

**The effect of intergroup contact on solidarity-based collective action
is mediated by reductions in SDO**

Abstract

This paper explores the impact of positive and negative intergroup contact on advantaged group members' willingness to engage in collective action on behalf of disadvantaged outgroups, and the meditational role of social dominance orientation (SDO) in this process. SDO captures an individuals' ideological support for inequality. If contact is going to promote collective action to reduce inequality amongst the advantaged group, it must be expected to influence their ideological beliefs about hierarchy. In Study 1 only positive, and not negative contact was found to be associated with Whites' support for the Black Lives Matter movement, mediated by reductions in SDO. In Study 2, both positive and negative contact were associated respectively, with more or less support for collective action to protect the rights of European immigrants during Brexit negotiations. While positive contact was associated with reduced SDO and more support for collective action amongst British nationals, negative contact was associated with increased SDO and lower support for collective action.

Keywords: INTERGROUP CONTACT, COLLECTIVE ACTION, SOCIAL DOMINANCE ORIENTATION, NEGATIVE CONTACT, IDEOLOGY

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Described as one of the most successful ideas in social psychology (Dovidio, Gaertner, & Kawakami, 2003), the contact hypothesis states that bringing groups together under favorable conditions can help to reduce prejudice and improve intergroup relations (Allport, 1954). More than 65 years of supportive research has led to the widely-shared recognition that contact “works” in reducing prejudice, confirmed by multiple meta-analytic integrations (Davies, Tropp, Aron, Pettigrew, & Wrights, 2011; Lemmer & Wagner, 2015; Paluck, Green, & Green, 2018; Pettigrew & Tropp, 2006). This effect is relatively consistent across different participant populations and different bases for group membership including ethnicity, sexuality, religion, age and disability. Put simply, the more contact one has with outgroup members, the more positive one’s attitudes are towards that group.

But critics have urged the field to think beyond attitudes (Dixon, Durrheim, & Tredoux, 2005; Dixon & Levine, 2012; Wright & Lubensky, 2009). Their central premise is that while it is well-established that intergroup contact is associated with more positive intergroup attitudes, contact can exert deleterious effects outside of the attitude domain, failing to change policy positions relevant to redistributing power or social value. Collective action refers to actions by disadvantaged group members aimed at changing the status quo and reducing social inequality (Dixon, Levine, Reicher, & Durrheim, 2012). Research suggests that intergroup contact can have a ‘sedative effect’, reducing disadvantaged group members’ motivation to participate in collective action (Cakal, Hewstone, Schwär, & Heath, 2011). Some of the very benefits of intergroup contact (e.g. feeling positively towards the advantaged group, developing a sense common ingroup identity) can serve to reduce recognition of

discrimination and decrease collective action motivation (e.g. Dixon, Durrheim, & Tredoux, 2007; Dovidio, Gaertner, Ufkes, Saguy, & Pearson, 2016; Saguy, Tausch, Dovidio, & Pratto, 2009; Wright & Lubensky, 2009)

Given that advantaged group members hold the power and privilege in society, they also have an important role to play in creating social change (Louis, 2009; Reicher, Cassidy, Wolpert, Hopkins, & Levine, 2006; Subasić, Reynolds, & Turner, 2008). While contact is generally associated with lower collective action tendencies amongst disadvantaged group members, it is possible that positive contact may encourage advantaged-group members join the disadvantaged group's struggle and engage collective action on their behalf – known as *solidarity-based collective action* (Saab, Tausch, Spears, & Cheung, 2015). Findings support this suggestion (for recent review see Tropp & Barlow, 2018). Whereas Cakal et al. (2011) found that intergroup contact decreased collective action among Black South Africans, it increased support for collective action among White South Africans. Selvanathan, Techakesari, Tropp, and Barlow (2017) found that positive contact with Black Americans increased White Americans' willingness to engage in collective action for racial justice. While Fingerhut (2011) found that contact members of the LGBT communities was associated with greater LGBT activism amongst heterosexuals.

Recent research has emphasized the need to also study the effects of negative intergroup contact. While positive contact reduces prejudice, negative contact can increase prejudice, with some research suggesting the later effect is stronger than the former (Barlow et al., 2012; Graf, Paolini, & Rubin, 2014; Paolini, Harwood, & Rubin, 2010). Reimer and colleagues (2017) recently measured negative as well as positive contact experiences as predictors of collective action amongst both advantaged and disadvantaged group members. Amongst homosexual students, only

negative (and not positive) intergroup contact with heterosexual students promoted involvement in LGBT activism. Amongst heterosexuals, positive and negative contact were associated with, respectively, more or less collective action. While positive contact mobilized the advantaged group to advocate for LGB rights and against LGB discrimination, negative contact had a demobilizing effect reducing collective action participation. Similarly, in research conducted in the aftermath of the earthquakes that struck Northern Italy in 2012, Vezzali and colleagues (2017) found that Italians' experience of negative contact with immigrants was associated with reduced support for social policies aimed at supporting immigrant survivors.

