prejudice and contact across 12 experimental studies with a mean effect size of  $-.80$ , and mean effect size of  $-.40$  across 42 quasi-experimental studies.

Nearly all of this research has examined the effects of contact on intergroup evaluation or liking. The most typical measures include either a direct evaluation of the group (such as a warmth thermometer rating) or an indirect evaluation of the group (such as whether you would choose a member of this group as a playmate or partner on some task). A substantial number of studies also use multi-item attitude scales such as the Attitudes Towards Lesbians and Gays scale (Herek, 1988; Herek & Capitano, 1996), or the blatant and subtle prejudice scales (Pettigrew, 1997; Pettigrew & Meertens, 1995). These scales are primarily evaluative in nature.

Over and above contact-induced changes in evaluation, some studies have examined changes in group stereotypes as a function of contact. Group stereotypes are defined as beliefs about the attributes of groups and, in general, many outgroup stereotypes are negatively valenced. Accordingly, it might be expected that any contact-induced change in evaluations should also affect the negativity of group stereotypes such that these negative attributes are seen as less characteristic of the group than before, or perhaps removed from the stereotype altogether. Moreover, one might also expect contact to affect the degree to which group members are strongly stereotyped, regardless of the valence of those stereotypes. If one learns about individual outgroup members in appropriate circumstances, then one may come to appreciate that members of that group do not all conform to the group stereotype; one may come to better appreciate the diversity or heterogeneity of the group and the lack of diagnosticity of the group stereotype one previously held.

Park and Judd (1990) showed that there are two components of the perceived variability of social groups, both related to the strength of group stereotypes. The first is the perceived stereotypicality of the group. To the extent that one believes that most group members possess stereotypic traits (and few possess counter-stereotypic ones), then the group is perceived homogeneously and relatively extremely on stereotypic dimensions. The second component of perceived variability is the degree of perceived dispersion within the group. Groups about which one holds stronger stereotypes are groups where all members are seen as very similar to one another; they are believed to possess relatively low dispersion around the group mean on stereotypic attributes. Although one might expect these two components of perceived group variability to be related to each other (i.e. if a group is perceived in an extremely stereotypic manner, then there should be relatively greater within-group similarity), in fact empirically they turn out to be relatively independent components of group stereotypes (Judd, Park, Ryan, Brauer, & Kraus, 1995; Park & Judd, 1990).

Only a handful of studies have examined change in the perceived variability of group members as a result of intergroup contact (e.g. Biernat, 1990; Islam & Hewstone, 1993; Stangor et al., 1996; Wilder, 1984). All of these, with the exception of Wilder, used a correlational design. Biernat (1990) found that contact was positively associated with liking for a group, but that it also predicted a stronger tendency to form generalizations about the group that served to differentiate it from other groups (i.e. greater stereotypicality). The data from the Stangor et al. (1996) study were inconclusive with respect to the relationship between contact and perceived variability. Students who spent a year abroad came to see not only the contact outgroup, but a control group as well, as more dispersed. However, this change disappeared and perceptions of variability reverted to their original level a year after the students had returned home. Islam and Hewstone (1993) examined the relation between contact and various aspects of group perceptions (outgroup attitude, outgroup variability, and intergroup anxiety) among Hindu and Muslim university students. Students with a greater amount of intergroup contact perceived greater dispersion among the group members on stereotype irrelevant attributes. Wilder (1984) found substantial effects of contact on evaluative measures when the interaction was a pleasant one with a student portrayed as typical. However, no differences in the extremity of the group stereotype were found as a function of contact.

In sum, relatively few contact studies have examined the effects of contact on the perceived variability of group stereotypes and, in those that have, the effects are clearly mixed. Indeed, although Pettigrew and Tropp's (2000) meta-analysis revealed strong and consistent effects of contact on group liking, effects on stereotype change were decidedly more ambiguous.

Our goal in the research described in this paper was to better understand and document the mechanisms by which intergroup contact may lead to changes in the strength of group stereotypes (i.e. perceived variability), over and above any evaluative effects of that contact.

There are two literatures that are relevant to developing our hypotheses here, one that has focused on the issue of generalization in the contact situation, and one that has focused on the issue of stereotype change in response to disconfirming information. As we will see, these two literatures are theoretically related, in that the perceived typicality of group instances that one encounters has figured prominently in each.

In spite of the fact that appropriate contact seems to have robust positive effects on outgroup evaluations (as documented by Pettigrew and Tropp, 2000), there are studies that have found that the positive regard induced by contact with a particular outgroup member fails to generalize to the group as a whole (for reviews, see Hewstone, 1994; Hewstone & Brown, 1986; for particular studies that have found failures to generalize, see Cook, 1978, 1985; Werth & Lord, 1992; Wilder & Thompson, 1980).

The theoretical reasons for this occasional failure to find generalization are well articulated by Rothbart and John (1985). They note that one of the conditions for successful operation of the contact hypothesis is that there must be the opportunity for high acquaintance potential. That is, the contact person must be more than simply a familiar stranger. But once the individual is 'personalized', she may very well not be thought of as a member of her respective social category. As a result, positive sentiments toward that individual may not generalize to the larger group. It is for exactly this reason that Hewstone and Brown (1986; Brown & Turner, 1981; Hewstone & Lord, 1998) argue against the personalization/individuation perspective of Brewer and Miller (1984; see also Scarberry, Ratcliff, Lord, Lanicek, & Desforjes, 1997) and argue instead that interactions must take place within an intergroup context if attitude change is to generalize. From this point of view, pleasant interactions must occur in a setting that promotes the recognition that this particular outgroup member remains a representative or typical member of the outgroup. (For empirical work showing stronger generalization in an intergroup context with a typical outgroup member, see

Brown, Vivian, and Hewstone, 1999; Desforges et al., 1991; Desforges et al., 1997; Wilder, Simon, & Faith, 1996).

As we suggested above, the literature that has explored the impact of stereotype-disconfirming information on stereotype change has reached very similar conclusions about the role of instance typicality. Unlike the contact literature, where the beneficial effects of intergroup contact on outgroup evaluation have been documented in actual intergroup interaction conditions, the literature on stereotype change has used much less rich manipulations, evaluating the conditions under which hypothetical individuals, described typically by a list of stereotype-confirming and stereotype-disconfirming behaviors they have engaged in, do or do not lead to revisions of group stereotypes (both in terms of absolute mean ratings and in terms of stereotype extremity and dispersion). In this experimental work, perceived typicality has played a key role. Going back to Allport (1954), stereotype-disconfirming information is generally thought not to impact the content of the stereotype because the disconfirming individual is 'fenced off', subtyped, or excluded from consideration as a relevant and informative group member. This occurs whenever the disconfirming individual is regarded as atypical of the group as a whole (Johnston & Hewstone, 1992; Kunda & Oleson, 1995, 1997; Mauer, Park, & Rothbart, 1995; Rothbart & Lewis, 1988; Weber & Crocker, 1983).

