# Valuing diversity: an undervalued mediator of intergroup contact

*Keywords:* intergroup contact, diversity beliefs, multiculturalism, prejudice, social integration

**Data availability statement:** The data for Study 1, and the analysis code for both studies are available at https://osf.io/sbpxj/?view_only=d1d6d70ce50d4d95a415f5fae756d985.

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## Abstract

Valuing diversity and intergroup contact predict less prejudice and discrimination, yet their relationship deserves closer attention. There is some evidence that valuing diversity and intergroup contact are associated, but it has not been tested whether the established effects of contact come about through changes in valuing diversity. We address this in two studies (total $N = 2,835$) that consider valuing diversity as a mediator of intergroup contact. They show that valuing diversity mediates the relationships of intergroup contact with prejudice, bystander intervention intentions, policy support and approach intentions. Our results increase the understanding of pathways from intergroup contact to intergroup relations and offer a lever that contact interventions can target.

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**Valuing diversity: an undervalued mediator of intergroup contact**

Prejudice, discrimination and inequality persist as Western societies are becoming more diverse (Vertovec, 2007). In fact, they may have become more visible as part of a "hate speech epidemic" (Bilewicz & Soral, 2020), while renewed calls for racial justice, for instance from the Black Lives Matter movement, have reinvigorated the search for solutions. Therefore, the question of how to develop more positive intergroup relations has continued to be a focus for social psychologists. Two primary fields of research have emerged, intergroup contact and diversity beliefs, both of which have yielded valuable insights. In this paper, we offer one of the first systematic connections between them. We show that valuing diversity can help explain the pathways from intergroup contact to both cognitive and affective prejudice as well as various other outcomes of direct relevance to intergroup relations. We also suggest that promoting positive intergroup contact might be a way to increase the valuing of diversity that eschews the risks associated with other approaches.

In line with previous research, we define diversity broadly as the presence of members of different groups within one's environment (Tropp & Bianchi, 2006). While this can encompass a wide range of types of difference, from ethnicity to ability, certain types will evidently be more salient. At least in the US American context, racial diversity – as one of the most visible forms of difference – tends to be the most salient category for most respondents (Bell & Hartmann, 2007). It is also the most widely researched – Leslie et al. (2020) conducted a meta-analysis on diversity ideologies and found that 88% of the studies they identified focused on ethnicity or race. However, the extent to which various types of diversity are valued has been shown to be highly correlated (Bahns, 2017; Miville et al., 1999), and we take the underlying general valuing of diversity to be a variable of great social importance, and the most important

aspect of individuals' diversity beliefs.

**The importance of valuing diversity**

The question of how to deal with diversity has been debated over decades, particularly concerning whether diversity is to be recognized and valued (Leslie et al., 2020). At the one end, color-blind approaches suggest that diversity is best ignored and the focus placed on a unifying identity (Myers, 2019; Schlesinger, 1998), while at the other, multiculturalism calls for the valuing of diversity and a maintenance of (cultural) differences (Berry, 2016; Fowers & Richardson, 1996). Despite the pronouncements by prominent political leaders that multiculturalism has failed and the decline in public support for the concept (Vertovec & Wessendorf, 2010), the evidence clearly favors approaches that recognize and value diversity: A recent meta-analysis of 167 independent samples showed that an endorsement of multiculturalism is associated with less prejudice and discrimination, and greater support for pro-diversity policies than an endorsement of color-blindness (Leslie et al., 2020), which is in line with Plaut et al.'s (2018) literature review that concluded that multiculturalism is more likely to contribute to positive interracial interactions.

Nevertheless, while an endorsement of multiculturalism is beneficial, attempts to promote it can backfire if they create identity threat on the part of majority-group members. For instance, multiculturalism has been associated with a sense of exclusion among White US Americans (Plaut et al., 2011) and multiculturalism primes have been shown to lead to a greater endorsement of conservative political beliefs and greater warmth towards Donald Trump (Osborn et al., 2020). However, a focus on polyculturalism, a derivation of multiculturalism that adds a focus on continuous exchange and interaction between cultures, attenuated the backlash in Osborn et al. (2020) and has been associated with greater creativity (Cho et al., 2018) and interest in intergroup contact and support for equality (Rosenthal & Levy, 2012, 2016).

From this, it is clear that a valuing of diversity is beneficial for intergroup relations, but less clear how this can be developed in a way that does not raise threat. In line with the promising findings from polyculturalism research, we consider here whether intergroup contact offers a way to promote valuing diversity. In that, we use valuing diversity as a shorthand for the belief that the presence of diversity in society results in richer life experiences and more effective collective problem solving. This work builds on a recent review that highlighted that pro-diversity beliefs, which encompass the valuing of diversity, are associated with positive intergroup relations, yet that little is known regarding their relationship with intergroup contact (Kauff et al., 2020).

**The promise of intergroup contact**

Intergroup contact has been described as one of the most successful ideas in social psychology (Dovidio et al., 2003). In any case, the "contact hypothesis", which states that contact between members of different groups reduces prejudice, has proved to be one of the most replicable. The largest meta-analysis to date found a negative association between contact and prejudice in 94% of the 713 samples considered (Pettigrew & Tropp, 2006). This has enabled the design of successful prejudice-reduction interventions in the field (Lemmer & Wagner, 2015).

Most research on intergroup contact has been concerned with positive contact experiences, or, particularly in older works, omitted to consider contact valence altogether. This has come to be criticized over the past decade, particularly after it was suggested that negative contact is a stronger predictor of prejudice than positive contact is (Barlow et al., 2012). This asymmetry has not replicated consistently; in fact, recent meta-analyses suggested that the relative strength of the relationships depends on the status of the outgroups (Paolini & McIntyre, 2019) or the outcome under consideration (Barlow et al., 2019). In any case, both positive and negative contact typically have

substantial and distinct effects on intergroup outcomes, so that we will consider both in studying the link between contact and valuing diversity.

Contact effects also depend on the nature of outcomes considered. Tropp and Pettigrew (2005) suggested a distinction into affective factors (primarily emotions) and cognitive factors (stereotypes and beliefs), and found that positive contact has significantly stronger effects on affective prejudice, even though it was also associated with reduced cognitive prejudice. Additionally, positive intergroup contact has been shown to be associated with greater intentions to help outgroup members (Corrigan et al., 2002; Johnston & Glasford, 2018), to challenge exclusion (Abbott & Cameron, 2014; Dessel et al., 2017) and to support policies that benefit disadvantaged groups (Selvanathan et al., 2017). While one might expect that reductions in prejudice at least predict reductions in discriminatory behaviors, this relationship has been shown to be relatively weak: a meta-analysis of 60 studies estimated a correlation of just .29 (Schütz & Six, 1996). Thus, changes in prejudice and in additional outcomes linked to improved intergroup relations need to be considered separately in research on the effects of intergroup contact.

**Valuing diversity and intergroup contact**

Several studies have associated valuing diversity with intergroup contact, whether this concerned a personal preference or a belief in the instrumental value of diversity. Bahns (2017) focused on naturally occurring relationships and surveyed 552 dyads drawn from various communities. In her work, valuing diversity was measured with a scale that concerned the interest in learning about and engaging with different categories of people, including sexual orientation, ethnicity, nationality and physical ability. She found that members of dyads that differed in terms of ethnicity, religion and sexual orientation (but not in terms of nationality or attitudes) valued diversity more than those in homogeneous dyads.