The present research continued to explore the influence of both positive and negative intergroup contact on solidarity-based collective action. We also explored the mechanisms through which intergroup contact predicts advantaged group members' willingness to engage in collective action on behalf of disadvantaged groups. Some previous research has explored the mediating role of affective factors in this process. Contact has been shown to encourage greater empathy for outgroup members (e.g. Pettigrew & Tropp, 2008, Swart, Hewstone, Christ, & Voci, 2011), and that anger is a proximal predictor of efforts towards social change (e.g. Pagano & Huo, 2007; Wakslak, Jost, Tyler, & Chen, 2007). Accordingly, Selvanathan and colleagues (2017) found that positive contact enhanced White Americans' willingness to engage in collective action for racial justice through a sequential pathway of greater empathy for Black Americans, and greater anger about the injustice that Blacks face. Research has also considered the mediating role of identity-processes. Reimer and colleagues (2017) recently found that the effect of positive contact on advantaged group members' collective action intentions was mediated by identification with the LGBT movement. Similarly, Hoskin, Thomas, and McGarthy (2018) found that

contact promoted solidarity-based collective action by increasing supportive, opinion-based social identification amongst advantaged group members.

The present research explores the role of ideological factors in relation to intergroup contact and social change. One specific ideology that is likely to influence one's tendency toward collective action is the degree to which one supports the existence of a status hierarchy within society. Social dominance orientation (SDO) captures measurable differences in individuals' preference for hierarchically structured group relations and inequality among social groups. While individuals low in SDO believe that all people should be treated equally, individuals high in SDO prefer hierarchical social systems where superior groups dominate over groups considered inferior (Pratto, Sidanius, Stallworth, Malle, & Bertram, 1994; Sidanius & Pratto, 1999). SDO has been shown to be a robust predictor of objections towards various redistributive policies, including opposition to humanitarian practices, social welfare, and affirmative action (Federico & Sidanius, 2002; Pratto et al., 1994; Sidanius & Pratto, 1999). This effect is significantly stronger among high-status group members than among low-status group members (e.g. Sidanius, Levin, & Pratto, 1996; Sidanius, Pratto, & Rabinowitz, 1994) making SDO a good candidate for exploring collective action participation amongst advantaged group members.

While SDO was originally considered to be a relatively stable individual difference variable, research suggests that by providing exposure to an egalitarian micro-environment, intergroup contact can successfully attenuate SDO levels. Dhont and colleagues (2014) provided evidence of the impact of intergroup contact on SDO in two studies. In Study 1 the authors followed a group of Belgian high school students as they travelled to Morocco on a 1-week trip where they interacted with Moroccan students in educational and sporting activities. Not only were levels of

prejudice towards the outgroup reduced following the contact intervention, but so were levels of SDO. A second study employed a longitudinal sample of Belgian adults. Self-reported intergroup contact with immigrants at Time 1 predicted lower SDO at Time 2 (whereas SDO at Time 1 did not predict contact at Time 2). Further evidence comes from Van Laar, Levin, Sinclair, and Sidanius (2005) who report the results of a large field experiment where more than 2000 US college students were tracked annually across 5 waves. Results showed that having a roommate that belonged to an ethnic outgroup was associated with improvements in attitudes towards multiple racial outgroups over time, and also with reductions in SDO. Similarly, Shook, Hopkins and Koech (2016) found that students assigned to interracial rooms reported lower levels of SDO at the end of the semester compared to students in same-race rooms (see also Vezzali et al., 2018).

To date, there has been no investigation of the association between negative contact and SDO. The present research seeks to explore the association between both positive and negative contact and SDO, and the role of SDO as mediator of the effect of both types of contact on solidarity-based collective action. Hoskin et al. (2018) recently explored the relation between positive intergroup contact, collective action and SDO. They found that positive contact promoted solidarity-based collective action only for people low in SDO. While Hoskin and colleagues conceptualised SDO as a potential moderator of the effect of intergroup contact on collective action, here we focus on the extent to which intergroup can *change* SDO. It is argued that reducing endorsement of group hierarchies and social inequality will be an important mechanism through which intergroup contact encourages support for collective action. While positive contact is expected to reduce SDO and increase commitment to

collective action, negative contact may bolster SDO and reduce support for social change. In two studies we test this hypothesis.

Study 1

Study 1 aimed to provide initial evidence of an association between intergroup contact solidarity-based collective action through changes in ideological support for inequality (SDO). Black Lives Matter is an international activist movement that campaigns against violence and systemic racism towards Black people, focusing in particular on racial inequality in the criminal justice system, racial profiling and police brutality. While the movement originated in the USA, its online presence has been critical to its impact and growth. In 2016, Black Lives Matters protesters blocked roads leading to London Heathrow Airport. The demonstration was part of a series of nationwide protests marking the fifth anniversary of the police shooting of Black man, Mark Duggan. In many of these protests, Whites have joined Blacks in collective action for racial justice. The present study explored the role of intergroup contact in motivating members of the advantaged group to engage in the plight of the disadvantaged. It was predicted the positive contact with Blacks would be associated with heightened support for the Black Lives Matter movement, and that this effect would be explained by reductions in ideological support for inequality (i.e. reduced SDO). Negative contact was expected to have the opposite effect, bolstering SDO and reducing participation in collective action.

Participants

Collection of responses within both studies reported in this paper were obtained in the format of online questionnaires. In Study 1, the sample included 202 participants recruited from a mixture of an undergraduate university panel and wider

population sampling. This sample size was chosen to provide sufficient power (.80) to detect small-medium effects in a mediation analysis (Fritz & MacKinnon, 2007).