Both from this experimental literature on stereotype change and from the contact literature itself, it thus seems that revision of the stereotype content as a function of contact with individual outgroup members is relatively rare. Unlike the generally positive benefits of contact on intergroup evaluation (which admittedly may show stronger generalization when the intergroup contact is with a typical group member), changes in group stereotypes (again both in the absolute mean ratings, and in stereotypicality and dispersion) occur rarely. And, from the experimental work on stereotype change in response to disconfirming information, two conditions seem necessary for such change to occur. First, the individual outgroup

member with whom one has contact must in fact disconfirm the group stereotype. Second, he or she must nevertheless be seen as typical of the group.

Certainly, this combination (i.e. disconfirming of the group stereotype yet typical of the group) is unusual. Yet it is not impossible. We are thus left with a set of intriguing theoretical interconnections that are the subject of our empirical explorations. First, we expect that pleasant, equal status contact with outgroup members will generally lead to more positive evaluations of the outgroup as a whole. These beneficial effects of contact on outgroup evaluation should be found whenever the interaction with the outgroup member is pleasant and rewarding although they might be somewhat stronger when that outgroup encounter takes place in an intergroup setting. On the other hand, changes in stereotype content, and specifically, in perceived variability, as a function of contact require the unusual combination that the outgroup member must both disconfirm the group stereotype and nevertheless be perceived as typical of the group as a whole.

To examine these hypotheses, we conducted an experimental investigation of the effect of cooperative intergroup contact on both group evaluations and perceptions of group variability. All participants had a pleasant and cooperative interaction with a Latino confederate. For half of the participants this Latino confederate acted in ways that confirmed the group stereotype; for the other half he acted in ways that disconfirmed the group stereotype. This confirmation/disconfirmation occurred both on positively valenced and negatively valenced dimensions. Because of this and because of the fact that the interaction was a cooperative one in which participants' goals were achieved, we expected contact to lead to more positive group evaluations in all conditions, regardless of the confirmation/disconfirmation manipulation. However, we expected contact to lead to a reduction in stereotype strength (i.e. less perceived stereotypicality and less perceived within group similarity) only when disconfirming instances were encountered, and then only if referencing did not occur. Stereotype change

should ensue from contact only when disconfirming instances were encountered that were nevertheless judged to be relatively typical of the group.

## Method

### Overview

Participants completed two sessions in this study. In the first, baseline measures of their perceptions of Latinos as a group (embedded in the context of other groups) were collected. Participants believed that they would return for a second session to complete assessments of their beliefs about additional groups. When they arrived at the second session, they were told there was more time in the session than originally thought, so that they would first participate in an unrelated study being conducted by a fellow graduate student for his dissertation. Participants then interacted in small groups on a general knowledge task, and one member of the group was a Latino confederate.<sup>1</sup> The confederate behaved in a manner that either confirmed or disconfirmed the stereotype of Latinos on both positive and negative dimensions. Following the group interaction, participants were sent down the hall to complete the 'rest of' the original study. At this point, perceptions of Latinos were again assessed, and again these questions were embedded in judgments regarding a number of different social groups.

### Participants

A total of 122 participants completed the study in partial fulfillment of a course requirement. The first sessions were conducted in larger groups of up to 20 participants. The second sessions were conducted in groups of 1 to 5 participants at a time. Each session at Time 2 was randomly assigned to one of the experimental conditions. The number of participants (and sessions) in each condition was as follows: Confirming, 60 participants (19 sessions), Disconfirming, 62 participants (22 sessions). Both male ( $n = 29$ ) and female ( $n = 93$ ) students participated in the study, and all participants were Caucasian.

### Procedures

**Time 1 session** At the first session, participants were told this was a large project examining people's perceptions of various social groups. They were told that they would be asked to report their impressions of a number of social groups in the United States and that we were simply interested in their opinions. The first task was a thermometer measure on which participants rated how warmly or coolly they felt toward each of 12 groups on a scale from 0 to 100. Each participant was then asked about their perceptions of the following four groups (in order of occurrence): elderly females, Latinos, gay men, and white Americans.

Participants then completed a percent estimate task for each of the four groups. For this task, participants were asked to consider a series of attributes, some positively valenced and some negatively valenced, and some stereotypic of a given target group and some counterstereotypic of the group, and to estimate the percentage of group members who possessed each of these attributes or who would agree with an attitude statement. For Latinos, a total of eight items were completed. These items were selected on the basis of ratings from a group of participants different from those who participated in this study. According to these ratings, both the stereotypic positive (religious, strong emotional bonds to their families) and the stereotypic negative (poor, lazy) items were rated as more prevalent among Latinos ( $M_{\text{pos}} = 72.35$ ,  $M_{\text{neg}} = 46.31$ ) than among whites ( $M_{\text{pos}} = 59.30$ ,  $M_{\text{neg}} = 31.07$ ). The counterstereotypic positive (intelligent, organized) and counterstereotypic negative (uptight, 'although my family is important, my job is my first priority') items were rated as less prevalent among Latinos ( $M_{\text{pos}} = 51.83$ ,  $M_{\text{neg}} = 33.67$ ) than among whites ( $M_{\text{pos}} = 57.30$ ,  $M_{\text{neg}} = 47.10$ ).

Next participants completed a similarity rating task. Using the eight dimensions from the percent estimate task, participants were asked to rate each group on each attribute in terms of the degree of similarity of group members to one another. For example, considering the dimension of not intelligent to intelligent, the participant was asked to rate the extent to which

Latinos were similar or dissimilar to one another on this dimension; that is whether they were all alike versus not alike in terms of this dimension. All ratings were made on 7-point scales with 1 = Extremely Dissimilar, and 7 = Extremely Similar.

After the ratings for all four groups were completed, participants indicated their age, gender, and ethnicity. At this point, participants signed up for a time to complete a second, two-hour session of the study. The first session lasted about an hour.

**Time 2 session** Participants completed the second session in groups of one to five people, between one and three weeks after the first session. When they arrived for the study, a different experimenter was waiting for them. He said that in fact it turned out that what the first experimenter needed them to do in the second session took much less time than originally anticipated. Therefore, so that participants could still earn their full research credit, they had worked out a plan. He was in desperate need of participants for his dissertation and so would first have them run through his study on group information exchange processes, and then they would complete what the second experimenter needed them to do. The Latino confederate was present at each of these sessions, ostensibly as one of the participants.

In order to get to know one another, participants filled out a brief questionnaire regarding their background, their academic interests, and their extracurricular interests. Participants then read this information aloud to the rest of the group. This exchange was used as a vehicle for the Latino confederate to convey information relevant to his fit to the Latino stereotype. In the confirming condition he spoke about missing his family, he noted that he was involved in his church youth group and other church events in high school, that he played baseball and soccer (typically Latino sports), and that he was the first in his family to attend college and as of yet was undecided about what he wanted to study. In the disconfirming condition he talked about enjoying a sense of independence from his family, noted that he was actively against organized religion, that in high school he tutored students

in math and science, that he played basketball (a less stereotypically Latino sport), and that he was a Biology major and had clear career plans, including studying for a PhD. Note that these self-descriptions consisted of a mixture of positively and negatively valenced attributes in both the confirming and disconfirming conditions.