In another survey study, Tropp and Bianchi (2006) asked participants how much they valued racial and ethnic diversity in their college, group of friends, neighborhood and workplace, and found that among their White participants, valuing diversity was associated with greater interest in contact with Black people. Among Black participants, the perceived valuing of diversity among White people was the more important predictor. Similarly, Wolf and Van Dick (2008, cited in Kauff et al., 2020) showed that both Germans' interest in seeking out contact with foreigners and their number of foreign friends correlated with their valuing of diversity.

As intergroup contact appears to be associated with valuing diversity, it is warranted to ask whether the effects of intergroup contact come about through changes in valuing diversity. To date, there has only been one study that explicitly considered pro-diversity belief as a mediator of the link between intergroup friendships and prejudice (Asbrock et al., 2012), which found that pro-diversity beliefs could explain about one quarter of the total effect of contact. Relatedly, Dirksmeier (2014) showed that valuing ethnically diverse neighborhoods was one of the strongest predictors of prejudice in a representative German sample. While he did not include tests of mediation, the regression coefficient for valuing ethnically diverse neighborhoods barely changed when entering measures of contact into the model. This suggests that any effect of valuing diversity is unlikely to be mediated by contact, and thus offers further encouragement to explore the alternative ordering, according to which contact effects occur through changes in valuing diversity. Therefore, we consider valuing diversity as a mediator of the relationships between positive and negative contact, and various outcomes critical for improved intergroup relations.

**Mediation of the effects of intergroup contact**

Given the research that suggests that intergroup contact experiences shape the valuing of diversity, it is possible that valuing diversity may mediate the effects of

contact on other outcomes, such as prejudice and bystander intervention intentions. We test this in two studies below, when we contrast valuing diversity with the best-established mediators. Most mediation studies to date have focused on explaining the effect of intergroup contact on prejudice. When Pettigrew and Tropp (2008) conducted a meta-analysis of 54 papers, containing 91 samples, knowledge about the outgroup, intergroup empathy and anxiety were the mediators considered most frequently. They concluded that there is evidence for mediation through each of the three mediators. However, while the paths from contact to each of them had similar strength, knowledge was a much weaker predictor of prejudice than empathy and anxiety when controlling for contact, so that its contribution to explaining the association of contact with prejudice was much lower. In line with this finding, Pettigrew and Tropp concluded that "affective factors, such as anxiety reduction and empathy, are clearly major mediators relative to the more cognitively oriented mediator of knowledge" (2008, p. 929). However, this conclusion might have been influenced by the preponderance of affective outcome measures in their data (Tropp & Pettigrew, 2005) and concerns only one cognitive mediator. Given that cognitive processes are key in the genesis of discriminatory beliefs and arrangements, the study of further cognitive mediators and their link with cognitive outcomes appears essential.

Furthermore, most mediation studies have focused on changes in prejudice, rather than changes in behavior and intentions, which are arguably more important when it comes to bringing about the social changes that motivate most research into intergroup relationships. However, there has been some work into the mediation of the links between contact and behavior/behavioral intentions. The effect of contact on *bystander intervention intentions* were mediated through empathy, in-group bias and cultural openness, but not through anxiety (Abbott & Cameron, 2014). The effect on *approach intentions* was mediated through increased trust, improved attitudes and – in

some analyses – reduced anxiety (Turner et al., 2013). The effect on *helping intentions* was mediated through anxiety (Hutchison & Rosenthal, 2011). Finally, the effect on *homophobic behaviors* was mediated through reduced anxiety and reduced prejudice (Mereish & Poteat, 2015). Overall, anxiety and intergroup attitudes emerge as the mediators with the strongest evidence base; (reactive) empathy and cognitive mediators have rarely been tested in this context.

## The Present Research

In two studies in two national contexts, we examined whether valuing diversity is associated with positive and negative intergroup contact, and whether it mediates the effects of intergroup contact on important outcomes. Study 1 provides a comprehensive analysis of various outcomes (cognitive and affective prejudice, as well as policy attitudes and bystander intervention intentions) in a student sample. We then conducted a conceptual replication in a German probability sample (Study 2).

## Study 1

This study tested whether valuing diversity can help explain (i.e. mediate) the association between (positive and negative) intergroup contact and a range of outcomes desirable for better intergroup relations, namely affective and cognitive prejudice, bystander intervention intentions and support for pro-diversity policies. The wide focus is based on the literature review that suggests that the role of specific mediators might depend on both the valence of contact and the outcomes under consideration. Pitting valuing diversity against empathy and anxiety, the two best established mediators from Pettigrew and Tropp (2008), in four models of parallel mediation, enabled us to test whether valuing diversity is a relevant mediator and when its relevance might be particularly pronounced. We hypothesized that:

**H1:** There will be significant indirect paths through empathy, anxiety, and

valuing diversity in each model, consistent with a hypothesis of parallel mediation.

More specifically, we expected that:

**H2:** The paths through valuing diversity will be stronger for the cognitive outcomes (cognitive prejudice and policy support) compared to the models for affective outcomes.

Data and code for Study 1, as well as the full list of questionnaire items, are available at https://osf.io/sbpxj/?view_only=d1d6d70ce50d4d95a415f5fae756d985.

## Method

### *Participants*

Two hundred and seventeen undergraduate psychology students who identified as White participated in this study (89% female). All were either British citizens (95%) or immigrants who intended to stay in the United Kingdom (5%); fourteen White international students who were only in the UK to attend university were excluded from the sample as the measures of cognitive prejudice and policy support were specific to the UK context. The participants' ages ranged from 18 to 45 years (M = 20.6, SD = 4.4).

Participants were recruited in five universities in London and South East England to ensure that the sample covered a range of socio-economic contexts and different levels of ethnic diversity; across these universities, the share of minority-ethnic students among incoming British undergraduates ranged from 16.4% to 52.1%, while the share of Black British students, specifically, ranged from 4.8% to 27.2%, compared to a UK average of 22.7% for minority-ethnic and 7.0% for Black students (data for 2018/19 academic year, retrieved from Higher Education Statistics Agency, 2020). In two universities, the data was collected with paper questionnaires that students filled in during a lecture, while three universities administered it online as part of their research

participation scheme. In four of the five universities, participants could receive partial course credits for their participation.

### *Measures*

**Contact.** To measure positive and negative contact, we used the measure developed by Reimer and colleagues (2017). For negative contact, participants were asked how often they had been "ridiculed", "verbally abused", "made to feel unwanted", "intimidated" or "threatened" by Black British people, from 1 = *Never* to 7 = *Very often*, with Cronbach's α = .91. Likewise, positive contact was measured by asking how often participants had been "complimented", "befriended", "made to feel welcome", "supported" or "helped", from 1 = *Never* to 7 = *Very often*, with α = .90.

**Mediators.** *Valuing diversity* was measured with five items drawn from Adesokan et al. (2011), e.g., "Different ethnic/cultural groups are enriching to British culture" and "It is easier to solve problems in Britain (politics, economy) if there is input from people who are different from each other", α = .87. *Intergroup empathy* was measured with two items taken from Swart et al. (2011), e.g., "If I saw a Black British person being treated unfairly, I think I would feel angry at the way they were being treated", Spearman-Brown reliability = .84. Finally, *intergroup anxiety* was measured in line with Turner et al. (2007) by asking participants to imagine "being put into a university hall of residence where you are living only with African and Caribbean British students" and reporting how they would feel on three semantic differentials, e.g., comfortable-tense, α = .87.

