# Secondary Transfer Effect among Children: The Role of Social Dominance Orientation and Outgroup Attitudes

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## Abstract

Research has provided evidence that the effects of intergroup contact on prejudice reduction are not limited to the outgroup one has contact with (primary outgroup). Rather, they extend to secondary outgroups uninvolved in the contact situation (secondary transfer effect; Pettigrew, 2009). We aimed to provide the first empirical evidence for the emergence of the secondary transfer effect among children. Majority (Italian) and minority (with an immigrant background) elementary school children were administered a questionnaire including measures of contact with the primary outgroup (minority children for the majority, majority children for the minority), prejudice toward the primary outgroup and toward a dissimilar secondary outgroup (disabled children), and social dominance orientation. Results revealed that among the majority group, contact with the primary outgroup had indirect associations with reduced prejudice toward the secondary outgroup. Specifically, we found evidence for sequential mediation by social dominance orientation and prejudice toward the primary outgroup. No secondary transfer effects emerged among minority group members. We discuss theoretical and practical implications of the findings, arguing for the importance of identifying the core processes driving the secondary transfer effect.


Keywords: intergroup contact, prejudice, children, secondary transfer effect, social dominance orientation.

To the extent that prejudice emerges early in childhood (Aboud, 1988, 2003; Raabe & Beelmann, 2011), reducing it should represent a priority for scholars and practitioners. Among social psychologists, intergroup contact is widely acknowledged as an effective strategy for improving intergroup relations (Allport, 1954; Dovidio, Love, Schellhaas, & Hewstone, 2017; Hodson & Hewstone, 2013; Pettigrew & Tropp, 2006, 2011). Research has convincingly demonstrated that the effects of contact generalize across situations, and also that they extend from the individual outgroup member to the whole outgroup category (e.g., van Oudenhoven, Groenewoud, & Hewstone, 1996; Voci & Hewstone, 2003). However, Pettigrew (1998) highlighted the importance of achieving a further type of generalization, from the outgroup that individuals had contact with (primary outgroup) to outgroups uninvolved in the contact situation (secondary outgroups), and named this type of generalization 'secondary transfer effect' (Pettigrew, 1997, 2009). This generalization is highly important for the path to prejudice reduction. In fact, if contact effects are limited to the outgroup one has contact with, the power of contact for improving intergroup relations in the society at large is severely limited. However, despite that there is now evidence that the effects of contact generalize to uninvolved outgroups (for a review, see Lolliot et al., 2013), we are not aware of any study examining the secondary transfer effect among children.

The main aim of this study is precisely to test whether secondary transfer effects can also be found when exploring prejudice and prejudice reduction among children. Our analysis was focused in particular on majority (Italian) and minority (with an immigrant background) children. We decided to focus on a specific developmental phase, namely late childhood, since literature indicated it as the phase in which several critical skills relevant for the development of prejudice, such as cognitive, social and

moral abilities, start rearing up.

A further area of interest relates to the underlying processes involved in attitude generalization. Research identified various such mechanisms, for example attitudes toward the primary outgroup (see Lolliot et al., 2013). One recent study identified social dominance orientation (Sidanius & Pratto, 1999) as a new variable mediating the path between intergroup contact and attitudes toward secondary outgroups (Shook, Opkins, & Koech, 2016). Testing this variable in research with children is the second aim of the present study. Specifically, we test whether social dominance orientation, together with attitude generalization, can be at the core of the secondary transfer effect among children.

By testing the occurrence of secondary transfer effect among children as well as the processes driving it, this study may provide significant contribution to the emerging literature on the secondary transfer effect and on the strategies for improving intergroup relations among children.

## Prejudice in children

Various authors theorized a non-linear trend in the development of prejudice: prejudice is expected to emerge early in childhood, around the age of 3-4 years, peak around the age of 7-8 years, decrease until the age of 10-11 years and increase again during adolescence (Aboud, 1988, 1993, 2003; Nesdale, 2001). Raabe and Beelmann (2011) conducted an impressive meta-analysis on the development of prejudice, taking into account 121 cross-sectional studies from around the world and 295 age contrasts. Results generally supported previous theorizing, by revealing evidence for an increase in prejudice between 5 and 7 years, and a decline in late childhood, between 8 and 10 years. Interestingly, decreases in prejudice between middle (5-7 years) and late

childhood (8-10 years) only emerged among majority (White) children, whereas prejudice by minority (Black) children increased between middle and late childhood. Importantly, providing support for the need of implementing contact interventions since childhood, decreases in prejudice were only found when there were contact opportunities.