The experimenter then said it was necessary to appoint a leader for the group. This was accomplished by having one of the actual participants draw a name out of a hat. The drawing was rigged such that the Latino confederate was always selected to be the leader. The group task was explained as follows. The question of interest was how successful a group would be at performing a task as a function of the type of information flow in the group. In this particular session, the information flow was to follow a 'wheel' structure such that the leader was at the center of the wheel, and the other group members were the spokes. All communication had to come to the leader and back out to one of the spokes; no communication between the 'spokes' (the non-leader members) was allowed. Their task was to come up with as many examples within each of several categories (e.g. American Presidents, television programs, etc.) as possible in a 10-minute period. It was the leader's job to develop a plan for how the group would work, and the leader was given a 1-min planning period to devise his strategy. The groups were told that their performance would be compared to that of other groups, and if their performance was in the top 20%, they would be given a reward.

The leader always developed the strategy of assigning each individual to work on three of the categories. In the confirming condition the confederate acted somewhat disinterested, had a hard time understanding what he was supposed to do, and generally was disengaged from his role as leader. When he assigned the various categories to the participants, he selected the three easiest for himself: makes of cars, television programs, and types of fruit, and he came up with only a few examples in each category. Overall he gave the impression of being a nice guy, but not particularly intelligent or enthusiastic about the task.

In the disconfirming condition, the leader took charge of the situation, authoritatively developed a plan for the group, and then proceeded to assign categories to the participants. He took three difficult categories for himself: capitals of foreign countries, classical music composers, and American Presidents. He came up with 25 to 30 examples in each category. Throughout the session, he acted in a highly motivated, and somewhat directive manner. He was impressive in his intelligence.

Thus the confirming/disconfirming nature of the confederate's behavior was manipulated along multiple dimensions, both in what the confederate disclosed in the opening questionnaire, and in his behavior as the leader of the group. In both conditions he acted in a likable manner, and not unlike his fellow undergraduates. In the confirming condition, however, he appeared religious, strongly attached to his family, unfocused in his studies, and not particularly intelligent or energetic in his approach to the task. In the disconfirming condition he came across as very intelligent and organized in his approach to the task, as having strong and clear career goals, as not religious, and as quite independent from his family. These dimensions were chosen based on a combination of the ratings from the pretest participants discussed earlier, as well as from interviews and ratings given by students in an earlier research project (Judd et al., 1995).

In all cases, the experimenter reported that the group had performed in the top 20% and the reward was some chocolate candy. Thus all groups succeeded at the task, regardless of the leader's behavior. Participants were told they would complete one final measure that included judgments of the effectiveness of the group leader, and that in order to avoid any discomfort in completing this measure, the group leader (the Latino confederate) was to leave and meet the second experimenter down the hall. Participants were asked to rate on 7-point scales how much they liked the group leader (7 = very likable), how effective the group leader was (7 = very effective), and to rate how characteristic eight positive and negative traits were of the leader. These traits included organized, quiet,

responsible, lazy, self-confident, intelligent, outgoing, and energetic. The experimenter then sent the participants down the hall to complete the original experimenter's study.

In the second half of the session, participants completed a survey that was very much like the one they had completed in the first session. They were asked to rate four groups, and they were told the groups that were included in each packet were chosen at random. Some participants might respond to some or all of the same groups as in the first session, and some might have four completely new groups. In fact, everyone rated (in this order) elderly males, Latinos, lesbians, and white Americans. They first completed the same thermometer ratings as in Session 1. Then, for each group, they completed a percent estimate task and a rated similarity task. The same eight items used in rating Latinos in Session 1 were again used in this session.

Participants were then given a sheet on which they were asked to write what they thought the purpose of the experiment was. This was to check for suspicion. The experimenter then said, 'I noticed that one of the people in this session was Latino. So that I have the information as I conduct my dissertation analyses, could you tell me how typical you saw this person as being of Latinos'. A hand written rating scale was provided to the participants with 1 = 'Not at all typical', and 7 = 'Extremely typical'. Participants were then debriefed and dismissed.

## Results

The central hypotheses tested in this research were that contact would lead to more positive group evaluations regardless of condition, but that a reduction in stereotype strength (i.e. less perceived stereotypicality and less perceived within group similarity) would occur only when a disconfirming individual was encountered, and when, in spite of this disconfirming behavior, the individual was still judged to be typical of the group.

Because participants completed the study in groups, the possibility exists of a dependence among the scores in any given group. Treating group as the unit of analysis removes any



potential dependencies. At the same time, one of the central goals of this study was to examine whether changes in perceptions were moderated by the combination of type of behavior (confirming vs. disconfirming) and the perceived typicality of the contact person. This analysis necessarily asks about the relationship between typicality and perceptions, measured at the level of the individual participant (how typical a given participant views the target, and how this participant views Latinos as a group), and therefore necessitates an analysis at the level of the individual. Where possible, we conducted all analyses once using group as the unit, and once using participant as the unit. Because these analyses were virtually identical, for the sake of brevity we report only those using participant as the unit.

**Manipulation check of confederate confirmation/disconfirmation**

Several measures were collected that can be used to assess the effectiveness of the manipulation of type of behavior (confirming vs. disconfirming). The means for these variables, by condition, appear in Table 1. The most direct measure was the rating of the typicality of the confederate to Latinos as a group. Here, there was a significant effect of behavior condition. When the confederate behaved in a manner that confirmed the Latino stereotype, he was seen as much more typical of the group than when he disconfirmed it ( $F(1, 118) = 19.12, p < .001$ ).

Perhaps unsurprisingly, given the confederate's active and engaged role in the disconfirming condition, he was also judged significantly

more positively in this condition than in the confirming condition. The global liking rating of the confederate revealed this difference ( $F(1, 121) = 43.88, p < .001$ ), as did judgments of him on positive and negative trait dimensions (averaging across the eight traits, and reverse scoring ratings on the negatively valenced traits) ( $F(1, 121) = 137.43, p < .001$ ). Finally, the confederate was rated as more effective as a group leader ( $F(1, 121) = 77.19, p < .001$ ), when his behavior disconfirmed the group stereotype.

**Effects of contact on group perceptions**

To examine the effects of the contact intervention, we examined whether or not there was change overall from Time 1 to Time 2 in the group perceptions, and whether the amount of change varied by behavior condition. Table 2 contains the mean ratings for each of the four group perception variables both at Time 1 and Time 2, as well as the difference (reflecting change) by condition. The first two of the group perception variables are measures of group evaluation. The first uses the thermometer measure, and asks whether participants came to feel more positively toward Latinos following contact, and the second uses ratings on the positive versus negative items in the percent estimate task, and asks whether Latinos were viewed in a more positive manner. The second set of measures assesses perceived variability and includes ratings on the stereotypic versus counterstereotypic items in the percent estimate task, as well as the rated within-group similarity. These were used to ask whether Latinos were seen in a less stereotypic fashion following contact, and as more heterogeneous as a group.