Because of the nature of the research question, only White British participants were eligible to participate. The total sample consisted of 51 male and 150 female participants (1 participant did not report their gender), aged between 17 and 70 ($M = 22.46$, $SD = 7.21$).

Procedure

We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study. Positive and negative contact were measured as two independent dimensions with items adapted from Reimer et al., (2017). To measure positive intergroup contact, participants indicated how often they had had a variety of positive experiences with Black people (from 1 = *never* to 7 = *very often*), specifically: *being supported, helped, complimented, befriended, and made to feel welcome* ($\alpha = .89$). To measure negative intergroup contact, participants indicated how often they had had negative experiences with Black people, including: *being verbally abused, intimidated, threatened with harm, ridiculed, and made to feel unwelcome* ($\alpha = .87$).

Outgroup attitudes were measured in two ways. Participants were asked to indicate how warm (favourable) or cold (unfavourable) they felt towards Black people, in general, on a scale from 0 ° to 100 ° (Esses, Haddock, & Zanna, 1993). For ease of interpretation, scores were recoded so that higher scores indicated more prejudice. We also measured social distance from Blacks with three items adapted from Bogardus (1967). Participants indicated how comfortable they would feel if “a suitably qualified Black person was appointed as your boss”, “a Black person married

one of your close relatives” and “a Black person moved next door to you” (from 1 = *very uncomfortable* to 5 = *very comfortable*). Scores were reverse coded so that higher scores indicated a greater desired distance from Blacks ($\alpha = .87$).

Social dominance orientation was measured with the SDO_{7(S)} scale (Ho et al., 2015). The scale consisted of eight items. Sample items include, ‘Some groups of people are simply inferior to other groups’ and ‘We should do what we can to equalise conditions for different groups’. Participants indicated how much they favoured or opposed each statement from 1 = *strongly oppose* to 7 = *strongly favour*. Half of the items were recoded such that higher scores always indicated a higher social dominance orientation ($\alpha = .84$).

Finally, collective action participation was measured with items adapted from Selvanathan et al. (2017). Participants were provided by information about the Black Lives Matter movement and recent protests organized by the movement. Participants were asked to indicate a) “To what extent do you support or oppose these kinds of protests, to support racial justice for Blacks?” (from 1 = *strongly oppose* to 5 = *strongly support*), b) “How often have you shown your support for these kinds of protests through social media (e.g. Facebook, Twitter etc.)?” (1 = *never*, 2 = *at least once*, 3 = *two or three times*, 4 = *four or five times*, 5 = *more than five times*), and c) “How likely are you to participant in these kinds of protests in the future?” (from 1 = *extremely unlikely* to 5 = *extremely likely*). The three items were averaged to create a composite measure of support for the Black Lives Matter movement ($\alpha = .72$). The order of all scales was counterbalanced across participants.

Results

Correlations amongst the variables as well as their means and standard deviations are presented in Table 1. As predicted positive contact was found to be negatively associated with prejudice, social distance and SDO, and positively associated with collective action. Negative contact, on the other hand, was positively associated with prejudice, social distance and SDO, and negatively associated with collective action. Positive and negative contact were negatively correlated.¹

[insert Table 1 here]

Next, we conducted a series of regressions to allow us to examine the independent effect of negative contact while controlling for positive contact experience. Table 2 displayed the model statistics and coefficients testing the independent predictive power of positive and negative contact on all dependent variables. Together, positive and negative contact accounted for a significant amount of variance in prejudice as measured with the feeling thermometer. Interestingly, when positive contact was included in the model, the effect of negative contact fell below conventional significance ($\beta = .12, p = .095$). Positive contact continued to be a significant, negative predictor of prejudice ($\beta = -.25, p < .001$). Both types of contact also had significant independent effects on social distance. Positive contact was associated with lower desire for social distance from Blacks ($\beta = -.18, p = .006$), while negative contact was associated with increased social distance ($\beta = .31, p < .001$). The model also account for a significant amount of variance in SDO. Positive contact was associated with reduced SDO ($\beta = -.22, p = .001$), while negative contact was associated with increased SDO ($\beta = .19, p = .005$). Finally, while the overall model reached significance, only positive contact was found to be a significant independent predictor of participation in collective action. The more positive contact participants

reported with Black people, the more supportive they were of the Black Lives Matter movement ($\beta = .42, p < .001$). There was no association between negative contact and support for Black Lives Matters ($\beta = -.01, p = .861$).

[insert Table 2 here]

Next, a mediation analysis was performed to examine the hypothesised indirect effect of contact on collective action participation via changes in SDO. This mediation analysis was performed using the package Lavaan (Rosseel, 2012) in R (R Core Team, 2018) using the RStudio *IDE* (RStudio Team, 2015). Both positive and negative intergroup contact were included as exogenous variables and SDO and collective action participation as endogenous variables. The indirect effects of both positive and negative contact on collective via SDO were estimated. The model therefore simultaneously estimated the indirect effects of both positive and negative contact (through the same mediator) in single model, rather than testing two separate models for each independent variable. The analysis was conducted using bootstrapped tests of the indirect path (based on 1,000 bootstrapped resamples). Figure path estimates are provided in Figure 1.