A relevant factor to explain why prejudice starts declining in late childhood is related to cognitive development (Doyle, Beaudet, & Aboud, 1988). According to cognitive developmental theory (CDT; Aboud, 1988, 1993, 2008), reduction in bias can depend on changes in cognitive abilities that relate to a shift in the focus of attention from the self to the group, and to dominant information processes, which start to rely more on affective and cognitive cues rather than on perceptual information (see also Levy, Lytle, Shin, & Hughes, 2016). Therefore, prejudice in early and middle childhood is due, at least in part, to cognitive limitations, which gradually diminish, while abstract reasoning and inclusive categorization abilities increase (Aboud & Spears Brown, 2013; Doyle & Aboud, 1995). In late childhood, in fact, children's cognitive abilities become more flexible, also allowing them to understand similarities and differences between members of the groups. Relatedly, children in late childhood develop multiple classification skills, that is having sufficient cognitive skills to simultaneously consider multiple classifications, allowing for a more sophisticated understanding of group membership (Aboud, 2003, 2005; Aboud & Amato, 2001). Additionally, between middle and late childhood children develop social perspective taking abilities, which allow them to understand others' state of mind and emotions arising in social relations (theory of social mind; Abrams, Rutland, & Cameron, 2003; Abrams, Rutland, Ferrell, & Pelletier, 2008). These skills allow children to better understand group norms and

favor morality development.

Group norms and morality considerations are in fact important factors to consider in understanding prejudice reduction in late childhood, when children display increased reliance on group norms (Abrams & Rutland, 2008; McGuire, Rutland, & Nesdale, 2015; Nesdale, Maass, Durkin, & Griffiths, 2005; Rutland, Cameron, Milne, & McGeorge, 2005; Rutland & Killen, 2015) or morality (Killen, Hitti, & Mulvey, 2015; Killen, Margie, & Sinno, 2006; Killen & Rizzo, 2014; Killen & Verkuyten, 2017; Rutland & Killen, 2015; Rutland, Killen, & Abrams, 2010). Morality is related to fair treatment of others, justice, respect for others' rights and welfare. Therefore, when interacting with individuals from other groups, children of this age are better equipped to understand their situation and the possible disadvantage they may experience.

As noted by Raabe and Beelmann (2011), prejudice reduction interventions are especially important in late childhood, when children acquire new cognitive skills and prejudice is still malleable (cf. Cameron & Turner, 2017; Killen, Mulvey, Hitti, & Rutland, 2012; Turner & Cameron, 2016). In line with this reasoning, interventions based on intergroup contact were especially effective in diminishing prejudice in this age group (McGlothlin & Killen, 2010; Paluck & Green, 2009; Pettigrew & Tropp, 2006). We aimed to go a step further, by testing not only contact as a factor associated with prejudice reduction in this age group, but also whether the positive effect of contact extends to attitudes toward a secondary, dissimilar outgroup uninvolved in the contact situation, namely disabled people.

## The secondary transfer effect

Although the contact hypothesis has provided impressive evidence for prejudice reduction (Hodson & Hewstone, 2013; Pettigrew & Tropp, 2011), studies investigating

the secondary transfer effect are relatively scarce compared with the larger contact literature. Supporting this contention, in Pettigrew and Tropp's (2006) meta-analysis, only 12 out of 515 studies examined this particular type of generalization. Tausch et al. (2010) provided evidence for the secondary transfer effect by conducting four studies, the last of which was longitudinal, taking into account different intergroup relationships (Greek Cypriots versus Turkish Cypriots in Cyprus, Catholics versus Protestants in Northern Ireland, White and Blacks versus Hispanics in Texas) with a total sample of over 4,000 participants.

