

Verification of Ingroup Identity as a Longitudinal Mediator between Intergroup Contact and Outgroup Evaluation

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Abstract. Almost six decades of research have consistently demonstrated that intergroup contact is one of the most powerful ways of improving intergroup attitudes. At least two important limitations, however, still compel researchers to continue work in this area: the issue of long-term effects of contact, and the processes underlying such effects. This report makes a theoretical and empirical contribution with regard to these two aspects introducing a new mediator of the effects of contact: verification of qualities of typical ingroup members that may or may not characterize individual group members (e.g. verification of ingroup identities). One hundred and forty-two high school students participated in a two-wave longitudinal study with 12 weeks' lag in Spain. Cross-sectional and longitudinal mediational analyses using multiple imputation data showed that intergroup contact improves general outgroup evaluation through increasing verification of ingroup identities. This research demonstrates the relevance of considering verification of ingroup identity as a mediator for the positive effects of intergroup contact.

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Intergroup contact has been amply shown to be one of the most powerful tools for reducing prejudice and improving intergroup attitudes. However, recent revisions point to two specific topics that should be further investigated in future research (Pettigrew & Tropp, 2006). The first one is more extensive, longitudinal research. The second one is searching for underlying mechanisms between intergroup contact and its effects. This report attempts to make a theoretical and empirical contribution uncovering a new mediator that integrates two theories from two distinct literatures: intergroup relations and the self. Based on the broad assumption that higher quality of intergroup contact should be associated with more positive intergroup attitudes, we suggest that this effect will be produced, cross-sectionally and longitudinally, at least in part because it increases the perception that outgroup members know and understand the characteristics of ingroup members, thus verifying ingroup self-perception. Specifically, intergroup

contact will improve intergroup attitudes through increasing verification of ingroup identities – the match of ingroup and outgroup perceptions regarding the qualities of typical ingroup members (that may or may not characterize individual group members).

Intergroup contact and intergroup attitudes

There is a sizeable literature that reflects the trajectory and developments of the contact hypothesis during the last six decades, that is, when, how, and why it works (e.g. Dovidio, Gartner, & Kawakami, 2003; Pettigrew, 1998; Pettigrew & Tropp, 2006). Nevertheless, although intergroup contact has been consistently recognized as extremely useful for improving intergroup orientations, there is still a dearth of research testing the effects of intergroup contact over time. The literature on longitudinal effects of intergroup contact is quite limited when we consider that its tradition goes back more than five decades (e.g. Binder et al., 2009; Brown, Eller, Leeds, & Stace, 2007; Eller & Abrams, 2003, 2004; Feddes, Noack, & Rutland, 2009; Hamilton & Bishop, 1976; Levin, van Laar, & Sidanius, 2003). In those contexts where experimental or quasi-experimental designs are difficult to implement, longitudinal research represents a compelling strategy to test causal relationships between intergroup contact and intergroup attitudes (Brown et al., 2007; Finkel, 1995; Pettigrew, 1996). The causal direction from contact to attitude change in natural settings is

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one aspect that remains relatively unexplored and makes this kind of investigation particularly pertinent.

Longitudinal research on intergroup contact has generally shown that contact has positive effects on intergroup attitudes over time (Brown et al., 2007; Eller & Abrams, 2003, 2004; Hamilton & Bishop, 1976; Levin et al., 2003), but quality rather than quantity of contact tends to be most predictive of positive intergroup attitudes. Our first set of general predictions is that contact quality will be associated with more positive evaluations of the outgroup, both cross-sectionally and longitudinally.

Mediators of the effect of intergroup contact on intergroup attitudes

Revealing the underlying processes explaining the positive effects of intergroup contact on intergroup relations has perhaps been the key point of interest during the new century (see Pettigrew & Tropp, 2008, for a review). Pettigrew (1998) posits four processes through which intergroup contact operates: a) learning about the outgroup (Eller & Abrams, 2003, 2004; Eller, Abrams, & Zimmermann, 2011), b) changing behavior (Eller & Abrams, 2003, 2004), c) generating affective ties by reducing intergroup anxiety (Paolini, Hewstone, Cairns, & Voci, 2004; Turner, Hewstone, & Voci, 2007; Turner, Hewstone, Voci, Paolini, & Christ, 2007) or by increasing self-disclosure (Turner et al., 2007), perspective-taking (Craig, Cairns, Hewstone, & Voci, 2002) or interpersonal closeness (Eller & Abrams, 2003, 2004), and finally d) promoting an ingroup reappraisal through “deprovincialization” (Verkuyten, Thijs, & Bekhuis, 2010). Additionally, other contextual factors as the perceived importance of contact (van Dick et al., 2004) or belongingness to a common ingroup identity (Eller & Abrams, 2003, 2004, 2006; Gaertner & Dovidio, 2000) appear to be important.