**Potential outcomes.** For *affective prejudice*, participants rated how they generally feel towards Black British people on two five-point adjective scales: cold-warm and positive-negative (first reverse-coded, Spearman-Brown reliability = .95). This is an abbreviated version of the scale from Wright et al. (1997) that is widely used in contact research to measure prejudice (e.g., Bagci et al., 2020). *Cognitive prejudice*

was measured with five statements of belief that covered attitudes (Katz & Hass, 1988) and symbolic racism (Henry & Sears, 2002), e.g., “Discrimination against Blacks is no longer a problem in the UK”, α = .77.

*Support for pro-diversity policies* was measured with a scale that asked for agreement with eight policies, e.g., “Government should use regulation to help minorities get better housing” and “The next person to appear on a new bank note should be from an ethnic minority”, with α = .89, that was partly derived from Saucier and Miller (2003). *Bystander intervention intentions* were measured based on a vignette that described a racist name-calling incident at a party. Participants were then asked how likely they would be to show each of six possible reactions, adapted from Katz et al. (2017), e.g., “Tell the guy that his comment may be understood as offensive and that he might want to be more careful.”, and the mean score was calculated, α = .83.

### *Missing data and analytical approach*

Variables had at most 6.7% missing data. To retain power and avoid the potential for bias associated with listwise deletion, full-information maximum likelihood estimation was used, as this allows for cases with missing responses to be included (Shin et al., 2017). Analyses were conducted using the *lavaan* 0.6-6 package (Rosseel, 2012) in R 4.0.1 (R Core Team, 2020). Bias-corrected confidence intervals for indirect effects and differences between correlation coefficients were bootstrapped with 5,000 resamples (MacKinnon et al., 2004).

## Results

Table 1 shows descriptive statistics and correlations. Apart from the relationship between positive and negative contact, all correlations were significant and pointed in the expected direction, so that the hypothesized mediation models could be tested. It is worth noting that the estimated correlations tended to be larger for positive than negative contact; that difference was largest and marginally significant in the case of

affective prejudice, which was more strongly correlated with positive than negative contact, $\Delta r = .20$, 95% CI [.00, .40].

[TABLE 1 AROUND HERE]

**Tests of mediation**

[FIGURES 1a to 1d AROUND HERE]

[TABLE 2 AROUND HERE]

Figures 1a through 1d show the mediation models associating contact with each of the four putative outcomes, while the direct and indirect effects are summarized in Table 2. Contrary to our expectation that the three mediators would make a significant contribution to each model (Hypothesis 1), not all indirect paths were significant. However, collectively, the three mediators could explain most of the relationships between contact and each outcome (i.e. cognitive and affective prejudice, bystander intentions and policy support). After accounting for the mediators, none of the direct effects were significant and many estimates were close to zero.

With regard to the relative contribution of valuing diversity, the pattern of results matched our predictions (Hypothesis 2). Six of the eight indirect paths through valuing diversity were significant; the indirect effects were particularly strong when it came to the cognitive outcomes, i.e. cognitive prejudice and policy support. Here, the paths through valuing diversity explained at least 71% of the total effect, and a comparison of the confidence intervals shows that these paths were significantly stronger than those through empathy or anxiety. For the affective outcomes, the indirect paths through valuing diversity were significantly weaker than for the cognitive outcomes, for both negative and positive contact, as established through the calculation of bias-corrected bootstrapped confidence intervals for the differences. Full details are reported in Supplementary Material 2.

Regarding the established parallel mediators, empathy also was a significant mediator in six of the eight cases. It was not significant in the model for cognitive prejudice and the estimated indirect effects were smaller for policy support than for the affective outcomes. However, the differences in indirect paths were only significant when comparing the paths from positive contact to affective prejudice with those to cognitive prejudice and policy support. Anxiety, finally, explained a significant share of the effect in only four of the eight cases, namely with regard to the affective outcomes. Here, the indirect paths to the two cognitive outcomes were at least marginally weaker than those to affective prejudice for both positive and negative contact. The estimated indirect paths to bystander intervention intentions fell in between those to affective and cognitive prejudice and did not significantly differ from either.

The pattern of results was similar for positive and negative contact, but all estimates for the indirect effects through positive contact were larger than the corresponding estimates for negative contact, in line with the pattern of correlations already observed.

## Discussion

The results of Study 1 were largely consistent with our expectations and suggest that valuing diversity should be considered alongside empathy and anxiety when it comes to the mediation of the effects of intergroup contact. It appears to be particularly important for cognitive outcomes, i.e. prejudicial beliefs and the support for policies that address inequalities and promote inclusion. Empathy, on the other hand, had more explanatory power with regard to affective prejudice. Anxiety, finally, mediated a larger share of the effects of negative than positive contact, and was particularly relevant for explaining the effect of contact on affective prejudice. These findings expand upon prior research that concluded that cognitive mediators are of lower importance compared to

affective mediators (Pettigrew & Tropp, 2008), and suggest that a consideration of various outcomes of contact might reveal situations when cognitive mediators are particularly influential.

***Cognitive and affective outcomes – distinct patterns of mediation***

The mediation analyses highlighted the importance of considering different dimensions of prejudice. While the association of contact with affective prejudice could be largely explained through empathy and anxiety, with only a small contribution from valuing diversity, valuing diversity became an important mediator once the cognitive dimension of prejudice was considered. A similar pattern held true for the supplementary outcomes: while the relationship of contact with bystander intervention intentions, which we considered to be affective rather than cognitive in nature, was consistently mediated by empathy, valuing diversity became the strongest mediator when the links between contact and the support for inclusive policies was considered. Given that attitude and behavior changes in both domains are needed to bring about a more integrated and equitable society, our results suggest that valuing diversity is a mediator worthy of further study. Conversely, the absence of substantial mediation through anxiety in all four models with cognitive outcomes suggests that the importance of this widely used mediator might be more restricted than often assumed.

***Negative and positive contact – weak asymmetries***

It has been suggested that 'bad is stronger than good', i.e. that negative contact has a stronger effect than positive contact (Barlow et al., 2012), yet the evidence is mixed. In our results, with entirely unrelated measures of positive and negative contact ($r = -.04$), the strength of the relationships between both types of contact, the mediators and the possible outcomes were similar. While most point estimates for negative contact were smaller than those for positive contact, these differences rarely reached statistical significance. Interestingly, the difference was most pronounced for affective prejudice,

where the estimated total effect was twice as large for positive than negative contact, and entirely absent for cognitive prejudice, where the estimates were identical. This adds to the results of Aberson (2015) who found no asymmetry with regard to affective prejudice but a disproportionate impact of negative contact with regard to cognitive prejudice. Both sets of results suggest that comparatively, it becomes particularly important to consider negative contact when one is interested in cognitive aspects of prejudice, even though the effect of negative contact was generally weaker here than in Aberson (2015).

Given this evidence for the mediation of contact effects through valuing diversity in a UK student sample, we aimed to replicate the finding in a larger random population sample in a different national context. Study 2 offers this, and also addresses a potential limitation of Study 1 by including intergroup attitudes as a control mediator in explaining behavioral intentions.

## Study 2

This study uses a random population sample from the German General Social Survey (ALLBUS) 2016 (GESIS, 2017) to test whether the mediation results replicate in a different context and in a larger, representative sample. ALLBUS uses a different measure of valuing diversity, which allowed us to test whether the results are robust to different operationalizations of the construct. In addition, the larger sample allowed us to control for a mediation through attitudes towards foreigners to show that valuing diversity makes a distinct contribution. Specifically, we hypothesized that:

**H3:** Valuing diversity will predict participants' intergroup approach intentions (operationalized by the choice of diverse neighborhoods as potential places to live) and mediate the relationship between both positive and negative contact and that outcome.