The direct and total effects of positive contact on collective action participation were 0.22, $p < .001$, and 0.28, $p < .001$, respectively. As hypothesized, there was a significant indirect effect of positive contact on collective action through reductions in SDO ($IE = .06, SE = 0.02$) with a 95% confidence interval of .015 to .101. No direct or total effects of negative contact on collective action participation were observed, 0.01, $p = .828$, and -0.06, $p = .328$, although the indirect effect of negative contact on collective action through increased SDO was significant, $IE = -$

0.07, $SE = 0.03$, 95% CI [-0.140, -0.008]. Together, positive contact, negative contact, and SDO explained 42% of the variance of collective action participation ($R^2 = 0.42$).

[Insert Figure 1 here]

As the data is cross-sectional we cannot rule out alternative relations amongst the variables. Four alternative path models were estimated from the data. The first model estimates only direct effects of positive and negative contact and SDO on collective action, and specifies no causal relation between contact and SDO (see Figure 2a). The second model specifies that intergroup contact affects both social dominance orientation and solidarity-based collective action, but that the outcomes are not causally related to each other (see Figure 2b). The third model estimates the reverse effect of SDO on both intergroup contact and solidarity-based collective action (see Figure 2c). Lastly, the fourth model treats SDO as a moderator of the effect of contact on collective action instead of a mediator and estimates direct effects of contact on collective action for people low and high on SDO (see Figure 2d). As these models are all saturated, they cannot be directly compared based on fit-statistics. Therefore, only the path estimates and explained variance of the endogenous variables are described in the next section.

The first alternative model again shows direct effects of positive contact, $b = 0.22$, $p < .001$, and SDO, $b = -0.32$, $p < .001$ on collective action, as the previous analyses have indicated. Moreover, SDO co-varies negatively with positive contact, $cov = -0.36$, $p = .003$, and positively with negative contact, $cov = 0.24$, $p = .011$. The second model again shows that positive contact predicts SDO, $b = -0.18$, $p = .008$, as well as collective action, $b = 0.28$, $p < .001$. Negative contact also significantly predicts SDO, $b = 0.21$, $p = .023$, but not collective action, $b = -0.06$, $p = .318$. However, the proportion of explained variance of collective action is lower ($R^2 =$

0.24), as SDO is not included as a predictor in this model. The third model shows a significant reverse causal relation between SDO and both positive, $b = -0.32, p < .001$, and negative contact, $b = 0.22, p = .008$, however, SDO only explains a small proportion of the variance of these variables (positive contact $R^2 = 0.07$; negative contact $R^2 = 0.06$).

Moderation analyses were performed to examine whether SDO could act as a moderator of the relation between contact and collective action, rather than a mediator. Firstly, a moderated regression analysis was performed with positive contact, negative contact, and SDO as predictors of collective action. Only marginally significant interactions were found between positive contact and SDO, $b = -0.05, SE = 0.03, F(1, 196) = 1.25, p = .054$, and negative contact and SDO, $b = -0.06, SE = 0.03, F(1, 196) = 1.08, p = .073$, in predicting collective action participation. Next, to explore this potential moderation effect, a group-based path model was created to estimate the direct effects of both positive and negative contact on collective action separately for people with low and high SDO scores (based on a median-split factor; $Median = 2, N_{low} = 99, N_{high} = 103$). As Figure 2d shows, the effects of both positive and negative contact on collective action are very similar in direction and magnitude for both these groups, indicating no evidence for a moderation effect.

[Insert Figure 2 here]

Discussion

Study 1 provides the first exploration of the role of ideological factors in the association between intergroup contact and solidarity-based collective action. Social dominance orientation captures an individuals' ideological support for inequality. Previous research has shown that positive contact can encourage more egalitarian

attitudes and reduce SDO (Dhont et al., 2014; Shook et al., 2016; Van Larr et al., 2005). Here, we show that SDO represents an important route through which both positive and negative intergroup contact affect willingness to engage in collective action amongst members of the advantaged group. For White participants, positive contact with Blacks was associated with increased support for the Black Lives Matter Movement, an effect explained by reduced support for group-based hierarchy (SDO). Negative contact meanwhile, as indirectly associated with reduced support for the movement through increased SDO.

Importantly, the data is cross-sectional and thus other potential relationships between contact, SDO, and collective action cannot be ruled out. As the alternative models tested here demonstrate, contact and SDO could be treated as independent predictors of collective action that are not causally-related to each other (Alternative Model 1), or SDO and collective action could both be treated as outcomes of contact, but the outcomes are not causally related to each other (Alternative Model 2). A reverse effect of SDO on intergroup contact and collective action participation is also possible. (Alternative Model 3). Importantly, no evidence was found for SDO as a moderator of the association between intergroup contact and collective action (Alternative Model 4). Instead, data was consistent with the hypothesized model in which intergroup contact explained variance in collective action participant *through* SDO as hypothesized.

Surprisingly, although there was a significant indirect effect of negative intergroup contact on collective action through increases in SDO, negative contact did not have a direct effect on collective action. Interesting, this is consistent with the results of Reimer et al. (2017), Study 2. While the authors found evidence of a significant association between both positive and negative contact and collective

action in one study, the effect of negative contact on collective action did not replicate in a second study. And while Vezzali et al. (2017) report evidence of an association between negative contact and collective action, the authors did not measure and control for positive contact. These findings suggest that the direct effect of negative intergroup contact on solidarity-based collective action may be less consistent than that of positive contact.