The novel mechanism we propose here to understand how contact reduces prejudice differs from some previously identified mediators in four ways. First, while previous mediators are mainly outgroup-focused processes, verification of ingroup identity is ingroup-focused. This point is relevant because it means that manipulating variables that affect ingroup self-perception, without affecting the outgroup or the ingroup-outgroup relation, could improve intergroup orientations. Second, none of these previous underlying mechanisms posits the ingroup member “in the eyes” of the outgroup to see how they perceive the ingroup. Third, verification of ingroup identity involves validating an existing identity, which should be easier than modifying certain aspects of that identity. And fourth, whereas much research suggests that affective mediators of intergroup contact are more powerful

than cognitive mediators (e.g. Pettigrew & Tropp, 2000, 2006, 2008; see also Swart, Hewstone, Christ, & Voci, 2011), it is conceivable that the latter have not been sufficiently explored and our work could help to incite a resurgence of a focus on cognitive / learning-based processes. We will develop such a focus in the next few paragraphs.

These findings notwithstanding, an important variable that is under-studied in the intergroup contact literature and that is ingroup-focused are meta-stereotypes - ingroup members' perceptions about how outgroup members view the ingroup (Gómez, 2002; Vorauer, Main, & O'Connell, 1998). Past research suggests that people generally assume that outgroup members have a negative image of the ingroup (e.g. Kramer & Wei, 1999; Sigelman & Tuch, 1997). But more importantly, people also expect a relatively high level of inconsistency between ingroup self-stereotypes and meta-stereotypes (Gómez, 2002; Klein & Azzi, 2001; Vorauer et al., 1998). These expectations of being seen inaccurately or being stereotyped lead people to avoid intergroup interactions (Stephan & Stephan, 1985; Tropp, 2003; Vorauer et al., 1998), which obviously make intergroup contact not viable as a strategy to improve intergroup attitudes.

Gómez, Huici, and Morales (2004) demonstrated that intergroup contact improved the evaluation of the outgroup and also increased verification of the ingroup identity. Ingroup identity refers to qualities of typical ingroup members that may or may not characterize individual group members (see Gómez, Seyle, Huici, & Swann, 2009; Swann, 2011). Thus, verification of ingroup identity is the overlap between how ingroup members perceive their group, and how they think that the source (outgroup members in the context of intergroup relations) perceives the ingroup, no matter whether such perceptions describe or do not describe individual group members (Gómez et al., 2009). The greater the overlap between these two perceptions, the higher the verification of ingroup identity. Nevertheless, it has not been tested whether fostering the verification of ingroup identity improves intergroup attitudes. Moreover, no research thus far has examined whether verification of ingroup identity can explain why direct intergroup contact ameliorates intergroup attitudes, and if such a mediating effect holds over time. This is the main focus of the present report.

Verification of ingroup identity

The process of verification of ingroup identity is based on a well-established theory that has been supported by empirical evidence during the last three decades: self-verification theory (Swann, 1983, 2011). This theory stipulates that people prefer others to see them in the

same way they see themselves (Swann, 1983). Self-verification theory assumes that people base their identities on the treatment they receive from others (e.g., Cooley, 1902; Mead, 1934). Identities have an important function because people use them to make predictions about their worlds, guide behavior, and maintain the perception that the world is knowable and coherent. These functions lead people to be strongly motivated to maintain their identities. Interestingly, this motivation occurs whether the identities happen to be positive or negative.