There is now consistent correlational (Brylka, Jasinskaja-Lahti, & Mahonen, 2016; Hindriks, Verkuyten, & Coenders, 2014; Schmid, Hewstone, & Tausch, 2013), longitudinal (Eller & Abrams, 2004, Study 1; Mahonen & Jasinskaja-Lathi, 2016; Tausch et al., 2010, Study 4; Van Laar, Levin, Sinclair, & Sidanius, 2005) and experimental evidence (Shook et al., 2016) that contact effects transfer to outgroups uninvolved in the contact situation. In line with the finding that generalization of attitudes from one attitude object to another attitude object is stronger if attitude objects are similar (Fazio, Eiser, & Shook, 2004; Walther, 2002), most research examined and found secondary transfer effects between similar groups, such as between ethnic outgroups (Gaither & Sommers, 2013), or between groups characterized by different types of disabilities (Barr & Bracchitta, 2015).

However, there is also (scarce) evidence that secondary transfer effects occur when dissimilar outgroups are taken into consideration. Schmid, Hewstone, Kupper, Zick, and Wagner (2012) conducted a cross-national correlational study with eight European countries and more than 7,000 participants. Their results showed that contact of host national individuals with immigrants (a measure combining direct and extended

cross-group friendships; Vezzali, Hewstone, Capozza, Giovannini, & Woelfer, 2014; Wright, Aron, McLaughlin-Volpe, & Ropp, 1997) was associated with reduced prejudice toward immigrants and, in turn, more positive attitudes toward Jews and homosexual people.

Vezzali and Giovannini (2012) found in a sample of Italian high-school students that frequent and cooperative contact with immigrants was associated not only with improved attitudes toward immigrants, but also with reduced social distance from homosexual and disabled people. Importantly, two alternative explanations for findings were excluded. First, analyses controlled for contact with secondary outgroups (ruling out self-selection effects, such that those with more contact with the primary outgroup may also have more contact with the secondary outgroup). Second, attitudes toward primary and secondary outgroups were assessed with distinct types of measures (feeling thermometer and social distance scales, respectively), thereby reducing risks of shared method variance.

## Processes underlying the secondary transfer effect

The literature so far has provided evidence for various mediators of the secondary transfer effect (for a review, see Lolliot at al., 2013). The most common mediator identified by research is that of attitudes toward the primary outgroup. In particular, several studies have found that contact improves people's attitude toward the primary outgroup which, in turn, is associated with reduced prejudice toward secondary outgroups (Brylka et al., 2016; Schmid et al., 2012, 2013; Tausch et al., 2010; Vezzali & Giovannini, 2012). Other studies found evidence for intergroup emotions (such as anxiety and perspective-taking, which relate closely to empathy) as mediators of the secondary transfer effect (Turner & Feddes, 2011; Vezzali & Giovannini, 2012). Schmid

et al.'s (2012) findings revealed that social identity complexity (Roccas & Brewer, 2002), referring to complexity of one's multiple ingroup identities and the fact that some of them are shared with outgroup members, qualifies as an additional mediator.

One complementary explanation for the secondary transfer effect is based on the deprovincialization hypothesis, or ingroup reappraisal, namely that contact should allow individuals to establish a less provincial view of the world and of intergroup relations, and this would be the basis for prejudice reduction across groups (Pettigrew, 1997). As stated by Pettigrew (1998), "Optimal intergroup contact provides insight about ingroups as well as outgroups. Ingroup norms and customs turn out not to be the only ways to manage the social world. This new perspective can reshape your view of your ingroup and lead to a less provincial view of outgroups in general" (p. 72). This hypothesis received support when deprovincialization was operationalized as ingroup identification (Pettigrew, 2009), whereas support was more mixed when it was operationalized as ingroup attitude (Tausch et al., 2010; cf. Lolliot et al., 2013).