Table 1. Mean ratings by condition of confederate typicality, likability, positivity, and effectiveness

	Confirming behavior	Disconfirming behavior
<i>Measure</i>		
Typicality	4.14	3.09
Likability	5.20	6.63
Positivity	4.26	5.92
Leader effectiveness	4.33	6.24

Note: All ratings were made on 7-point scales where 7 indicated more typical, more likable, more positive, and more effective.

Table 2. Mean values of group perceptions at Time 1 and Time 2 by condition

Group perception measure	Confirming behavior	Disconfirming behavior	Means
<i>Evaluation</i>			
Thermometer ethnocentrism (T1)	26.68	29.14	27.91
Thermometer Whites (T1)	84.36	85.41	84.89
Thermometer Latinos (T1)	57.68	56.27	56.98
Thermometer ethnocentrism (T2)	15.01	13.98	14.50
Thermometer Whites (T2)	81.43	81.67	81.55
Thermometer Latinos (T2)	66.42	67.69	67.05
Overall thermometer ethnocentrism change (T1-T2)	11.67	15.16	13.41
Change for Whites (T1-T2)	2.93	3.74	3.34
Change for Latinos (T1-T2)	-8.74	-11.42	-10.07
Attribute negativity (T1)	-27.86	-27.00	-27.43
Positive attributes (T1)	66.90	67.51	67.21
Negative attributes (T1)	39.04	40.51	39.78
Attribute negativity (T2)	-29.73	-31.06	-30.39
Positive attributes (T2)	68.71	67.24	67.96
Negative attributes (T2)	38.98	36.18	37.57
Overall attribute negativity change (T1-T2)	1.87	4.06	2.97
Change for positive attributes (T1-T2)	-1.81	.27	-.76
Change for negative attributes (T1-T2)	.06	4.33	2.21
<i>Variability</i>			
Stereotypicality (T1)	10.33	7.15	8.74
Stereotypic attributes (T1)	58.15	57.44	57.79
Counterstereotypic attributes (T1)	47.82	50.29	49.05
Stereotypicality (T2)	7.41	8.02	7.71
Stereotypic attributes (T2)	57.59	55.43	56.49
Counterstereotypic attributes (T2)	50.18	47.41	48.78
Overall stereotypicality change (T1-T2)	2.92	-.87	1.03
Change for stereotypic attributes (T1-T2)	.56	2.01	1.30
Change for counterstereotypic attributes (T1-T2)	-2.36	2.88	.27
Similarity (T1)	4.35	4.37	4.36
Similarity (T2)	4.41	4.58	4.49
Overall similarity change (T1-T2)	-.06	-.21	-.13

*Note:* Higher numbers on the 'overall' change variables indicate less ethnocentrism in the thermometer ratings at Time 2, less negativity in the estimated prevalence of positive and negative characteristics among Latinos, less stereotypic judgments of Latinos from the estimated prevalence of stereotypic and counterstereotypic attributes among Latinos, and less perceived similarity among group members.

These four group perception variables were computed as follows. The thermometer ratings were used to calculate the magnitude of ethnocentrism, or a preference for the ingroup over the outgroup. Accordingly, 'thermometer

ethnocentrism' was defined as the difference in the thermometer ratings for whites minus Latinos. Ratings on the percent estimate measure were used to calculate an 'attribute negativity' score reflecting the extent to which

negative attributes were judged to be more prevalent than positive attributes among Latinos. Attribute negativity was computed by subtracting ratings of the prevalence of positive attributes (averaged across the four positive items, two stereotypic and two counterstereotypic) among Latinos from the prevalence of the negative attributes (again averaged across all four items). From Table 2 it is clear that Latinos were unsurprisingly seen to possess relatively more positive (e.g. religious, intelligent) than negative characteristics (e.g. lazy, uptight), hence the negative values for attribute negativity. Scoring the measure this way, although somewhat convoluted, makes it comparable to thermometer ethnocentrism, and in particular, the values for 'overall attribute negativity change', reflecting the difference in attribute negativity from Time 1 to Time 2, can be interpreted in a straightforward manner as the magnitude of decrease in negative perceptions at Time 2 relative to Time 1. Put differently, positive values for 'overall attribute negativity change' reflect an even greater tendency to rate Latinos high on positive relative to negative attributes at Time 2 compared to Time 1.

Stereotypicality was also computed using the percent estimate ratings. Specifically, the difference in the prevalence estimates of stereotypic (averaged across four items, two positive and two negative) and counterstereotypic (again based on four items) attributes among Latinos was computed. Larger scores reflect more stereotypic perceptions (i.e. that many members of the group possess stereotypic attributes, such as religious and lazy, and few possess counterstereotypic ones, such as intelligent and uptight). Similarity was computed as the average rated similarity of Latinos to one another across the eight dimensions. Higher numbers indicate greater perceived homogeneity or within group similarity.

Each of the four group perception variables was analyzed in a 2 (confirming vs. disconfirming behavior)  $\times$  2 (Time 1 vs. Time 2) analysis of variance with repeated measures on the last factor. To ask whether or not change occurred, we examined the main effect of Time in each analysis. For both of the group evaluation

measures, significant change did occur, such that perceptions became more positive from Time 1 to Time 2, on average across conditions. Specifically, participants were significantly less ethnocentric in their thermometer ratings at Time 2 relative to Time 1 ( $F(1, 120) = 63.97, p < .001$ ), and they expressed lower levels of attribute negativity ( $F(1, 121) = 5.40, p < .03$ ). These more positive evaluations at Time 2 occurred regardless of whether the contact interaction took place with a target that confirmed or disconfirmed the Latino stereotype, as evidenced by the lack of a time by condition interaction for both thermometer ethnocentrism and attribute negativity ( $F_s < 1$ ). Although it appears from the means that changes in group evaluations were somewhat stronger when the confederate disconfirmed the group stereotype, this difference was not significant.

Thus following a cooperative interaction with a Latino individual, participants expressed more positive evaluations of Latinos both in terms of overall warmth to Latinos relative to whites, and in terms of the perceived prevalence of positive relative to negative attributes among group members. The evaluative changes did not depend on the condition manipulation, that is, whether the confederate confirmed or disconfirmed the stereotype of Latinos. Again, we emphasize that this is likely the case because in general the confederate behaved in a likeable manner (in both conditions the liking ratings were well above the scale midpoint of 4) and because he confirmed or disconfirmed the stereotype on both positive and negative dimensions. Moreover, the groups attained their goal in both conditions. Although it is clear that the confederate was better liked in the disconfirming condition, he was liked well enough in both conditions to see a positive change in evaluation of Latinos as a group.