For decades, research on self-verification theory focused on people's efforts to confirm their personal selves, which refer to qualities that make them unique (see Swann, Chang-Schneider, & Angulo, 2007, for a review). But recently, researchers have demonstrated that self-views should have the same motivational properties when they refer to attributes of the group with which the person is aligned. Chen and co-workers (Chen, Chen, & Shaw, 2004; Chen, Shaw, & Jeung, 2006) have shown that people work to verify personal self-views that are linked to group membership or "collective self-views". Along these lines, Gómez et al. (2009) demonstrated that people strive to verify qualities of typical group members of their group, or engage in "verification of ingroup identities" even when they do not themselves possess these qualities and even when such qualities are negative. Importantly, people prefer to interact with and evaluate more positively those who confirm their group identities than those who disconfirm them.

Previous longitudinal research into self-verification supports the prediction that people seek and find verification over time in naturally occurring situations (McNulty & Swann, 1994). Some other research offers testimony for the longitudinal effects of self-verification (Swan, Kwan, Polzer, & Milton, 2003; Swann, Milton, & Polzer, 2000). In the intergroup realm, the most straightforward way to bring about this process of mutual knowing and understanding is through intergroup contact. As a consequence, we predict that the positive effect of contact quality on outgroup evaluation through verification of ingroup identity will be produced also over time, that is, longitudinally. The general lack of longitudinal research in the area could have the consequence that some mediators could go unnoticed because their effects on intergroup attitudes do not surface instantly but only over time (Hovland & Weiss, 1951). The present research provides support for such a mediator, never tested up to date in the intergroup contact literature.

Overview of the present research

The present study investigated whether the longitudinal effect of intergroup contact on outgroup evaluations is

produced because such contact increases perceptions of verification of ingroup identity over time. The current study focused on Spanish high school students and their intergroup contact and attitudes toward immigrants in Spain. In the last decade, the number of immigrants in Spain has increased substantially, and in Madrid, where the present study was conducted, around 17.12% of the population consists of immigrants¹.

Participants were asked about the quality of their intergroup contact with immigrants, how they thought that immigrants perceive Spaniards, how they perceived Spaniards themselves, and about their general evaluation of immigrants. We operationalize verification of ingroup identity as the overlap between how participants think that immigrants perceive Spaniards (i.e. meta-stereotype) and how participants themselves perceive Spaniards (i.e. ingroup stereotype). The higher the overlap, the higher the verification of ingroup identity.

We expect that contact quality will improve the general evaluation of immigrants and verification of ingroup identity. Importantly, we predict that contact quality will improve general evaluation of immigrants through increasing verification of ingroup identity cross-sectionally, and also over time.

Method

Participants and Procedure

Participants at T1 were 142 Spanish high school students. They took part in the present study with permission of the school and their parents. At T2, 12 weeks later, there were 56 girls and 60 boys (mean age = 16.5, $SD = .60$). The questionnaires at both waves were identical and completed during class, on an individual basis. Participation was voluntary and respondents were informed that they were free to withdraw from the study at any time and that all their responses would be treated completely confidentially. At completion of the longitudinal study, participants were debriefed and thanked.

Measures

Predictor variable: Quality of contact (Eller & Abrams, 2003; Islam & Hewstone, 1993) was measured by asking participants on 7-point scales ranging from (1) to (7),

¹These traits were obtained in a preliminary study with 20 participants from a comparable population as the main study (10 girls and 10 boys, mean age = 16.32, $SD = .86$). Participants were asked to list three positive and three negative traits they thought described Spaniards. The most cited traits were friendly (60%), lazy (50%), intelligent (45%) and dishonest (40%). Based on discussions with participants in the preliminary study and also with their teachers, they all agreed that asking for the meta-stereotype is a complex task, particularly for young people, so following their suggestion we used all the traits in the same direction, and we transformed lazy and dishonest into hard-working and honest.

whether contact with immigrants was perceived to be involuntary or voluntary (*completely involuntary—completely voluntary*), competitive or cooperative (*completely competitive—completely cooperative*), positive or negative (*completely negative—completely positive*), and superficial or intimate (*completely superficial—completely intimate*), Cronbach's alphas = .87 at T1 and .88 at T2.