**H4:** Valuing diversity will be a significant mediator alongside attitudes towards

foreigners, which will also mediate some of the relationship between contact and approach intentions.

Code and data access instructions for Study 2 are available at https://osf.io/sbpxj/?view_only=d1d6d70ce50d4d95a415f5fae756d985.

## Method

### *Dataset*

This study is based on data from the German General Social Survey (ALLBUS) 2016 (GESIS, 2017). The data was collected through computer-assisted personal interviews during the summer of 2016. ALLBUS employs a random cluster sampling approach of residents of Germany above the age of 18 that covered 162 sample points and a total of 3,490 respondents in 2016, with a purposive oversampling of respondents from East Germany. For all analyses in this paper, design weights were applied in line with the guidance in the variable report.

Only German citizens were asked about their intergroup contact experiences, thus only they were included in the analyses here, which led to the exclusion of 250 participants. Additionally, as a proxy for ethnicity (which is typically not collected in German surveys), only participants who reported that both their parents had been born in Germany (or in formerly German territories in Eastern Europe) were included. If participants reported the place of birth for only one of their parents, only that parent was considered. This led to the exclusion of another 409 participants. Finally, the contact measures we used asked for the frequency of positive and negative contact, which was not requested from participants who reported that they had not had any contact with foreigners, nor could it be meaningfully imputed for them. Therefore, those respondents were excluded, which led to a final 212 cases being dropped. This yielded a (weighted) sample size of 2,618 respondents ($M_{Age}$ = 50.8 years, $SD$ = 17.4 years, 49.3% female,

17.7% from East Germany).

***Measures***

**Intergroup contact.** Contact was measured with two items that asked how often people had made positive/negative experiences with foreigners (recoded to 1 = *never*, 5 = *very often*). In line with Study 1, these items were only weakly correlated, $r = -.27$, $p < .001$, so that they were treated as independent predictors.

**Mediator: Valuing diversity.** Beliefs about the value of diversity for society were measured with two items: "A society with a high degree of cultural diversity is better able to tackle new problems" and "It is better for a country if all people belong to a common culture" (reversed). The Spearman-Brown reliability for the scale consisting of these two items was .59, which is acceptable for a two-item-scale, particularly if it includes reverse-coding (Loewenthal, 2001).

**Control mediator: Attitudes towards foreigners.** In order to ensure that valuing diversity is not just a proxy for attitudes towards foreigners, we added these as a parallel mediator. They were measured with seven items, including "Foreigners are taking jobs away from Germans", "Foreigners help secure pensions" (reversed), and "The many foreign children in the schools prevent a good education for German children", all measured on a seven-point scale (1 = *do not agree at all* to 7 = *agree entirely*). These items formed a consistent scale, with Cronbach's α of .80.

**Dependent variable: Approach intentions.** Participants were shown illustrations of 13 neighbourhoods, each made up of 49 house pictograms, that only differed in the share of white and grey houses. The neighbourhoods contained between 0 and 48 grey houses, increasing in increments of 4 houses (8.16 %-points, cf. Figure 1 in Dirksmeier, 2014). They were informed that light houses represented Germans, while grey houses represented foreigners. Participants were then asked to select all neighbourhoods that they would like to live in. The share of grey ('foreigner') houses in

the least white neighbourhood selected was taken as measuring *approach* intentions, which ranged from 0 to 98%.[1]

**Covariates.** Age, gender and participants' level of education were included as demographic covariates, the latter coded following the ISCED 97 classification, from *1 = basic education* to *6 = tertiary education, second stage*. Due to their established association with diversity beliefs, participants' placement on a political ideology scale (1 = *strongly on the left* to 10 = *strongly on the right*) and their region of origin (West Germany or East Germany)[2] were controlled for.

Finally, the share of foreigners in the current neighbourhood was controlled for. Here, ALLBUS conducted a survey experiment, asking half of the respondents to report the percentage freely while providing four categories to the other half (1 = *(Almost) no foreigners* to 4 = *Mostly foreigners*). To combine these variables, the percentage responses were ranked and split into four categories in line with the proportions reported on the categorical question.

### *Missing data and analytical approach*

7.5% of cases had missing data on at least one of the variables under consideration. Political orientation was missing most frequently, at 3.4%, all other variables were provided by at least 98.2% of participants. Nevertheless, listwise

[1] Neighbourhood *avoidance* was also measured: Participants were presented with the remaining neighbourhoods and asked which of those they would *not* like to live in. *Approach* was the preferred outcome variable as it is less likely to be affected by social desirability, especially given the question ordering. However, in a supplementary analysis to test for robustness, the share of white houses in the least diverse neighbourhood rejected above the most diverse neighbourhood selected was taken to express *avoidance* intentions*;* the findings were substantially the same (see Supplementary Material 3).

[2] East Germany, the former socialist part, has a much more homogenous population than West Germany, with 4.4% of the population holding a foreign citizenship, compared to 12.6% in the West. In line with that, anti-foreigner attitudes and support for right-wing populism is more widespread in the East (Wallrich et al., 2020).

deletion would lead to a substantial loss of power and risk introducing bias. As full-information maximum-likelihood estimation is not supported by the *lavaan* package when survey weights are included, multiple imputation was used to retain all available information. This procedure creates multiple datasets in which missing values are differently imputed based on the observed data, thereby accounting for the uncertainty introduced by missing data (Rubin, 2004). Each dataset is then analyzed separately, before the results are aggregated to obtain the final parameter estimates and significance tests. The imputation was carried out using the *mice* package (Buuren & Groothuis-Oudshoorn, 2010) in R (R Core Team, 2020), which uses a predictive mean modelling approach that is robust to possible non-normality. In line with guidance by White et al. (2011), eight imputations were used.

After multiple imputation, the analyses were performed with the *lavaan.survey* package (Oberski, 2014). Bootstrapping with survey weights is complex (Stapleton, 2008) and not yet implemented in *lavaan.survey*, while Monte-Carlo simulations have been shown to result in reliable confidence intervals for indirect effects in such situations (MacKinnon et al., 2004; Preacher & Selig, 2012). Therefore, tests of indirect effects in this study are based on 20,000 Monte Carlo simulations, using the *semTools* R package (Jorgensen et al., 2019).

**Results**

Descriptive statistics and correlations between the continous variables are shown in Table 3, while the distribution of categorical variables and their association with neighbourhood choice is shown in Table 4. Overall, approach intentions indicated through the choice of diverse neighbourhoods were related to valuing diversity and to the possible covariates with medium to large effect sizes (Cohen, 1988); only the links with negative contact and education were comparatively weak. Respondents in West Germany and those who had at least some foreigners in their current neighbourhood

selected more diverse neighbourhoods. The measures of contact were associated both with neighbourhood choices and valuing diversity, so that the initial conditions for later tests of mediation were fulfilled.

[TABLES 3 & 4 AROUND HERE]

Regarding potential asymmetries between positive and negative contact, it should be noted that the correlations between positive contact and its potential outcomes (approach intentions, valuing diversity and attitudes towards foreigners) were larger than those for negative contact. Given that the confidence intervals in Table 3 do not overlap, these differences between the correlation coefficients were statistically significant.