In contrast, participants did not see Latinos in a less variable manner at Time 2, relative to Time 1. No significant change occurred on the stereotypicality measure ( $F < 1$ ), and contact with the confederate actually produced higher levels of perceived similarity among Latinos ( $F(1, 121) = 5.24, p < .03$ ). These results clearly suggest that contact alone is not sufficient to

produce less extreme stereotypes or greater perceived heterogeneity. Moreover, none of the condition by time interactions was significant. All of the above analyses were replicated including gender as a factor. The only effect involving gender was on the thermometer measure, such that females showed an even greater decrease after contact than males. Importantly both groups showed a significant decrease.

Overall, as we expected, short-term contact in a cooperative setting produced increases in positive evaluations of the target group, and the magnitude of these increases did not depend on whether the confederate confirmed or disconfirmed the content of the group stereotype. The only effect of contact on the group variability measures was an unexpected increase in perceived within-group similarity at Time 2. These results for this short-term contact intervention are consistent with previous literature on the effects of long-term contact, such that, so long as the contact is cooperative and pleasant, it is associated with more positive evaluations of the group. However, consistent effects tend not to be observed on measures of stereotype change, and specifically in the current study, on perceptions of stereotype extremity and within-group similarity.

Our theoretical expectation was that perceptions of group variability would be affected by contact only if two conditions were met. First, the contact must be with an individual who disconfirms the content of the group stereotype. Second, to avoid subtyping this disconfirming individual, he or she must nevertheless be regarded as typical of the group. We now turn to analyses that test this predicted pattern.

### ***Moderation of change in group perceptions by perceived typicality***

In these analyses, each of the Time 2 group perception variables was regressed, in turn, on Time 1 ratings of the same variable, behavior condition (contrast coded), rated typicality (centered or mean-deviated), and the interaction of typicality with behavior condition (see Judd & McClelland, 1989). Thus the dependent variable being predicted was Time 2 judgments, over and above any Time 1 differences, that is,

change in perceptions. The primary prediction was that the amount of change for the two perceived variability measures would depend on the interaction between behavior condition (whether the confederate confirmed or disconfirmed the stereotype) and perceived typicality. That is, type of behavior would have a very different effect on stereotype change depending on the perceived typicality of the confederate. If the confederate behaved in a manner that confirmed the group stereotype and he was seen as typical of Latinos, then perceptions of group stereotypicality and within-group similarity should be, if anything, strengthened. If he behaved in a manner that disconfirmed the group stereotype and he was seen as atypical of the group, then again little or no stereotype change should be expected. Only when the confederate both behaved in a disconfirming manner and was nevertheless seen as typical of the group would we expect to see stereotype change.

In fact, this was the pattern obtained for both perceived variability measures. The behavior by typicality interaction significantly predicted the magnitude of change for both stereotypicality, ( $F(1, 113) = 5.35, p < .03$ ), and for similarity ( $F(1, 113) = 4.61, p < .04$ ). In contrast, the behavior by typicality interaction was not significant for either of the evaluative measures ( $F < 1$  for thermometer ethnocentrism, and  $F(1, 113) = 1.93, ns$  for attribute negativity). Figures 1 and 2 graphically present the significant interactions for the two perceived variability measures. These graphs portray predicted values estimated from the regression models of Time 2 variability judgments (controlling for Time 1 ratings) for participants whose ratings of typicality are one standard deviation above and below the mean.

Figure 1 shows that the least stereotypic judgments at Time 2 (controlling for Time 1) were given by participants who interacted with a stereotype disconfirming Latino confederate and who saw him as typical of the group. Figure 2 shows that when participants interacted with a confederate who disconfirmed the stereotype, the more typical they viewed him to be, the less similar they viewed Latinos to each other. When they interacted with a confederate who

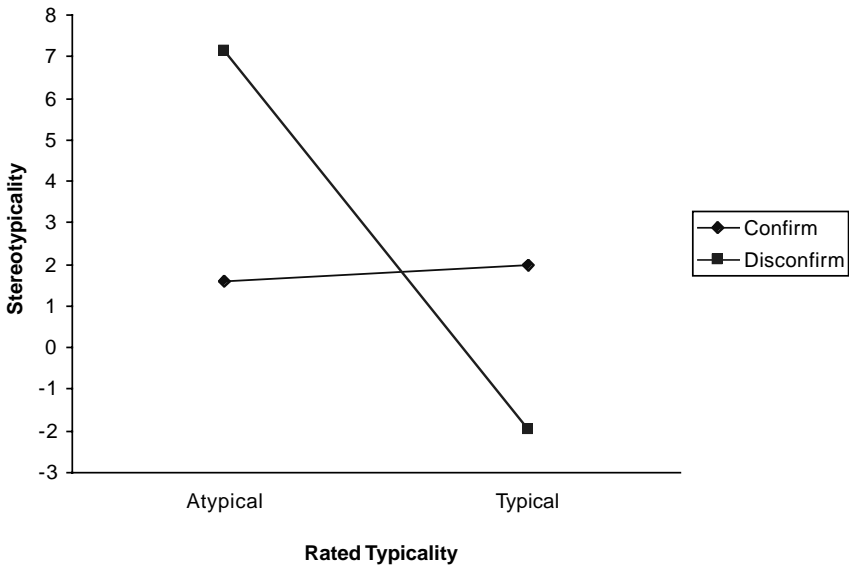


Figure 1. Perceived group stereotypicality (Time 2 controlling for Time 1) as a function of behavior condition and perceived typicality. (The values plotted are predicted values for participants at plus and minus 1 standard deviation from the mean rating on typicality.)

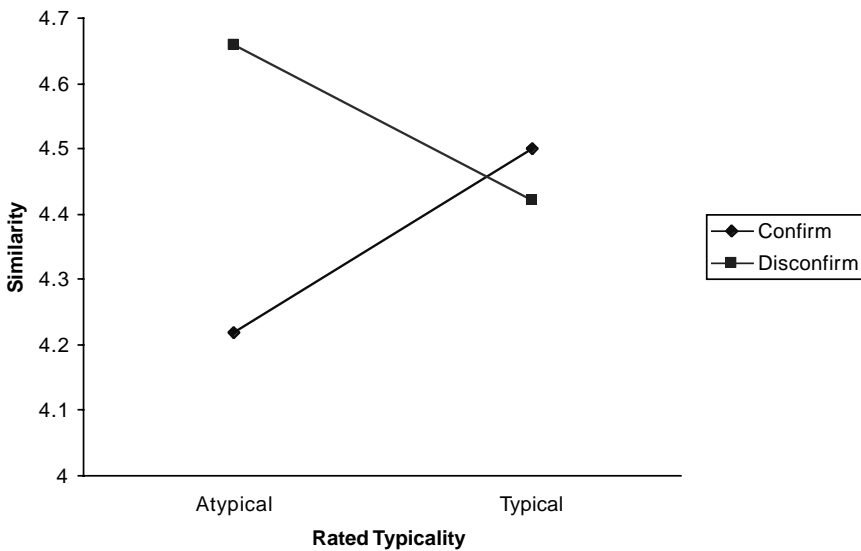


Figure 2. Perceived within-group similarity (Time 2 controlling for Time 1) as a function of behavior condition and perceived typicality. (The values plotted are predicted values for participants at plus and minus 1 standard deviation from the mean rating on typicality.)