Mediating variables: Verification of ingroup identity was a composite index subtracting meta-stereotypes from ingroup stereotypes. Ingroup stereotypes were measured by asking participants what percentage of Spaniards they think in general possess the following attributes: *honest, friendly, intelligent, and hard-working*², Cronbach's alphas = .70 at T1 and .72 at T2. Meta-stereotypes were measured by asking participants what percentage of Spaniards possess the attributes in question, in the eyes of immigrants, Cronbach's alphas = .68 at T1 and .66 at T2. Alphas for the index of verification of ingroup identity were .68 and .66 at T1 and T2, respectively. Factor analyses of the scales show that items load into a single factor at both T1 and T2, explaining 42.04% and 49.73% of the variance, respectively. Means displayed in Table 1 indicate that the indices at T1 and T2 are positive. Positive values signify that ingroup-stereotypes are more positive than meta-stereotypes, and the lower the index, the higher the verification of ingroup identity.

Criterion variable: The *General Evaluation Scale* (Wright, Aron, McLaughlin-Volpe, & Ropp, 1997) instructed respondents to 'indicate how you feel about immigrants in general' by using the following bipolar adjective pairs separated by a 7-point scale: *cold—warm, negative—positive, friendly—hostile, suspicious—trusting, respect—contempt, disgust—admiration* (pairs 3 and 5 were reversed). Responses were scored such that the more positive adjective received the higher score, Cronbach's alphas were T1 = .80 and T2 = .81, respectively.

Results

Our analytic strategy was first to compare the T1 participants that remained in or dropped out of the study between T1 and T2 to see whether the groups were compatible on the different measures. We then examined changes in scores between the two time points and conducted cross-sectional mediation analysis. Further, to deal with missing data longitudinally, we performed multiple imputation of data. The main analyses then

focus on the effect of quality of contact on verification of ingroup identity and general outgroup evaluation and the mediating role of verification of ingroup identity, both cross-sectionally and longitudinally.

Panel attrition and comparison of participants

A MANOVA across the set of measures at T1 yielded a significant multivariate effect, $F(4, 133) = 3.05, p < .02$, partial $\eta^2 = .08$. Those students who dropped out of the study showed less positive general evaluations of immigrants ($M = 3.37, SD = 1.28$) than those who remained in the sample ($M = 3.98, SD = 1.02$). There were no significant differences in quality of contact or verification of ingroup identity, $ps > .47$. However, dropping out of the study was not based on self-selection, but was rather due to practical issues: The students that dropped out simply were not present on the day of T2 data collection, but no participants refused to take part in the study. We recognize, however, that the possible generalizability of our longitudinal findings might be limited given the dropout of participants with less positive attitudes toward immigrants.

Changes of Means over Time

A repeated-measures MANOVA revealed that scores on the measures changed significantly over time, $F(4, 108) = 5.35, p = .002$, partial $\eta^2 = .13$. Table 1 shows that there was one significant univariate effect of time. Quality of contact increased over the course of the study.

Interrelationships among variables

Table 2 displays the results of correlation analysis among the variables. At both time points quality of contact is associated with more positive meta-stereotypes, higher verification of ingroup identity (i.e. the negative correlation indicates that the higher the quality of contact, the lower the difference between meta-stereotype and ingroup stereotype), and more positive general evaluation of immigrants. More positive general outgroup evaluation is also related to more positive meta-stereotypes and higher verification of ingroup identity. Importantly, a test of the difference between the correlations showed that quality of contact is related significantly more strongly to verification of ingroup identity than to meta-stereotypes, both at T1, $z = 4.10, p < .001$, and T2, $z = 4.83, p < .001$. General evaluation of the outgroup is also more strongly correlated with verification of ingroup identity than with meta-stereotypes, both at T1, $z = 4.33, p < .001$, and T2, $z = 3.93, p < .001$.

Cross-sectional mediation analyses

To test whether the relationship between quality of contact and general evaluation of the outgroup was

²We assumed that the degree of intergroup contact of our participants with immigrants was high and quite similar among them. We measured the quantity of direct contact and we found that on a scale from 0 (never) to 7 (very often), the mean was significantly higher than the midpoint of the scale (4), $M = 4.59, SD = 1.52, t(115) = 4.15, p < .001$. In addition, contact quantity was not significantly correlated with the key variables of our study, $rs < .14, ps > .13$.