***Test of the mediation***

We estimated a mediation model to test whether there were indirect paths from the contact measures through valuing diversity to approach intentions, in addition to the established path through attitudes towards foreigners, controlling for demographic covariates and political orientation in both the mediators and outcome variables. The resulting model is shown in Figure 2, while the coefficients for the direct and indirect paths are shown in Table 5. The model indicated that positive and negative contact had significant indirect effects on neighbourhood choice through both mediators, while the direct effect was only significant for positive contact. Overall, positive contact had a much stronger effect on approach intentions than negative contact did, $\Delta total = .12$ [.05, .18], $p < .001$. Likewise, the mediation through valuing diversity was stronger for positive than negative contact $\Delta indirect = .04$ [.03, .05], $p < .001$, because positive contact was more closely associated with valuing diversity than negative contact was.

[FIGURE 2 AROUND HERE]

[TABLE 5 AROUND HERE]

**Discussion**

In line with our hypotheses, valuing diversity was associated with the choice of more diverse neighbourhoods as potential places to live, and helped explain the association of positive and negative contact with these approach intentions. The observed data was consistent with a model in which valuing diversity mediated the relationships of positive contact and negative contact with approach intentions, in parallel with the mediation through attitudes towards foreigners and after controlling for a wide range of covariates. It is worth noting that the estimated indirect effects are small. However, small effects can have large social consequences when they shape many decisions that affect many people (Greenwald et al., 2015), as is arguably the case with decisions regarding everyday segregation. More specifically, with regard to neighbourhood choices, various simulation studies have shown that even relatively small preferences to live in neighbourhoods with many people of a similar ethnic background can lead to high levels of segregation (Schelling, 1971; Zhang, 2004).

The reliability of the results is limited by the use of single-item measures for contact and approach intentions, which is often the case in general social survey datasets. The higher level of measurement error entailed by this might partly explain the small estimated effect sizes. However, the gain in validity from the use of a large-scale representative sample appears to outweigh that constraint. Also, when interpreting items that generically refer to ‘foreigners’, it should be noted that non-White immigrants from culturally different countries tend to be the most salient group in respondents’ minds (Wallrich et al., 2020), which was likely further exacerbated here by the use of dark house pictograms to represent them. Thus, the results should be interpreted as refering to approach towards such immigrants, rather than towards the overall population of immigrants.

Overall, this study offers a conceptual replication of Study 1, using a random

population sample with different measures and including a wide range of control variables. It confirms that valuing diversity can help explain the links between intergroup contact and behavioral intentions that might help bridge intergroup divides.

## General discussion

It is established in the literature that valuing diversity leads to more positive intergroup relations, and that positive intergroup contact has the same effect. However, to date these literatures have rarely been linked. Among the studies that exist, valuing diversity has been presented as a potential precursor to (Tropp & Bianchi, 2006), a correlate (Bahns, 2017) and outcome of positive contact (Asbrock et al., 2012; Harper & Yeung, 2013). Here, we explored this relationship further, testing whether valuing diversity might help explain how the effects of intergroup contact come about. Overall, we find that valuing diversity might be an important mechanism through which beneficial contact effects come about.

Study 1 tested whether valuing diversity could serve as a mediator of a range of contact effects. We considered positive and negative contact as separate predictors and included four possible outcomes, namely affective and cognitive prejudice, bystander intervention intentions and support for policies that enhance intergroup equity. Valuing diversity mediated the associations of intergroup contact with all outcomes bar bystander intervention intentions. For cognitive outcome measures, it was the strongest mediator, indicating that earlier findings that cognitive mediators matter little (Pettigrew & Tropp, 2008) might well be specific to affective outcomes. Empathy proved a significant mediator in all models bar that for cognitive prejudice, while indirect paths through anxiety, finally, were only significant when explaining the effects of contact on affective prejudice and bystander intervention intentions.

Study 2 offered further support for the role of valuing diversity as a mediator of

intergroup contact effects with a representative population sample and a wide range of demographic control variables. Again, we found significant effects of positive and negative contact on valuing diversity and support for the hypothesis that it can explain contact effects. When it comes to approach intentions, operationalized as the choice of diverse neighborhoods to live in, we found that valuing diversity is a significant mediator, this time tested alongside a measure of prejudice to ensure that valuing diversity is not just a proxy for attitudes towards 'diverse' others.

While our results suggest that contact effects partly come about through changes in valuing diversity, they do not establish how that pathway works. One possible explanation is that valuing diversity leads to a greater attentiveness to differences and thereby to greater salience of group memberships. Group salience has been shown to enhance contact effects in moderation studies (Oudenhoven et al., 1996; Voci & Hewstone, 2003; see also Brown & Hewstone, 2005), and might thus explain the mediation of the effects on prejudice. The mediation of the effects on policy support might be explained more directly: when diversity is valued, it appears reasonable to endorse policies that support its expression in society, be that directly or by affording opportunities to 'diverse' others, yet this also needs further testing.

Another mechanism that is likely to be involved in the relationship between intergroup contact and valuing diversity is deprovincialization. Earlier research has suggested that contact leads participants to distance themselves from their ingroup and engage in a more nuanced evaluation of that ingroup (Pettigrew, 1997), which is then in turn assumed to lead to less biased evaluations of outgroups. This effect has been suggested to be mediated by a greater endorsement of multiculturalism (Verkuyten et al., 2010). Conceptually, a mediation through valuing diversity, which is more closely linked to deprovincialization than the endorsement of multiculturalism as a policy is, appears a plausible hypothesis. Given that there is reason to expect a substantial

correlation between valuing diversity and endorsing multiculturalism, it is also compatible with these findings. Thus, valuing diversity might help explain how intergroup contact leads to deprovincialization, and thus in turn to prejudice reduction.

**Limitations and future directions**

Some limitations of the present research should be highlighted. Firstly, we only considered the majority-status group's perspective by focusing on White participants in two majority-White countries. While these groups have the greatest responsibility for improving intergroup relations, other perspectives deserve further study. Similarly, we focused on White participants' contact with Black British people (Study 1) and immigrants (Study 2) to tap into one of the most salient dimensions of difference, and linked this to a broader valuing of diversity. Future work could profitably consider a broader range of contact and more specific dimensions of valuing diversity.

Furthermore, cross-sectional analyses evidently cannot establish causality for the pathways in mediation models. However, testing whether the data is consistent with a hypothesis of mediation is a crucial step in the research process. From there, experimental research that tests the causal direction of each step in the models would be a worthwhile future direction. Thus, experiments that test the impact of contact interventions on valuing diversity are needed, as are experiments that test the impact of diversity interventions (delivered in a way that does not backfire) on the various outcomes considered here. Additionally, multi-wave longitudinal research that includes the mediators would allow for the estimation of indirect effects over time and thus add to our understanding of the relative contributions of various pathways.

Additionally, our conclusions are limited by the fact that we did not consider behaviors but at most behavioral intentions in the mediation studies, mostly because ecologically valid behaviors cannot be measured with paper-and-pencil questionnaires.

While intentions and behaviors are clearly not the same, the link between them has been shown to be nearly twice as strong than the link between attitudes and discriminatory behaviors (Schütz & Six, 1996). Thus, we expect that our findings regarding behavioral intentions would hold regarding behaviors, yet this is also a fruitful direction for future research.