confirmed the group stereotype, the more typical they viewed him to be, the more similarity they saw among Latinos.<sup>2</sup>

Because the manipulation of confirming versus disconfirming behavior produced differences in attitudes toward the confederate as well as differences in perceived typicality, supplementary analyses were performed to examine the effects of this manipulation over and above any differences in attraction to the confederate that it may have caused. We replicated the analyses including likability, positivity, and leader effectiveness (see Table 1) as covariates. For thermometer ethnocentrism and attribute negativity, as one would expect including these variables eliminates the main effect of time (both  $F < 1.59$ , smallest  $p = .21$ ). That is, if one controls for ratings of liking for and perceived effectiveness of the contact person, then evaluations of Latinos are no more positive at Time 2 than at Time 1. In our view, this confirms the importance of the contact interaction as the cause of more positive evaluations of Latinos as a group at Time 2. The effect of behavior condition continues to be nonsignificant in these models. For the variability measures, the behavior by typicality interaction in predicting change in stereotypicality remained significant ( $F(1, 114) = 5.81$ ,  $p < .02$ ), and it was marginally significant in predicting change in within group similarity ( $F(1, 114) = 3.37$ ,  $p < .07$ ).

## Discussion

In this study, we separated out two components of group perceptions, evaluative assessments of the group and the perceived variability of the group, and argued that intergroup contact affects these through rather different mechanisms. The first of these two components of group perceptions captures how positively or negatively one feels about the group. The second captures the extent to which a group is seen as largely conforming to its stereotype (i.e. the strength of the group stereotype) and the degree of perceived within group similarity, or group variability.

In the case of group evaluations, our short-term contact intervention resulted in more

positive evaluations of Latinos as a group at Time 2 relative to Time 1, regardless of whether the Latino confederate behaved in a confirming or disconfirming manner, and regardless of whether he was perceived as typical of the group or not. Again we note that in all conditions, the contact was generally pleasant and cooperative goals were achieved. These results are consistent with our argument presented in the introduction that, so long as the evaluative quality of the interaction is positive in tone, change may occur in evaluations of the group regardless of the stereotype content of the behavior.

In contrast, neither of the perceived variability measures increased from Time 1 to Time 2, nor were there condition differences in the magnitude of change for these measures. Again these findings are consistent with our predictions. Contact in and of itself does not produce perceptions of greater group variability. Instead, the results of this study suggest that in order for such change to occur, two conditions are necessary. First, the behavior of the contact target must in fact disconfirm the stereotype content of the perceiver's beliefs. Second, only if the target is perceived as typical of the group will this disconfirming behavior be integrated into beliefs about the group as a whole, with the result of less stereotypic and more heterogeneous views of the group. Thus, in this study, the effect of behavior condition depended on perceived typicality for both stereotypicality and similarity. In the disconfirming behavior condition, the more typical the confederate was judged, the less stereotypic and the less similar to one another Latinos were viewed, controlling for Time 1 judgments. In the confirming condition, judgments at Time 2 either did not depend on perceived typicality, or they were more homogeneous the more typical the confederate was viewed.

As we suggested in the introduction, the pattern of generalized evaluative change as a result of contact is consistent with both the theoretical arguments presented by Pettigrew (1986, 1998), as well as both primary (Pettigrew, 1997) and secondary analyses of data presented by Pettigrew and colleagues (Pettigrew & Tropp, 2000). At the most basic level, such an effect is

predicted by the mere exposure phenomenon (Zajonc, 1968). As one is exposed to more and more Latinos, in the absence of other mitigating factors, liking should increase. In addition, the work of Stephan and Stephan (1984, 1985, 1989; see also Triandis, 1994) suggests that so long as the contact is viewed as non-threatening and/or provides insights into the cultural characteristics of the outgroup, more contact should help to reduce social anxiety and increase liking. Also, Pettigrew (1997) emphasized the importance of forming close intergroup friendships in generating positive affective ties with and empathy toward the outgroup (see also, Hamberger & Hewstone, 1997; Towles-Schwen & Fazio, 2001; Wright et al., 1997). In general then, we should expect that more contact experiences of neutral to positive quality should be associated with more positive evaluations of the outgroup.

Very few previous studies have examined the effects of contact on group stereotypicality and homogeneity. In the one experimental study, Wilder (1984) found no change in stereotypic perceptions of a group following contact with an outgroup member, although he found change in the evaluation of the outgroup so long as the contact person both acted in a positive manner and was portrayed as typical of the group. These findings are somewhat at odds with our own. We did find change in perceived stereotypicality. Importantly, however, this occurred only when the contact target disconfirmed the group stereotype and was seen as typical of the group. In Wilder's (1984) research, the dimensions used to manipulate typicality were also those for which change in stereotype content were assessed (conservatism, neatness, and studiousness). Thus the target was either typical and therefore confirming of the stereotype, or atypical and therefore disconfirming. No condition existed in which the target both disconfirmed the stereotype and remained typical of the group, the situation in our study that successfully produced change in stereotypicality. Although we can only speculate as to why we obtained generalized evaluative change in all conditions, and Wilder (1984) observed it only in the positive interaction, high typicality condition, a distinct possibility is that the interaction in our

study was both more positive regardless of behavior condition and of a much more intergroup nature than in Wilder's work (see Brown & Turner, 1981; Hewstone and Brown 1986; Hewstone & Lord, 1998).

Turning to other studies that have examined contact effects on perceived variability, Islam and Hewstone (1993) in correlational research found the quantity of contact to be positively related to more dispersed perceptions of a group. The dispersion measure used in their study was a range task on attributes not associated with the stereotype. This is a very different measure than those that we used, that is, perceived prevalence of stereotypic and counterstereotypic attributes, and intragroup perceived similarity on trait dimensions that constitute the group stereotype. For both of our measures it seems reasonable that sheer contact would not be sufficient to produce change. The contact must include disconfirming information from a target perceived as typical of the group.

As we noted in the introduction, the majority of empirical work that has examined stereotype change has looked not at contact effects but rather at the conditions under which descriptions of hypothetical group members lead to stereotype change. This literature has largely focused on factors that lead perceivers to subtype group instances that disconfirm the group stereotype (Johnston & Hewstone, 1992; Kunda & Oleson, 1995, 1997; Maurer et al., 1995; Rothbart & Lewis, 1988; Weber & Crocker, 1983). Consistent with our own arguments, perceived typicality of these disconfirming instances has played a large role in this literature, with subtyping (and avoidance of stereotype change) much more likely to occur if the disconfirming instances are judged to be atypical of the group. We believe that we have shown that very similar mechanisms operate when dealing with real intergroup contact rather than hypothetical group instances.

Accordingly our work nicely integrates laboratory work on stereotype change and the much broader literature on intergroup contact. And the important lesson is that contact has multifaceted effects that operate differently depending on what sort of outcome variables, group

evaluations or group stereotypes, are the focus of attention. Evaluations seem to be changed simply as a function of pleasant and cooperative intergroup contact. Stereotypes become less strong only when contact is with someone who disconfirms those stereotypes and who is nevertheless seen as typical of the group. Although this combination of factors needed for stereotype change may seem difficult, it is not impossible to achieve.