Study 2

Study 2 sought to replicate the results of Study 1 in a different intergroup context. In June 2016, the UK Government held a referendum to decide whether Britain should remain within, or leave the European Union (EU). Debate surrounding the referendum focused heavily on immigration, and anti-immigrant attitudes were believed to play an important role in voting decisions (Meleady, Seger, & Vermue, 2017). The majority of the general public (52%) voted in favour of leaving the EU. With a deadline of March, 2019, the UK Government must now negotiate the terms of the exit. This includes establishing the rights of EU citizens to live, study and work in the UK. Study 2 explored how positive and negative intergroup contact with EU immigrants predicted British nationals' willingness to join the fight to protect EU immigrants rights during the Brexit negotiation process, and the role of social dominance attitudes in this process.

Participants

Data was again collected from a mixture of undergraduate, and general population participants. Only British nationals were eligible to participate in study. The full sample consisted of 275 participants, including 49 males and 221 females (5 participants did not indicate their gender) aged between 17 and 66 ($M = 32.51$ $SD =$

13.20). Data was collected between December 2017 and January 2018 during the Brexit negotiation period.

Procedure

Different measures of key constructs were used in pursuit of convergent validity. Participants indicated the frequency of their positive contact with EU immigrants with three items concerning how often they have had pleasant, positive and friendly interactions with EU immigrants on a scale (from 1 = *never* to 7 = *very often*, $\alpha = .89$). Participants indicated the frequency of their negative contact by responding to three items concerning how often they have had unpleasant, negative and hostile interactions with EU immigrants on the same scale ($\alpha = .89$).

Outgroup attitudes were measured with the General Evaluation Scale (Wright, Aron, McLaughlin-Vope, & Ropp, 1997). Participants indicated their feelings towards EU immigrants, in general, on six bipolar scales (1- 7; *warm-cold*, *negative-positive*, *friendly-hostile*, *suspicious-trusting*, *respect-contempt*, *admiration-disgust*). Items were coded so that higher scores corresponded to greater prejudice ($\alpha = .94$). SDO was measured with the 16-item SDO₆ scale (Pratto et al., 1994). Sample items include, “Inferior groups should stay in their place” and “We would have fewer problems if we treated people more equally”. Participants indicated how positively they viewed each item of a scale (from 1 = *very negative* to 7 = *very positive*, $\alpha = .89$). Half of the items were recoded such that higher scores always indicated a higher social dominance orientation ($\alpha = .91$).

To measure collective action participation, participants read a short piece of information about the ongoing negotiations surrounding Britain’s withdrawal from the European Union, and protests that has been organised to protect EU immigrants’

rights within this process. Using items adapted from Study 1, participants were asked to indicate a) “To what extent do you support or oppose these kinds of protests?” (from 1 = *strongly oppose* to 5 = *strongly support*), b) “How often have you shown your support for these kinds of protests through social media (e.g. Facebook, Twitter etc.)?” (1 = *never*, 2 = *at least once*, 3 = *two or three times*, 4 = *four or five times*, 5 = *more than five times*), and c) “How likely are you to participant in these kinds of protests in the future?” (1 = *extremely unlikely* to 5 = *extremely likely*). The three items were averaged to create a composite measure of collective action participation ($\alpha = .78$). The order of all scales was counterbalanced across participants.

Results

Means and standard deviations for all variables and their correlations are reported in Table 3. Again, regression analyses were conducted to examine the independent effects of positive and negative contact on each of the outcome variables. As can be seen in Table 4, together positive and negative contact accounted for a significant amount of variance in prejudice. Both types of contact also had significant independent effects on this variable. As can be seen, the more positive contact participants reported with EU immigrants the lower their prejudice towards this group ($\beta = -.39, p < .001$). The more negative contact they reported, the higher their prejudice towards this group ($\beta = .41, p < .001$). The model also accounted for a significant amount of variance in SDO. Again, positive contact was negatively associated with SDO ($\beta = -.21, p < .001$), while negative contact was positively associated with SDO ($\beta = .27, p < .001$). Finally, the model also significantly predicted collective action participation. More positive contact was associated with increased

collective action ($\beta = .34, p < .001$), and negative contact was associated with lower collective action ($\beta = -.23, p < .001$).

[insert Table 3 here]

[insert Table 4 here]

As in Study 1, a mediation analysis was performed to examine whether changes in SDO mediate the effect of intergroup contact on collective action participation. The model was again estimated in Lavaan (Rosseel, 2012) and included both positive and negative intergroup contact as exogenous variables and SDO and collective action participation as endogenous variables. The indirect effects of both positive and negative contact on collective via SDO were estimated. Figure path estimates are provided in Figure 3. Looking first at positive contact, the total and direct effects of positive contact on collective action participation were $0.22, p < .001$ and $0.18, p < .001$ respectively. As hypothesized, there was a significant indirect effect of positive contact on collective action participation through reductions in SDO ($IE = .04, SE = .01$) with a 95% confidence interval of .018 to .073. The total and direct effects of negative contact on collective action participation were $-0.29, p < .001$ and $-0.20, p < .001$ respectively. Again, there was a significant indirect effect of negative contact on collective action participation through increased SDO ($IE = -0.10, SE = .03$) with a 95% confidence interval of $-.167$ to $-.045$. Together, positive contact, negative contact, and SDO explained 37% of the variance of collective action participation ($R^2 = 0.37$).