Table 1. Changes of Means over Time

Measure	T1 (N = 142)	T2 (N = 116)	Mean change	F (3, 108)	Partial η^2
Quality of contact	4.40 (1.08)	4.79 (1.33)	0.39	15.37***	.12
IG stereotype	64.80 (13.69)	65.35 (13.83)	0.55	0.27	.00
Meta-stereotype	51.84 (15.76)	52.23 (14.67)	0.39	0.11	.00
Verification	12.97 (14.94)	13.12 (14.28)	0.15	0.01	.00
General evaluation	4.00 (1.02)	4.14 (1.00)	0.14	3.33	.03

Note: Unless otherwise indicated, numbers are means, standard deviations are in parentheses. *** $p < .001$

Table 2. Interrelationships of Variables at T1 (above the diagonal) and T2 (below the diagonal). Correlations between the same variables at T1 and T2 are reported in the diagonal

Measure	1.	2.	3.	4.	5.
1. Quality of contact	.67***	-.13	.20*	-.33***	.58***
2. IG stereotypes	-.10	.68***	.47***	.41***	-.08
3. Meta-stereotypes	.26**	.50***	.68***	-.61***	.24**
4. Verification	-.36***	.46***	-.55***	.41***	-.32***
5. General evaluation	.57***	-.09	.20*	-.31***	.64***

Note: IG = Ingroup. Numbers are Pearson’s correlations (r).
* $p < .05$, ** $p < .01$, *** $p < .001$.

mediated by verification of ingroup identity, we conducted mediation analyses, separately for T1 and T2. Using the SPSS macro provided by Preacher and Hayes (2008), we conducted a bootstrapping test (n samples = 5,000) for the model. Quality of contact and verification of ingroup identity were standardized prior to using the macro. Figure 1 displays the mediation analysis for T1, and Figure 2 shows the results of the analysis for T2. The effect sizes are $ab_{ps} \hat{s}^3 = .032$, for T1, and .035 for T2 (see Preacher & Kelley, 2011). The results of both analyses indicate that verification of ingroup identity partially mediated the effect of contact quality on general evaluation of the outgroup, as predicted.

Using Multiple Imputation to Deal With Missing Data

There was sample attrition within the longitudinal sample. We therefore considered the options of listwise deletion of cases or using multiple imputation as a compensatory method of analysis (Enders, 2010). Typically, and particularly in longitudinal datasets (Brown et al., 2007; Eller & Abrams, 2004), missing data are dealt with by deletion of missing participants, which compromises the power of the tests. Listwise deletion procedures are based on the assumption of Missing Completely At Random (MCAR), which could result in seriously biased estimates with present levels of missingness.

SPSS was used to calculate the fraction of missing data. This weights the proportion of missing information in the dataset by the number and quality of data imputations. We used 100 imputations to estimate the fraction missing. This was 6.9% in the longitudinal sample.

Multiple imputation, which is based on the assumption of Missing at Random (MAR), is superior to the method of participant deletion (Rubin, 1987). Data are MAR “if missingness is related to other measured variables in the analysis model, but not to the underlying values of the incomplete variable (i.e., the hypothetical values that would have resulted had the data been complete)” (Baraldi & Enders, 2010, p. 7). Given sufficient numbers of covariates to aid imputation (in the present research these included age, sex, and year of study), the assumption of MAR provides results that are less biased than listwise deletion (Graham, 2003; Schafer & Olsen, 1998). Thus we were able to treat missing data as MAR and to impute the missing data using all variables present in the different datasets. Schafer and Graham (2002) recommend 20 imputations in order to generate an accurate final imputed dataset. In each imputation a copy of the dataset is created containing unique imputed values. The multiple sets of parameter estimates and standard errors across imputed data sets are subsequently combined into a single set of results (Baraldi & Enders, 2010). To obtain results that are as reliable as possible we conservatively imputed our dataset 100 times, using SPSS (Eller et al., 2011; Graham, Olchowski, & Gilreath, 2007).

³ ab_{ps} is the partially standardized product of paths “a” (effect of the predictor on mediator) and “b” (effect of the mediator on the outcome measure). See Preacher and Kelley (2011).