Finally, the question whether and how valuing diversity shapes intergroup contact also deserves further attention. Based on previous research, we focused on its potential role as a mediator. However, given that both virtuous and vicious cycles abound in this area of social psychology (Paolini et al., 2018), valuing diversity is likely also a precursor to contact. The relatively close relationship between approach intentions and valuing diversity in Study 2 ($r$ = .40) replicates earlier findings of cross-sectional associations (Tropp & Bianchi, 2006). Further research into how that shapes contact experiences over time, for instance in the form of longitudinal and experimental work, is needed.

## Conclusion

Positive intergroup relations require that at least majority-status participants place a value on diversity. However, to date this has rarely been linked with social psychology's most potent tool for prejudice reduction: intergroup contact. Across two studies, we show that positive experiences of intergroup contact are associated with increased valuing of diversity while negative contact comes appears to reduce it. This indicates that promoting positive contact might be a promising avenue towards developing an appreciation of diversity that does not run the risk of backfiring. Furthermore, valuing diversity mediates the association of intergroup contact with a range of outcomes that can counter intergroup inequities, particularly when these outcomes are cognitive rather than affective in nature (i.e., cognitive prejudice and

policy support). Overall, our results highlight an additional pathway through which intergroup contact can improve intergroup relations. This provides a direction for future research and offers a specific lever that contact interventions can target to maximize their effect.

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# Tables

## Table 1.

*Descriptive Statistics and Correlations for Study 1*

| Variable | *M (SD)* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1. Pos. contact | 4.26 (1.34) | | | | | | | | |
| 2. Neg. contact | 2.14 (1.19) | -.03 [-0.16, 0.09] | | | | | | | |
| 3. Valuing diversity | 5.48 (1.09) | .44 *** [0.32, 0.54] | -.31 *** [-0.44, -0.16] | | | | | | |
| 4. Empathy | 5.81 (1.16) | .33 *** [0.20, 0.45] | -.20 ** [-0.33, -0.06] | .50 *** [0.37, 0.61] | | | | | |
| 5. Anxiety | 2.44 (0.96) | -.35 *** [-0.48, -0.22] | .31 *** [0.15, 0.45] | -.36 *** [-0.48, -0.24] | -.22 ** [-0.35, -0.10] | | | | |
| 6. Cognitive prejudice | 2.77 (0.99) | -.22 *** [-0.33, -0.09] | .21 ** [0.07, 0.34] | -.56 *** [-0.65, -0.46] | -.35 *** [-0.46, -0.22] | .27 *** [0.14, 0.39] | | | |
| 7. Affective prejudice | 1.76 (0.81) | -.38 *** [-0.51, -0.26] | .20 * [0.05, 0.33] | -.45 *** [-0.58, -0.32] | -.50 *** [-0.61, -0.38] | .46 *** [0.34, 0.56] | .34 *** [0.21, 0.46] | | |
| 8. Bystander intervention | 5.04 (1.20) | .24 *** [0.11, 0.38] | -.17 ** [-0.31, -0.04] | .37 *** [0.23, 0.51] | .37 *** [0.24, 0.49] | -.28 *** [-0.42, -0.14] | -.34 *** [-0.45, -0.22] | -.37 *** [-0.49, -0.25] | |
| 9. Policy support | 5.28 (1.00) | .35 *** [0.23, 0.46] | -.24 *** [-0.36, -0.11] | .70 *** [0.60, 0.77] | .46 *** [0.36, 0.56] | -.34 *** [-0.45, -0.22] | -.59 *** [-0.68, -0.50] | -.46 *** [-0.56, -0.35] | .40 *** [0.28, 0.51] |

*Notes. M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence intervals.

* p < .05, ** p < .01, *** p < .001

**Table 2.**

*Direct and Indirect Paths from Contact to Various Potential Outcomes (Study 1)*

| | | | **Indirect through …** | | | |
|---|---|---|---|---|---|---|
| **To** | **From** | **Direct** | *Empathy* | *Anxiety* | *Val. diversity* | **Total** |
| Affective prejudice | Pos. contact | -.11 †<br>[-0.25, 0.01] | **-.11**<br>[-0.20, -0.06] | **-.11**<br>[-0.18, -0.05] | -.05<br>[-0.13, 0.03] | -.38 ***<br>[-0.52, -0.26] |
| | Neg. contact | -.01<br>[-0.14, 0.13] | **.06**<br>[0.02, 0.13] | **.09**<br>[0.04, 0.18] | .04<br>[-0.01, 0.10] | .18 *<br>[0.04, 0.34] |
| Cognitive prejudice | Pos. contact | .07<br>[-0.06, 0.23] | -.03<br>[-0.09, 0.01] | -.03<br>[-0.09, 0.01] | **-.22**<br>[-0.32, -0.14] | -.21 **<br>[-0.33, -0.08] |
| | Neg. contact | .01<br>[-0.13, 0.18] | .02<br>[-0.01, 0.06] | .03<br>[-0.01, 0.09] | **.15**<br>[0.07, 0.25] | .21 **<br>[0.07, 0.37] |
| Bystander intervention | Pos. contact | .04<br>[-0.10, 0.21] | **.09**<br>[0.05, 0.17] | **.05**<br>[0.01, 0.11] | .08<br>[-0.00, 0.17] | .26 ***<br>[0.13, 0.43] |
| | Neg. contact | -.00<br>[-0.14, 0.15] | **-.05**<br>[-0.11, -0.02] | **-.05**<br>[-0.11, -0.01] | **-.05**<br>[-0.14, -0.00] | -.15 *<br>[-0.29, -0.02] |
| Policy support | Pos. contact | .01<br>[-0.11, 0.13] | **.05**<br>[0. 01, 0.10] | .03<br>[-0.00, 0.09] | **.25**<br>[0.17, 0.35] | .35 ***<br>[0.23, 0.47] |
| | Neg. contact | -.01<br>[-0.13, 0.12] | **-.03**<br>[-0.07, -0.00] | **-.03**<br>[-0.08, -0.00] | **-.17**<br>[-0.29, -0.09] | -.24 ***<br>[-0.38, -0.11] |

*Notes.*

Standardized coefficients estimated with full-information maximum likelihood. 95% confidence intervals for indirect effects based on bias-corrected bootstraps with 5,000 resamples, indirect effects with confidence intervals that do not include 0 are **bolded**.

Val. diversity = valuing diversity.

† $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$.

**Table 3.**

*Descriptive statistics and correlations for Study 2*

| Variable | *M (SD)* | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| 1. Approach intentions | 37.33 (21.64) | | | | | | | |
| 2. Valuing diversity | 2.95 (0.72) | .39 *** [.36, .43] | | | | | | |
| 3. Attitude towards foreigners | 4.36 (1.20) | .53 *** [.50, .55] | .52 *** [.49, .55] | | | | | |
| 4. Political Orientation | 5.89 (1.68) | .29 *** [.25, .33] | .28 *** [.22, .33] | .32 *** [.27, .37] | | | | |
| 5. Age | 50.81 (17.43) | -.35 *** [-.38, -.31] | -.07 *** [-.11, -.03] | -.12 *** [-.16, -.08] | -.04 * [-.08, -.00] | | | |
| 6. Education | 3.82 (1.08) | .17 *** [.13, .21] | .14 *** [.10, .18] | .19 *** [.15, .22] | .09 *** [.05, .13] | .06 ** [.02, .10] | | |
| 7. Positive contact | 3.95 (0.97) | .37 *** [.33, .40] | .34 *** [.30, .37] | .42 *** [.38, .45] | .21 *** [.16, .25] | -.11 *** [-.15, -.07] | .19 *** [.15, .23] | |
| 8. Negative contact | 2.16 (0.99) | -.11 *** [-.15, -.07] | -.17 *** [-.21, -.13] | -.27 *** [-.31, -.24] | -.16 *** [-.20, -.12] | -.18 *** [-.22, -.14] | -.05 * [-.09, -.01] | -.27 *** [-.31, -.23] |

*Notes*: *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation.