[Insert Figure 3 here]

Additionally, the same alternative models were estimated as in Study 1, examining potential other relations between contact, SDO, and collective action that

the cross-sectional data cannot rule out. The first model, estimating direct effects of contact and SDO on collective action, but no effect of contact on SDO, again indicates that both positive, $b = 0.18, p < .001$, and negative contact, $b = -0.20, p < .001$, as well as SDO, $b = -0.36, p < .001$, all predict collective action participation. Moreover, SDO co-varies negatively with positive contact, $cov = -0.37, p < .001$, and positively with negative contact, $cov = 0.28, p < .001$ (See Figure 4a).

The second alternative model indicates that both positive and negative contact have significant direct effects on SDO, $b_{pos} = -0.12, p < .001$ and $b_{neg} = 0.26, p = .001$ respectively. While positive and negative contact again predict collective action, $b_{pos} = 0.22, p < .001$ and $b_{neg} = -0.29, p < .001$, the proportion of explained variance of collective action is lower ($R^2 = 0.26$) when SDO is not included as a predictor in this model (see Figure 4b). The third alternative model shows significant reverse direct effects of SDO on positive contact, $b = -0.40, p < .001$, and negative contact, $b = 0.31, p < .001$, although, again, SDO explains a small proportion of the variance of these two variables (positive contact $R^2 = 0.06$; negative contact $R^2 = 0.09$), see Figure 4c.

Lastly, moderation analyses were again performed to examine whether SDO acts as a moderator to the effect of contact on collective action. A moderated regression analysis did not show significant interactions between positive contact and SDO, $b = -0.01, SE = 0.03, F(1, 271) = 0.19, p = .661$, or negative contact and SDO, $b = 0.02, SE = 0.04, F(1, 271) = 0.29, p = .589$, in predicting collective action participation. Furthermore, a group-based path model estimated the direct effects of both positive and negative contact on collective action for people with low and high SDO scores (based on a median-split factor; $Median = 1.67, N_{low} = 139, N_{high} = 138$). As Figure 4d shows, the effects of both positive and negative contact on collective

action are very similar in direction and magnitude for both these groups, indicating no moderation effect. Moreover, moderated regression analysis

[Insert Figure 4 here]

Discussion

Study 2 provides further evidence for mediational pathway through which intergroup contact engagement in solidarity-based collective action through SDO. SDO goes hand-in-hand with opposition towards social policies that aim to reduce social inequality (e.g. Federico & Sidanius, 2002; Pratto et al., 1994; Sidanius & Pratto, 1999). Here we show that positive intergroup contact encourages collective action on behalf of the disadvantaged group because it encourages less hierarchical and more egalitarian social attitudes (i.e. reduced SDO). Negative contact, meanwhile, was associated with increased ideological support for hierarchy, and in turn, less participation in collective action aimed at reducing group inequality. Results replicate the mediated model observed in Study 1 in a different intergroup context, and using alternative, but conceptually consonant measures of key constructs. Alternative models in which intergroup contact and SDO, or SDO and collective action are not causally related to each other are tested and cannot be ruled out. As in Study 1, no evidence was found for SDO as a moderator instead of a mediator of the contact – collective action relation.

General Discussion

The present research considered the role of intergroup contact in promoting collective action amongst advantaged group members. Previous findings suggest that contact can undermine collective action amongst disadvantaged group members (e.g. Cakal et al., 2011; Dixon et al., 2007; Saguy et al., 2009; Wright & Lubensky, 2009).

Less research has considered the role of contact for advantaged group members in promoting solidarity-based collective-action (i.e. action in support of disadvantaged group members). Two studies conducted in different intergroup contexts found positive intergroup contact was associated with increase collective action engagement amongst advantaged group members. In Study 1, White participants who had more positive contact with Black participants reported less prejudice towards this group, and greater support for the Black Lives Matter movement. In Study 2, British participants who reported more positive contact with EU immigrants were more willing to fight for the rights of these individuals during Britain's withdrawal from the European Union. Findings contradict the notion that contact and collective action inevitable work against each other, but rather that contact can engage advantaged group members in the plight of the disadvantaged.

We also measured participants negative contact experience as a predictor of collective action. There has been little previous examination of negative contact in relation to collective action. The effects of negative contact were less consistent than those of positive contact. When controlling for positive contact, negative contact was only found to have a significant direct effect on collective action in one of the two studies reported here. Specifically, in Study 2, British participants' experience of negative contact with EU immigrants was associated with lower willingness to engage in collective action on their behalf. Negative contact with Blacks was not, however, associated with reduced support for the Black Lives Matter movement in Study 1. It is not clear why this was the case, and whether its relates to the different types of collective action movements under investigation in the two studies with the Black Lives Matter movement perhaps being more detached from the lives of British people than debates surrounding Brexit. Interestingly, these results echo those of Reimer and

colleagues (2017) who also found inconsistent evidence of an association between negative contact and collective action amongst the majority group in the context of LGBT activism. Taken together these findings urge caution in accepting the conclusion that negative contact is necessarily more powerful than positive contact, and add to the growing appreciation of the caveats and nuances of the positive-negative contact asymmetry effect (see Pettigrew & Hewstone, 2017). When it comes to solidarity-based collective action, negative contact, encouragingly, appears to have less robust effects than positive contact.