What factors permit one to look at a stereotype disconfirmer and nevertheless see him or her as relatively typical of the group? In preliminary work we conducted a survey asking 148 participants about previous contact with Latinos, and measured the same group perceptions assessed in the present study. In addition, participants were asked to read about four Latino individuals (who were in fact hypothetical), two that were consistent with the group stereotype (from a large extended family, Spanish speaking, having relatively unambitious career goals) and two that were inconsistent (independent, intelligent, very ambitious). They were asked to rate how typical these individuals were of Latinos as a group, and these ratings were used to compute a measure of perceived atypicality by subtracting the ratings for the disconfirming individuals from the confirming individuals (see Maurer et al., 1995). Higher scores indicate that the perceiver draws a large distinction between confirming and disconfirming individuals in terms of their fit to the group. We then asked what might predict the magnitude of scores on this variable and found that both of the perceived variability measures did so. Specifically, those who saw Latinos in a highly stereotypic manner (scores on the stereotypicality measure) rated the hypothetical disconfirming instances as relatively atypical of the group ( $r(148) = .43, p < .001$ ). Likewise, those who saw Latinos as very similar to one another saw the disconfirming instances as relatively atypical, ( $r(148) = .42, p < .001$ ). These results suggest that if the target group is seen as high in perceived variability (i.e. low stereotypicality and low within-group similarity), disconfirming instances will be judged to be more typical of the group.

A similar analysis was conducted with the data from the present study, looking at group perceptions at Time 1 predicting perceptions of the typicality of the confederate. Specifically, stereotypicality from Time 1 was positively correlated with typicality in the confirming condition, but negatively correlated in the disconfirming condition. Thus when the confederate behaved in a consistent manner, those with a stronger stereotype saw him as more typical, and when he behaved in a disconfirming manner, those with a stronger stereotype saw him as more atypical. The condition difference in the magnitude of the correlations was significant ( $r = -.30$  in the disconfirming condition and  $.13$  in the confirming condition,  $F(1, 118) = 5.13, p < .03$ ). Although the correlations with perceived similarity were consistent with those for stereotypicality, the condition difference in the magnitude of these was not significant ( $r = -.08$  in the disconfirming condition and  $.17$  in the confirming condition,  $F(1, 118) = 2.02, p = .16$ ).

Thus stereotypes might presumably become weaker through intergroup contact with disconfirming group members, but only if those disconfirmers are judged typical of the group, and this will be more likely to occur when the group stereotype is already rather weak (i.e. high perceived variability). This suggests an incremental process whereby intergroup contact leads to stereotype change in bits and pieces. Initially, because group stereotypes may be relatively strong, encounters with disconfirming individuals may have negligible effects. However, those negligible effects accumulate and as the group stereotype gradually weakens, the possibility of it weakening further increases with each additional instance of intergroup contact.

In sum, we suggest that both long- and short-term, neutral to moderately positive contact has the ability to effect more positive evaluations of an outgroup. What contact does not appear to produce is inevitable change in perceived variability—that is, stereotypicality and intragroup similarity. Such change is a product of the quality of the contact behavior and the perceived typicality of the group member. Only if the group member behaves in a manner that disconfirms the stereotype and he or she is seen as



typical of the group does change in the extremity and variability of the group stereotype result. A provocative message in these results is that perhaps the most important consequence of contact is that it allows people from different social backgrounds to simply be more comfortable with one another, and that enhanced comfort lends itself to more positive evaluations of the outgroup. The contact interaction may or may not change the extent to which the group is viewed as conforming to the stereotype, or the perceived variability of the group. But it may very well allow the participants to be less anxious and more comfortable interacting with individuals who are different from them. Prejudice reduction through contact is thus not necessarily predicated on stereotype change. One can become comfortable interacting with members of an outgroup, with ensuing positive evaluations of the group, even while continuing to see them as quite different from members of one's own group.

## Notes

1. We are indebted and grateful to Carlos Mirelez for his tireless help and energy on this project. He aided us in designing, understanding, and carrying out the manipulations. With great humor, he perfected his ability to 'act white' and provided an academy award winning performance in his various roles through seemingly endless sessions of the study.
2. The only other significant effect in these models was that typicality predicted change in stereotypicality such that the more typical the confederate was viewed, the less stereotypic the group was viewed. The effect is qualified however by the typicality by behavior interaction described in the text.

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## References

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

- Amir, Y. (1969). Contact hypothesis in ethnic relations. *Psychological Bulletin*, 71, 319–342.
- Aronson, E., & Bridgeman, D. (1979). Jigsaw groups and the desegregated classroom: In pursuit of common goals. *Personality and Social Psychology Bulletin*, 5, 438–446.
- Aronson, E., & Osherow, N. (1980). Cooperation, prosocial behavior, and academic performance: Experiments in the desegregated classroom. *Applied Social Psychology Annual*, 1, 163–196.
- Biernat, M. (1990). Stereotypes on campus: How contact and liking influence perceptions of group distinctiveness. *Journal of Applied Social Psychology*, 20, 1485–1513.
- Brewer, M. B., & Miller, N. (1984). Beyond the contact hypothesis: Theoretical perspectives on desegregation. In N. Miller & M. Brewer (Eds.), *Groups in contact: The psychology of desegregation* (pp. 281–302). Orlando, FL: Academic Press.
- Brown, R. J., & Turner, J. C. (1981). Interpersonal and intergroup behaviour. In J. Turner & H. Giles (Eds.), *Intergroup behaviour* (pp. 33–65). Oxford, UK: Blackwell.
- Brown, R., Vivian, J., & Hewstone, M. (1999). Changing attitudes through intergroup contact: The effects of group membership salience. *European Journal of Social Psychology*, 29, 741–764.
- Cook, S. W. (1962). The systematic analysis of socially significant events: A strategy for social research. *Journal of Social Issues*, 18, 66–84.
- Cook, S. W. (1978). Interpersonal and attitudinal outcomes in cooperating interracial groups. *Journal of Research and Development in Education*, 12, 97–113.
- Cook, S. W. (1985). Experimenting on social issues: The case of school desegregation. *American Psychologist*, 40, 452–460.
- Darley, J. M., & Gross, P. G. (1983). A hypothesis-confirming bias in labeling effects. *Journal of Personality and Social Psychology*, 44, 20–33.
- Desforges, D. M., Lord, C. G., Pugh, M. A., Sia, T. L., Scarberry, N. C., & Ratcliff, C. D. (1997). Role of group representativeness in the generalization part of the contact hypothesis. *Basic and Applied Social Psychology*, 19, 183–204.
- Desforges, D. M., Lord, C. G., Ramsey, S. L., Mason, J. A., Van Leeuwen, M. D., West, S. C. et al. (1991). Effects of structured cooperative contact on changing negative attitudes toward stigmatized social groups. *Journal of Personality and Social Psychology*, 60, 531–544.
- Hamberger, J., & Hewstone, M. (1997). Inter-ethnic contact as a predictor of blatant and subtle prejudice: Tests of a model in four West European nations. *British Journal of Social Psychology*, 36, 173–190.