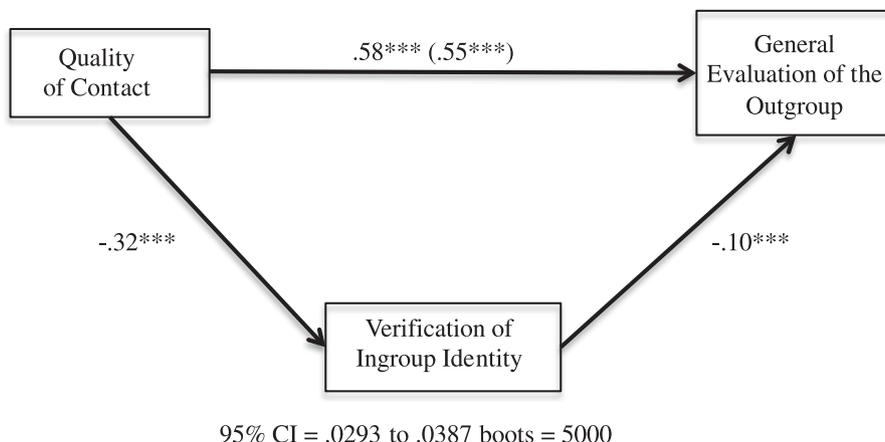


Figure 1. Verification of ingroup identity partially mediates the effect of quality of contact on general outgroup evaluation at T1.

Note: Negative coefficients involving Verification of Ingroup Identity indicate high verification. Numbers are standardized partial regression coefficients (betas). Numbers in parentheses describe total effects. CI Confidence interval. * $p < .05$, ** $p < .01$, *** $p < .001$.

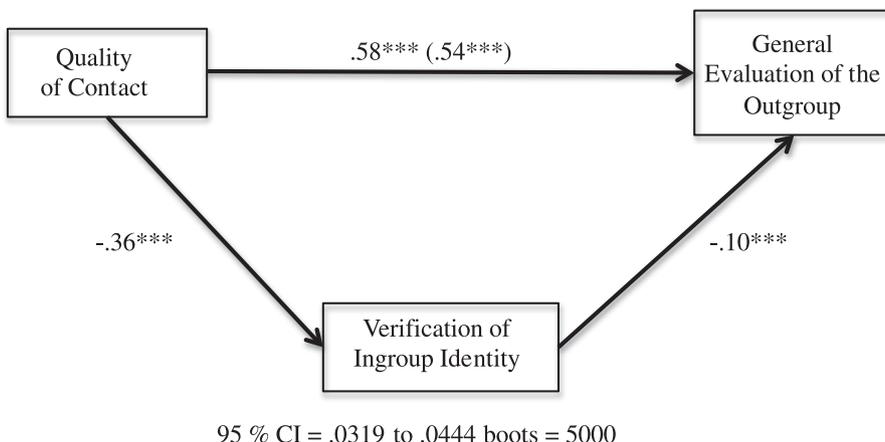


Figure 2. Verification of ingroup identity partially mediates the effect of quality of contact on general outgroup evaluation at T2.

Note: Negative coefficients involving Verification of Ingroup Identity indicate high verification. Numbers are standardized partial regression coefficients (betas). Numbers in parentheses describe total effects. CI Confidence interval. * $p < .05$, ** $p < .01$, *** $p < .001$.

Longitudinal analysis

We used multiple regression analysis to examine the relationships between T1 quality of contact on (a) T2 verification of ingroup identity, controlling for T1 verification of ingroup identity, and on (b) T2 general evaluation, controlling for T1 general evaluation. We also tested the effect of T2 verification of ingroup identity on T2 general evaluation, controlling for T1 general evaluation (cf. Eller et al., 2011). T1 quality of contact predicted verification of ingroup identity^{4,5}, $b = -2.35$, $t(109) = -2.02$, $p < .05$, and general outgroup evaluation, $b = .16$, $t(113) = 2.00$, $p < .05$, at T2. T2 verification of

ingroup identity was associated with general outgroup evaluation at T2, controlling for general outgroup evaluation at T1, $b = -.01$, $t(109) = -2.16$, $p = .03$. Importantly, the contact-general evaluations relationship was reduced to, $b = .13$, $t(108) = 1.46$, $p = .14$, when verification was included in the regression equation. The size was $ab_{ps} = .023$ (see Preacher & Kelley, 2011), see Figure 3.

Reversed longitudinal analysis

To investigate the causal direction of the variables in the longitudinal model, we employed an identical strategy to the one described above, but reversed the roles of predictor and criterion variables (cf. Eller & Abrams, 2003). There were no significant longitudinal effects.

Discussion

Past research has shown that intergroup contact improves intergroup attitudes, cross-sectionally and

⁴Pooled multiple imputation results only provide the unstandardized regression coefficient (b), not the standardized one (β).