† $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$

**Table 4.**

*Descriptive statistics and associations for categorical variables for Study 2*

| | N | Share | *M (SD)* approach intentions |
|---|---|---|---|
| **Gender** | | | |
| female | 1291 | 49.3% | 37.81 (20.78) [a] |
| male | 1328 | 50.7% | 36.86 (22.44) [a] |
| **Region** | | | |
| East Germany | 463 | 17.7% | 30.23 (20.92) [a] |
| West Germany | 2156 | 82.3% | 38.85 (21.50) [b] |
| **Foreigners in neighborhood** | | | |
| (Almost) no foreigners | 815 | 31.1% | 32.97 (20.02) [a] |
| Some foreigners | 1464 | 55.9% | 39.04 (21.64) [b] |
| Many foreigners | 302 | 11.5% | 41.00 (23.49) [b] |
| Mostly foreigners | 38 | 1.5% | 35.44 (26.02) [ab] |

*Note*s: *M* and *SD* are used to represent mean and standard deviation for approach intentions for that group, respectively. Within each variable, the means of groups with different superscripts differ with $p < .05$ ($p$-values were adjusted using the Holm-method.)

**Table 5.**

*Mediation of the effect of intergroup contact on neighborhood choice (Study 2)*

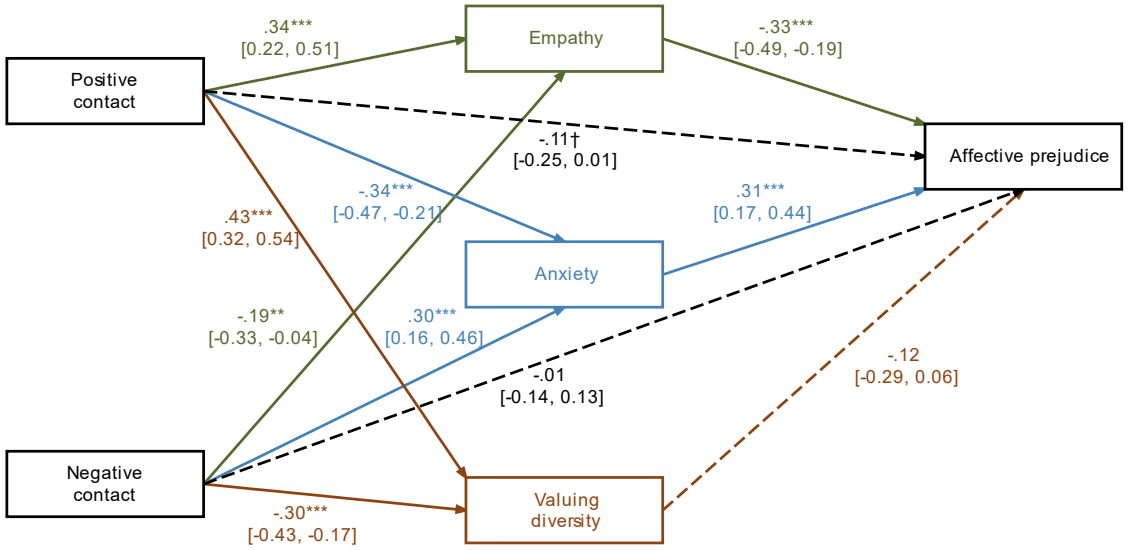
| **Predictor** | **Paths** (standardized coefficients) | | | |
|---|---|---|---|---|
| | Direct | Indirect through | | Total |
| | | *Foreigner attitudes* | *Valuing diversity* | |
| Positive contact | 0.10 *** [0.06, 0.14] | **0.08** [0.07, 0.10] | **0.03** [0.02, 0.04] | 0.21 *** [0.17, 0.25] |
| Negative contact | -0.02 [-0.05, 0.02] | **-0.07** [-0.08, -0.05] | **-0.01** [-0.02, -0.00] | -0.09 *** [-0.13, -0.05] |

*Note*s Values in square brackets indicate the 95% confidence intervals based on 20,000 Monte Carlo simulations. Indirect effects with confidence intervals that do not cross 0 are **bolded**.