We further integrate the literature on intergroup contact and collective action by identifying the underlying processes through which intergroup contact promotes collective action. Other studies highlight how contact predicts greater solidarity-based collective action through the pathways of empathy and anger (Selvanathan et al., 2017), and through opinion-based social identification (Hoskin et al., 2018; Reimer et al., 2017). We sought to add to this extant literature by exploring the role of SDO in shaping advantaged group members' intentions to engage in collective action to support the disadvantaged. SDO is defined as the degree to which individuals support and strive to maintain group-based hierarchy in society (Pratto et al., 1994). It was predicted that positive intergroup contact would provide the impetus for collective action by attenuating beliefs surrounding the legitimacy of status hierarchies and group-based disadvantage. Results supported this hypothesis. Positive contact increased commitment to collective action by attenuating ideological support for inequality. Negative contact, on the other hand was associated with lower collective action through increased SDO. To our knowledge, this is the first paper to demonstrate an association between negative intergroup contact and SDO. Exploring the ability of negative contact to increase adherence to anti-egalitarian ideologies, and

the consequences for further outcomes associated with promotion of unequal intergroup relations will be an important avenue for future research.

Limitations and Future Directions

Importantly, drawing evidence of mediation with cross-sectional data rests on theoretical and conceptual assumptions. Existing research has shown that by providing exposure to an egalitarian micro-environment, intergroup contact can successfully attenuate SDO levels (Dhont et al., 2014, van Laar et al., 2005; Shook et al., 2016; Vezzali et al., 2018). Accordingly, we predicted and tested a mediational model in which the effect of intergroup contact on collective participation is mediated through SDO. Consistent evidence of this mediational pattern was observed in both studies. We did, however, also test and present a number of alternative explanations for the observed data. The first model estimates the direct effects of positive and negative contact and SDO on collective action, and specifies no indirect effects (Alternative Model 1). The second model specifies that intergroup contact affects both social dominance orientation and solidarity-based collective action, but that the outcomes are not causally related to each other (Alternative Model 2). While it is possible that SDO separately predicts collective action without acting as a mediator of the relationship between contact and SDO, consistent indirect effects emerge in both studies.

It is also not possible to make conclusions regarding the direction of causality with cross-sectional data, and therefore a third alternative model estimated the reverse effect of SDO on intergroup contact and solidarity-based collective action. Previous research has provided evidence of the impact of intergroup contact on SDO with both longitudinal (Dhont et al., 2014; Shook et al., 2016; Van Larr et al., 2005) and experimental data (Dhont et al., 2014), and we developed our hypothesised model

accordingly. However, an effect of SDO on both positive and negative contact was visible in the alternative model (Alternative Model 3), indicating a potential bi-directional relation between SDO and intergroup contact

A fourth model then considered SDO as a potential moderation of the effect of intergroup contact on collective action, rather than a mediator (Alternative Model 4). SDO has previously been conceptualised as a moderator of contact effects. Indeed, in the only previous examination of SDO in relation to intergroup contact and social change, Hoskins and colleagues (2018) conceptualised SDO as a moderator of the association between intergroup contact and collective action. Interestingly, while contact effects are typically to be stronger for individuals high in SDO (Dhont & van Hiel, 2009, Hodson, 2008, 2011; Kauff, Schmid, Lolliot, Ramiah, & Hewstone, 2016), Hopkins and colleagues (2018) found that the effects of positive contact on collective action emerged only for those low in SDO. Here, we found no evidence of a moderated effect of SDO in either study. Instead, SDO served as a consistent mediator across both studies.

As well as replicating the effects observed here with experimental and longitudinal designs, it will be important for future research to explore the effect of intergroup contact on collective action with more diverse samples, and within more hostile intergroup contexts. We explored participation in two different types of collective action movement in this investigation - one focused on reducing the racial injustices experienced by Black people in the criminal justice system, and one focused on improving the conditions of EU immigrants in Britain. In the latter case, the outgroup is a less homogenous category and effects may depend on how the term 'EU immigrants' is interpreted by participants. Research suggests that British people generally hold more favourable attitudes towards immigration from Western

European countries than Eastern European countries (e.g. Ford, 2011; Blinder, 2011). Support for policies aimed at cultural rights and public assistance has also been shown to depend on whether migration is perceived to be voluntary or involuntary (Verkuyten, Mepham, & Kros, 2017). Future research should consider whether such conditions may moderate the impact of intergroup contact on willingness to engage in solidarity-based collective action, including the extent to which the disadvantaged group is perceived to pose an economic or symbolic threat to one's ingroup (Stephan & Stephan, 2000).

This research focused on the mechanisms by which contact encourages collective action amongst advantaged group members. In theory, SDO may also play a role in contact effects amongst disadvantaged group members. SDO measures the degree to which a person supports group-based hierarchy *in general*, rather than a desire for ingroup domination. For high-status groups, greater levels of SDO are associated with greater support for the ingroup – a support that can manifest itself in hierarchy-enhancing policy preferences. For low-status groups, the argument goes that high levels of SDO manifest themselves as favouritism towards higher-status outgroups which would also be associated with support for hierarchy-enhancing policies (Rabinovich, 1999). However, there is evidence that the relationship between SDO and hierarchy-enhancing policies is significantly *less* positive within low-status groups as compared to high-status groups (known as an 'ideology asymmetry effect', Sidanius, Pratto, & Rabinowitz, 1994; Sidanius, Levin, & Pratto, 1996). This asymmetry may contribute to the reasons why intergroup contact has less promising effects on collective action outcomes for disadvantaged group members.