⁵In some cases, the degrees of freedom do not indicate the full sample ($N = 116$). The differences in N (only 7 in most cases) are due to missing values by some participants on some variables across the two time points.

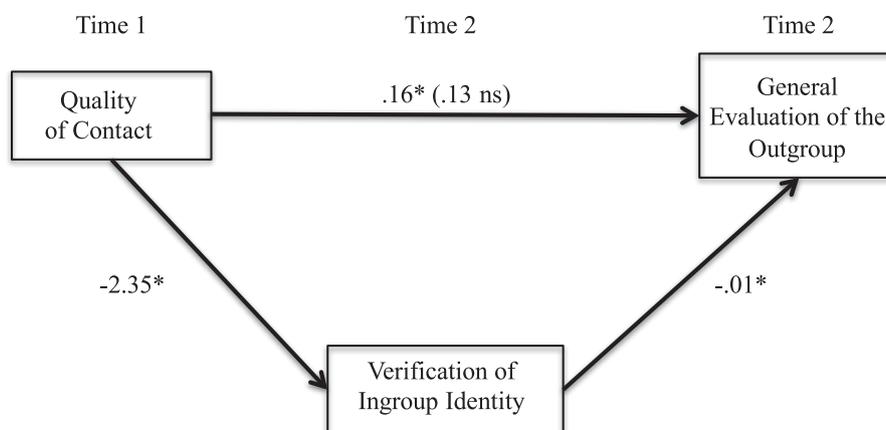


Figure 3. Path diagram showing a longitudinal analysis of group identity verification as a mediator between contact and general outgroup evaluation.

Note: Negative coefficients involving Verification of Ingroup Identity indicate high verification. Numbers are standardized partial regression coefficients (betas). * $p < .05$, ** $p < .01$, *** $p < .001$.

longitudinally. Previous work has even identified some underlying mechanisms responsible for such improvements, such as intergroup anxiety, interpersonal closeness, self-disclosure, perspective-taking, behavior modification, knowledge of the outgroup, belongingness to a common ingroup identity, or the perceived importance of intergroup contact (Eller & Abrams, 2003, 2004; Paolini et al., 2004; Pettigrew et al., 2007). In this report, we offer testimony that intergroup contact might improve intergroup attitudes, at least in part, through a new cognitive, ingroup-focused mechanism not tested to date, verification of ingroup identity.

Our findings indicate that the quality of intergroup contact is related to a positive evaluation of the outgroup, cross-sectionally and longitudinally. Quality of contact and evaluation of the outgroup correlated more strongly with verification of ingroup identity than with meta-stereotypes, which reinforces the role of verification of ingroup identity rather than of meta-stereotypes. Importantly, as predicted, the positive effect of contact quality on the evaluation of the outgroup was mediated by the perception of verification of ingroup identity, not merely cross-sectionally, but also over time. We should be careful, however, with the generalization of our findings because although the mediation effect seems to be consistent (there is a cross-sectional as well as a longitudinal effect), the sizes of these effects are comparatively small). In summary, the present study shows the positive effects of high-quality contact on verification of ingroup identity, and the potential of verification of ingroup identity to mediate between contact and intergroup attitudes.

Moreover, consistent with Allport's (1954) original hypothesis (see also Brown & Hewstone, 2005), the

present study provided additional longitudinal evidence that the quality of contact is particularly influential on intergroup attitudes. Intergroup contact has long-lasting effects and we provided further evidence that the causal direction is from contact to improved attitudes rather than the other way around (Brown et al., 2007; Eller & Abrams, 2003, 2004; Levin et al., 2003; Stephan & Rosenfield, 1978). It should be recognized, however, that as is the case with the present research, most of the previous investigations considered to be "longitudinal" are really half-longitudinal designs (see Cole & Maxwell, 2003), and include only two time points. For a fully longitudinal test of the effects of the mediators, future research should add a third time point (see, for example, Swart et al., 2011).

In addition, the present research theoretically contributes to the literature of intergroup contact. Pettigrew and Tropp's (2006) meta-analyses of intergroup contact showed that affective mediators are more powerful than cognitive ones. However, it is conceivable that the literature of the former is more extensive than that of the latter. Our work opens the door for examining more cognitive and learning-based processes that could be underlying the effects of intergroup contact on intergroup attitudes (for a justification of why verification is a cognitive factor, see Swann, Griffin, Predmore, & Gaines, 1987).