† $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$

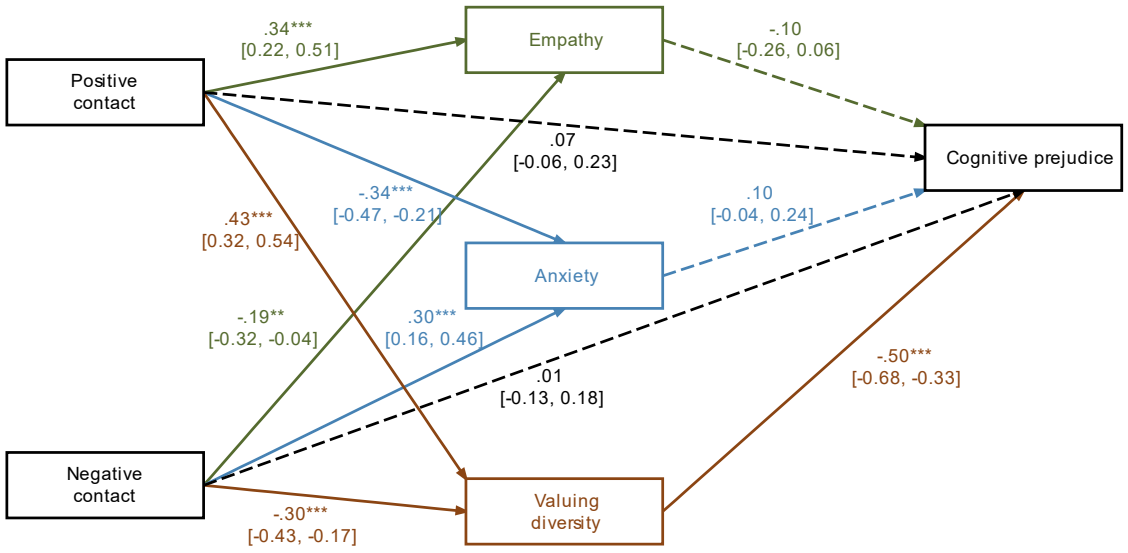
## Figures

**Figure 1a.** *Mediation model for* ***affective prejudice*** *(Study 1)*



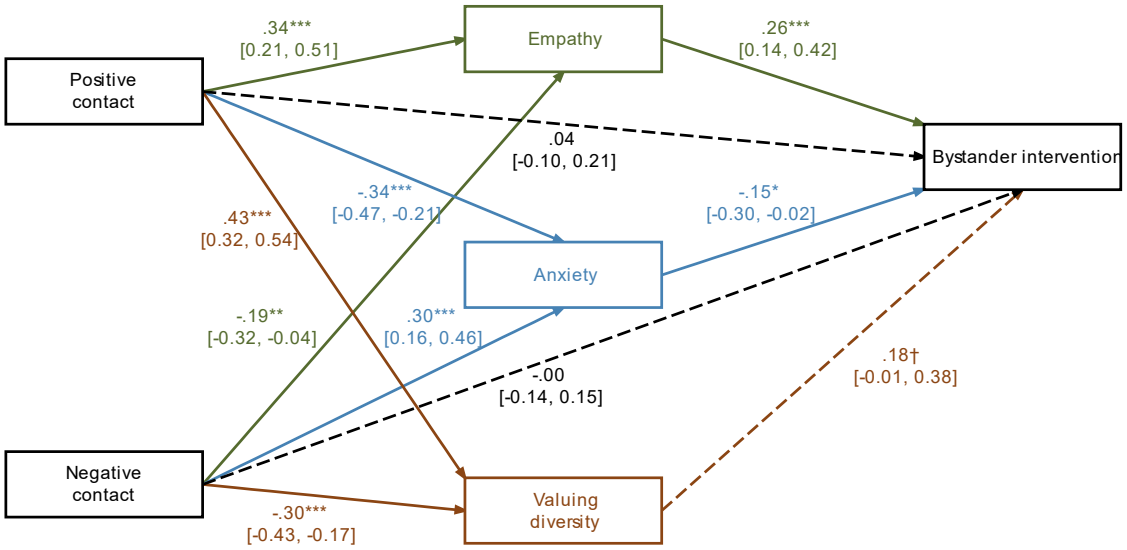

*Note:* Standardized coefficients, estimated with maximum likelihood. Confidence intervals based on 5,000 bootstrap samples. Paths with *p* >.05 are dashed. † p < .1, * p < .05, ** p < .01, *** p < .001

**Figure 1b.** *Mediation model for* ***cognitive prejudice*** *(Study 1)*



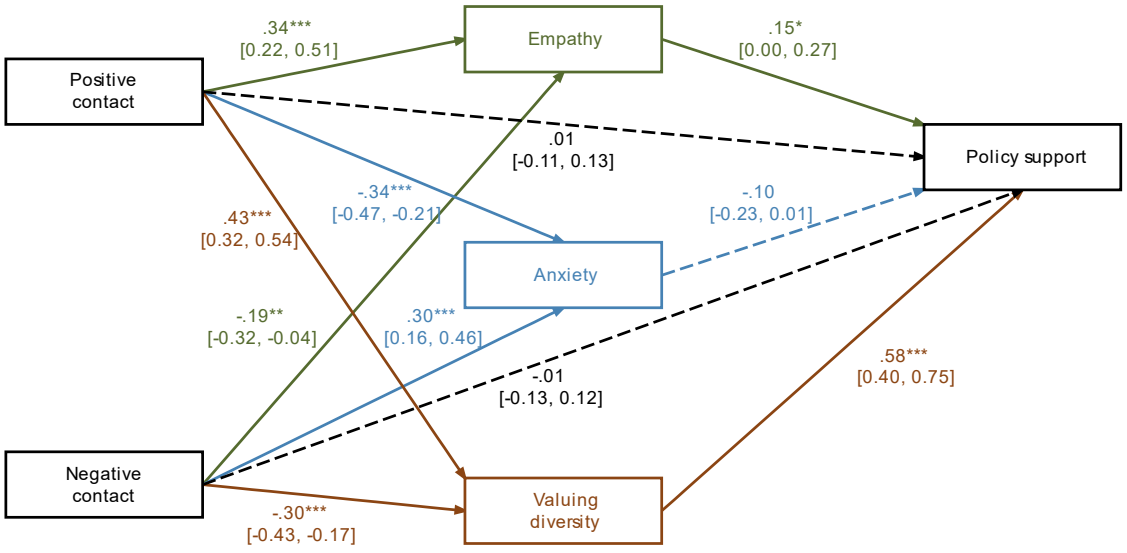

*Note:* Standardized coefficients, estimated with maximum likelihood. Confidence intervals based on 5,000 bootstrap samples. Paths with *p* >.05 are dashed. † p < .1, * p < .05, ** p < .01, *** p < .001

**Figure 1c.** *Mediation model for **bystander intervention** (Study 1)*




*Note:* Standardized coefficients, estimated with maximum likelihood. Confidence intervals based on 5,000 bootstrap samples. Paths with *p* >.05 are dashed. † p < .1, * p < .05, ** p < .01, *** p < .001

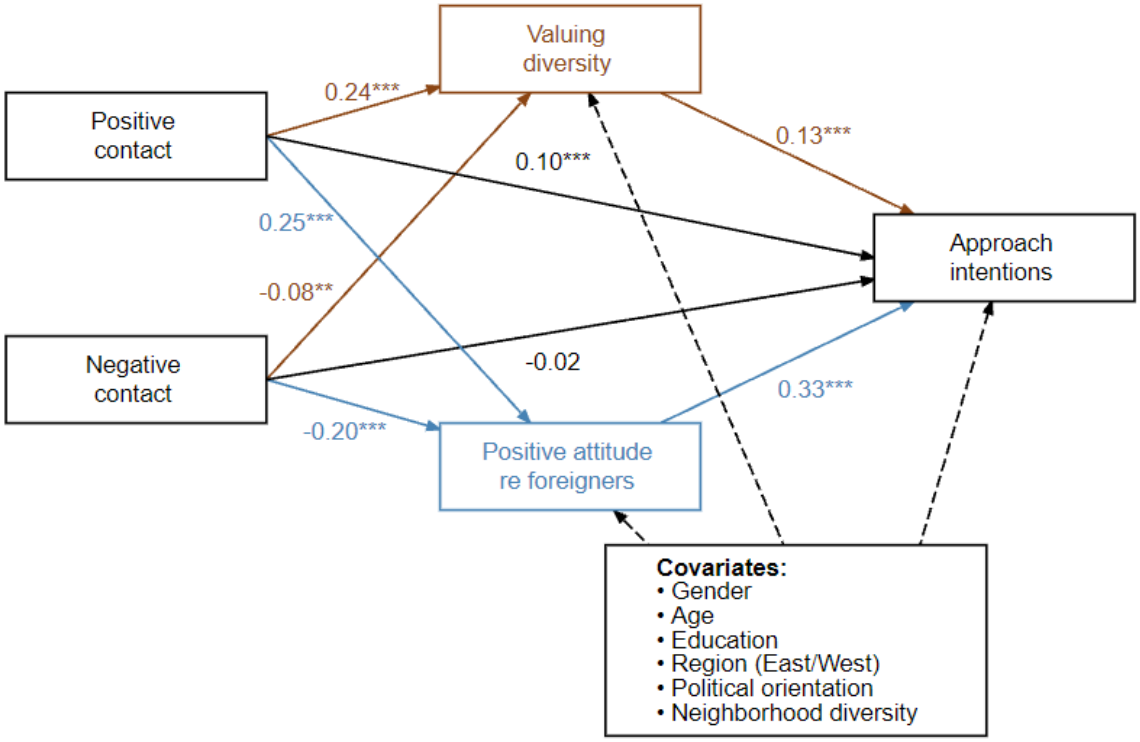
**Figure 1d.** *Mediation model for **policy support** (Study 1)*




*Note:* Standardized coefficients, estimated with maximum likelihood. Confidence intervals based on 5,000 bootstrap samples. Paths with *p* >.05 are dashed. † p < .1, * p < .05, ** p < .01, *** p < .001

**Figure 2.**

*Mediation of the effect of intergroup contact on neighborhood choice (Study 2)*




*Note:* Standardized coefficients, estimated with maximum likelihood on multiply-imputed data.
† p < .1, * p < .05, ** p < .01, *** p < .001