Recent developments in the field suggest that contact does not have the pacifying or dampening effects on disadvantaged group members when it involves

recognition of inequality. Becker, Wright, Lubensky and Zhou (2013), for instance, examined intergroup contact where the advantaged group member either communicated that group inequality with legitimate, illegitimate, or did not mention their thoughts on group inequality. Collective action intentions and engagement were reduced when the advantaged group member viewed group inequality as legitimate or did not discuss it (vs. control), but this effect was eliminated when the advantaged group member described their group's advantaged position as illegitimate. Similarly, Droogendyk, Louis, and Wright (2016) found that 'supportive contact' in which the advantaged group member communicates opposition to inequality during the encounter heightened collective action compared to other forms of contact. It remains for future research to explore whether intergroup contact that prioritizes differences between groups and explicitly condemns intergroup inequalities, will most effectively tackle underlying ideological views about hierarchy (i.e. SDO) amongst both advantaged and disadvantaged group members.

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Notes

1. The measure of SDO used in Study 1 allows us to distinguish between two sub-dimensions of this construct; support for intergroup dominance or SDO-Dominance (SDO-D), and support for intergroup anti-egalitarianism or SDO-Egalitarianism (SDO-E). Supplementary analysis showed that when analysed as separate variables, both SDO-D and SDO-E served as significant, independent predictors of collective action ($F(2,201) = 43.35, p < .001, \beta = -.191, p < .001, \beta = .40, p < .001$, respectively). The absolute values of SDO-D and SDO-E from the regression analysis along with the correlation between predictors were entered into a t-test that examined the difference between two related coefficients, using the equation $t = (b_1 - b_2) / SE_{(b_1 - b_2)}$. This test revealed that the slopes did not differ significantly from one another, $t(199) = 1.46, p = .015$. In other words, there was no evidence that a dominance motive, or an egalitarian motive was more strongly predictive of collective action engagement.

Table 1

Correlations and descriptive statistics for all variables in Study 1.

	M (SD)	1	2	3	4	5	6
(1) Positive contact	4.92 (1.30)	-					
(2) Negative contact	1.81 (0.97)	-.20**	-				
(3) Prejudice	13.70 (20.42)	-.28**	.17*	-			
(4) Social Distance	1.14 (0.47)	-.25**	.35**	.29**	-		
(5) SDO	2.16 (1.05)	-.26**	.24**	.31**	.47**	-	
(6) Collective action	3.43 (0.76)	.48**	-.17*	-.28*	-.39**	-.54**	-

* $p < .05$, ** $p < .001$,

Table 2

Positive and negative contact as predictors of prejudice, social distance, SDO and collective action (Study 1).

	Prejudice			Social distance			SDO			Collective Action		
	<i>b</i> (SE)	β	<i>sr</i> ²	<i>b</i> (SE)	β	<i>sr</i> ²	<i>b</i> (SE)	β	<i>sr</i> ²	<i>b</i> (SE)	β	<i>sr</i> ²
Baseline model												
Intercept	28.80			1.20			2.67			1.67		
Positive contact	-3.97 (1.09)**	-.25	.07	-.07 (.02)*	-.18	.03	-.18 (.06)*	-.22	.05	.28 (.04)**	.42	.17
Negative contact	2.46 (1.47)	.12	.01	.15 (.03)**	.30	.09	.21 (.08)*	.19	.04	-.01 (.06)	-.01	<.01
<i>F</i>	9.72**			17.89**			11.49**			21.30**		
<i>R</i> ²	.09			.15			.10			.18		

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

Table 3

Correlations and descriptive statistics for all variables in Study 2.

	M (SD)	1	2	3	4	5
(1) Positive contact	4.62 (1.62)	-				
(2) Negative contact	1.78 (0.99)	-.13*	-			
(3) Prejudice	2.35 (1.13)	-.44**	.46**	-		
(4) SDO	1.96 (0.96)	-.24**	.30**	.53**	-	
(5) Collective action	2.83 (1.03)	.38**	-.27**	-.48**	-.43**	-

* $p < .05$, ** $p < .001$

Table 2

Positive and negative contact as predictors of prejudice, SDO, and collective action (Study 2).

	Prejudice			SDO			Collective Action		
	<i>b</i> (SE)	β	<i>sr</i> ²	<i>b</i> (SE)	β	<i>sr</i> ²	<i>b</i> (SE)	β	<i>sr</i> ²
Baseline model									
Intercept	2.77			2.05			2.26		
Positive contact	-.27 (.03)**	-.39	.15	-.12 (.03)**	-.21	.04	.22 (.04)**	.34	.11
Negative contact	.46 (.06)**	.41	.16	.26 (.06)**	.27	.07	-.24 (.06)**	-.23	.05
<i>F</i>		75.69**			20.44**			30.98**	
<i>R</i> ²		.36			.13			.18	

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

Figure Legends

Figure 1. Mediation model of the relationship between positive and negative contact and collective action through SDO (Study 1)

Figure 2. Alternative path models examined in Study 1.

Figure 3. Mediation model of the relationship between positive and negative contact and collective action through SDO (Study 2)

Figure 4. Alternative path models examined in Study 2.