Critics might argue that there are at least three limitations to our work. First, given that we have focused on positive traits in our measure of ingroup identity verification, it could be argued that all we have shown is that positive contact fosters positive appraisals, which in turn improve intergroup attitudes. Moreover, it might be also argued that we did not ask participants whether the traits offered to describe the ingroup were

self-descriptive or not, which could restrict the validity and generalizability of our findings. To counter these arguments, numerous replications using diverse methodologies have demonstrated that verification strivings are independent of the content or the valence of such identities and even of the extent to which the identities are self-descriptive (see Gómez et al., 2009). But perhaps even more importantly, correlation analysis conducted in the present investigation demonstrates that both contact and outgroup evaluation are more strongly correlated with verification of ingroup identity than with positive meta-stereotypes.

Second, some research needs to be done to understand *why* verification of ingroup identity mediates the effect of intergroup contact on intergroup attitudes. We see at least two possible mechanisms here. First, it might be the case that verification of ingroup identity would make individuals conscious that in the same way they stereotype the outgroup, the outgroup also stereotypes the ingroup. Being conscious of the fact that the outgroup perceives the ingroup in a similar way that they see themselves would increase intergroup trust or intergroup empathy and/or reduce anxiety (see North & Swann, 2009; Tausch, Hewstone, Schmid, Hughes, & Cairns, 2011). Or second, via a cognitive process, individuals might perceive the outgroup as more intelligent or insightful than they expected, because they possess the capacity of thinking about the ingroup. In line with this reasoning, Gómez et al. (2009) found that participants who received a verifying feedback perceived the evaluator as more intelligent and competent than participants who received a disconfirming, enhancing feedback. This last finding, showing that the perceived competence of the evaluator is related to verification rather than enhancement, also helps to reduce the possible limitation of the present study that it included positive traits only.

Finally, someone might ask about the mediating role of verification of ingroup identity over and above the role of other, well-established mediators. We see at least two possibilities here. The first would be that verification of group identity is affecting intergroup orientations through its relation with other existing mediators. For example, verification of ingroup identity implies learning about the outgroup, because ingroup members try to predict how outgroup members see the ingroup. Some other affective mechanisms, such as perspective-taking, or interpersonal closeness, also involve considering the perspective of the outgroup. The second possibility is that verification of ingroup identity is influencing intergroup orientations but without affecting or being affected by other potential mediators. We are more inclined to the first possibility, but the present report cannot speak to these alternatives. Further studies should explore the isolated mediator effect

of verification of ingroup identity on intergroup attitudes, but also its mediating properties in interaction with other mediators.

To conclude, some might also criticize the nature of our outcome measure (e.g. Verification of ingroup identity). We maintain that such an index has some disadvantages but also advantages. The main disadvantage is that changes in a composite index may result from either one of the measures that form the index or from the other (in the present case, the ingroup self-stereotype or the meta-stereotypes). Changes only in the ingroup self-stereotype, or changes only in the meta-stereotype can produce the same result for the final index. However, two key advantages of a composite index are that 1) it is more appropriate to capture participants' unconscious perceptions because it is more difficult for them to be aware that the interest of the researcher is based on a composite measure rather than on two independent measures, and 2) it make sense theoretically because verification of ingroup identity is by definition the comparison between how we perceive ourselves, and how we think we are perceived by others.

The present paper extends theory and research into intergroup contact in two ways, in response to the call by Pettigrew and Tropp (2006). First, we showed that verification of ingroup identity, an ingroup-focused process, is a relevant mediator of the effects of intergroup contact on intergroup attitudes, cross-sectionally and longitudinally. Our research represents another milestone in the study of mediators that can help to improve the efficacy of intergroup contact on improving intergroup attitudes in general, and reducing intergroup prejudice, in particular. Moreover, we demonstrated the relevance of intragroup processes in intergroup contact. Second, we replicated the causal effect of long-term intergroup contact on intergroup attitudes. In particular, our research supports other evidence showing that the quality of the contact reduces prejudice over time (Brown et al., 2007; Levin et al., 2003; Eller & Abrams, 2003, 2004).

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