- Herek, G. M. (1988). Heterosexuals' attitudes toward lesbians and gay men: Correlates and gender differences. *Journal of Sex Research, 25*, 451-477.
- Herek, G. M., & Capitanio, J. P. (1996). 'Some of my best friends': Intergroup contact, concealable stigma, and heterosexuals' attitudes toward gay men and lesbians. *Personality and Social Psychology Bulletin, 22*, 412-424.
- Hewstone, M. (1994). Revision and change of stereotypic beliefs: In search of the elusive subtyping model. In W. Stroebe & M. Hewstone (Eds.), *European review of social psychology* (pp. 69-109). Chichester, UK: Wiley.
- Hewstone, M., & Brown, R. J. (1986). Contact is not enough: An intergroup perspective on the 'contact hypothesis.' In M. Hewstone & R. J. Brown (Eds.), *Contact and conflict in intergroup encounters* (pp. 1-44). Oxford, UK: Blackwell.
- Hewstone, M., & Lord, C. G. (1998). Changing intergroup cognitions and intergroup behavior: The role of typicality. In C. Sedikides, J. Schopler, & C. A. Insko (Eds.), *Intergroup cognition and intergroup behavior* (pp. 367-392). Hillsdale, NJ: Erlbaum.
- 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.
- Johnston, V., & Hewstone, M. (1992). Cognitive models of stereotype change: III. Subtyping and the perceived typicality of disconfirming group members. *Journal of Experimental Social Psychology, 28*, 360-386.
- Judd, C. M., & McClelland, G. H. (1989). *DATA ANALYSIS: A model comparison approach*. San Diego, CA: Harcourt, Brace, & Jovanovich.
- Judd, C. M., Park, B., Ryan, C. S., Brauer, M., & Kraus, S. (1995). Stereotypes and ethnocentrism: Diverging interethnic perceptions of African American and White American youth. *Journal of Personality and Social Psychology, 69*, 460-481.
- Kunda, Z., & Oleson, K. C. (1995). Maintaining stereotypes in the face of disconfirmation: Constructing grounds for subtyping deviants. *Journal of Personality and Social Psychology, 68*, 565-579.
- Kunda, Z., & Oleson, K. C. (1997). When exceptions prove the rule: How extremity of deviance determines the impact of deviant examples on stereotypes. *Journal of Personality and Social Psychology, 72*, 965-979.
- Maurer, K. L., Park, B., & Rothbart, M. (1995). Subtyping versus subgrouping processes in stereotype representation. *Journal of Personality and Social Psychology, 69*, 812-824.
- Park, B., & Judd, C. M. (1990). Measures and models of perceived group variability. *Journal of Personality and Social Psychology, 59*, 173-191.
- Pettigrew, T. F. (1986). The intergroup contact hypothesis reconsidered. In M. Hewstone & R. Brown (Eds.), *Contact and conflict in intergroup encounters* (pp. 169-195). New York: Blackwell.
- Pettigrew, T. F. (1997). Generalized intergroup contact effects on prejudice. *Personality and Social Psychology Bulletin, 23*, 173-185.
- Pettigrew, T. F. (1998). Intergroup contact theory. *Annual Review of Psychology, 49*, 65-85.
- Pettigrew, T. F., & Meertens, R. W. (1995). Subtle and blatant prejudice in Western Europe. *European Journal of Social Psychology, 25*, 57-75.
- Pettigrew, T. F., & Tropp, L. R. (2000). Does intergroup contact reduce prejudice? Recent meta-analytic findings. In S. Oskamp (Ed.), *Reducing prejudice* (pp. 93-114). Mahwah, NJ: Erlbaum.
- Rothbart, M., & John, O. P. (1985). Social categorization and behavioral episodes: A cognitive analysis of the effects of intergroup contact. *Journal of Social Issues, 41*, 81-104.
- Rothbart, M., & Lewis, S. (1988). Inferring category attributes from exemplar attributes: Geometric shapes and social categories. *Journal of Personality and Social Psychology, 55*, 861-872.
- Scarberry, N. C., Ratcliff, C. D., Lord, C. G., Lanicek, D. L., & Desforges, D. M. (1997). Effects of individuating information on the generalization part of Allport's contact hypothesis. *Personality and Social Psychology Bulletin, 23*, 1291-1299.
- Stangor, C., Jonas, K., Stroebe, W., & Hewstone, M. (1996). Influence of student exchange on national stereotypes, attitudes, and perceived group variability. *European Journal of Social Psychology, 26*, 663-675.
- Stephan, W. (1999). *Reducing prejudice and stereotyping in schools*. New York: Teachers College Press.
- Stephan, W. G. (1987). The contact hypothesis in intergroup relations. In C. Hendrick (Ed.), *Group processes and intergroup relations: Review of personality and social psychology* (pp. 13-40). Newbury Park, CA: Sage.
- Stephan, W. G., & Stephan, C. W. (1984). The role of ignorance in intergroup relations. In N. Miller & M. B. Brewer (Eds.), *Groups in contact: The psychology of desegregation* (pp. 229-256). New York: Academic Press.
- Stephan, W. G., & Stephan, C. W. (1985). Intergroup anxiety. *Journal of Social Issues, 41*, 157-175.
- Stephan, W. G., & Stephan, C. W. (1989).

- Antecedents of intergroup anxiety in Asian Americans and Hispanic Americans. *International Journal of Intercultural Relations*, 13, 203–219.
- Stephan, W. G., & Stephan, C. W. (1996). *Intergroup relations*. Boulder, CO: Westview.
- Towles-Schwen, T., & Fazio, R. H. (2001). On the origins of racial attitudes: Correlates of childhood experiences. *Personality & Social Psychology Bulletin*, 27, 162–175.
- Triandis, H. C. (1994). *Culture and social behavior*. New York: McGraw-Hill.
- Weber, R., & Crocker, J. (1983). Cognitive processes in the revision of stereotypic beliefs. *Journal of Personality and Social Psychology*, 45, 961–977.
- Werth, J. L., & Lord, C. G. (1992). Previous conceptions of the typical group member and the contact hypothesis. *Basic and Applied Social Psychology*, 13, 351–369.
- Wilder, D. A. (1984). Intergroup contact: The typical member and the exception to the rule. *Journal of Experimental Social Psychology*, 20, 177–194.
- Wilder, D. A., Simon, A. F., & Faith, M. (1996). Enhancing the impact of counterstereotypic information: Dispositional attributions for deviance. *Journal of Personality and Social Psychology*, 71, 276–287.
- Wilder, D. A., & Thompson, J. E. (1980). Intergroup contact with independent manipulations on in-group and out-group interaction. *Journal of Personality and Social Psychology*, 38, 589–603.
- 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.

- Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology*, 9, 1–27.

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