Recently, Shook et al. (2016) proposed social dominance orientation (SDO) as a further mediator of the secondary transfer effect. SDO can be defined as a general orientation toward the recognition of unequal relationships between groups. It reflects the desire that the society is hierarchical or, in other words, the extent to which individuals accept social inequality (Sidanius & Pratto, 1999). Individuals characterized by high levels of SDO display greater aggression, tough-mindedness, coldness (Ekehammar, Akrami, Gylie, & Zakrisson, 2004) and prefer a high ratio of power differential between groups. There is ample evidence that individuals characterized by higher levels of SDO endorse more prejudicial attitudes toward a wide variety of low-status and stigmatized groups, such as ethnic groups, homosexuals and individuals with

disability (for a review, see Pratto, Sidanius, & Levin, 2006). Therefore, SDO can represent an important barrier to contact between groups at different levels of the status hierarchy. In fact, since it is associated with higher prejudice, and considering that individuals with higher prejudice are less likely to engage in intergroup contact (e.g., Binder et al., 2009), high levels of SDO prevent the development of positive intergroup relations (see Hodson & Dhont, 2015).

Despite being an individual difference variable, Pratto and colleagues (2006) acknowledged that SDO is dependent on several influences in addition to personality, including socialization experiences. Put differently, individuals' daily experiences can increase or reduce their level of SDO. It is therefore possible that positive contact with outgroups at the different levels of the social hierarchy may impact on this variable and reduce the tendency to prefer a hierarchical division between groups. In other words, since SDO is an important predictor of generalized prejudice, its reduction following contact might impact on attitudes toward several groups, and explain why the contact effects generalize to attitudes toward similar *and* dissimilar outgroups.

Strong support for the role of contact in reducing SDO was provided by Dhont, Van Hiel, and Hewstone (2014), who found in one experimental and one longitudinal study that positive intergroup contact reduced majority members' SDO levels, which were in turn associated with lower prejudice. Relevant to the present study, Shook et al. (2016) assigned first-year undergraduate students to live with same-race or different-race roommates. Results revealed that, at the end of the fall semester, participants assigned to interracial rooms displayed more positive attitudes toward several ethnic minority outgroups, and this effect was explained by a reduction in SDO.

## The present research

In the present study, we sought to test whether majority and minority children's positive intergroup contact experiences at school allow generalization of contact effects to attitudes toward a secondary, dissimilar outgroup (disabled children), and to explore the underlying processes (SDO, attitude generalization) of such generalization.

Our hypothesis is consistent with research on prejudice development in children that shows that prejudice in late childhood is malleable (Raabe & Beelmann, 2011). Moreover, the increase in flexibility in cognitive skills, in particular abstract reasoning, multiple classification, theory of social mind and the ability to draw on similarities and differences resulting from group membership (e.g., Aboud, 2005; Aboud & Spears Brown, 2013), should facilitate the reduction in prejudice toward primary and secondary outgroups. However, we anticipate a smaller or null effect among minority children for two main reasons. First, contact effects are generally lower among minority members (Tropp & Pettigrew, 2005), also when considering child samples (e.g, Aboud, Mendelson, & Purdy, 2003). Second, we expect that the majority group perceives the categories of minority (immigrants) and disabled people on the basis of stigmatized identities, thus allowing the secondary transfer effect to occur; in the case of minority children however, the association between the majority high-status outgroup and disabled people may be more difficult to establish.

With respect to underlying processes, we aim to integrate the common explanation of secondary transfer effects via attitude generalization with the explanation provided by SDO reduction, by testing whether reduced SDO due to contact with the primary outgroup predicts improved attitudes toward the primary outgroup, which in turn should be associated with reduced prejudice toward the secondary outgroup. In

order to reduce concerns for shared method variance, in the current study we also used different measures to capture attitudes toward secondary outgroups. In particular, we included a measure of social distance to capture attitudes toward the primary outgroup, and a feeling thermometer to assess attitudes toward the secondary outgroup.

We suggest that using SDO as a mediator is an alternative way to test Pettigrew's (1997, 1998) deprovincialization hypothesis. In fact, reducing SDO, from the perspective of high-status members, can be a way of distancing oneself from the ingroup or at least from its advantages, recognizing the rights of low-status groups. To the extent that contact reduces the desire for group-based dominance and for social inequality, then it should simultaneously reduce prejudice toward groups at the bottom of the social hierarchy, i.e. low-status stigmatized groups.

This prediction is in line with research on prejudice in late childhood. First, from late childhood children's egocentrism starts to reduce, along with the perception that one's ingroup is superior to other groups (Aboud, 1988, 2008). Since SDO is generally higher for high-status group (Pratto et al., 2006), majority's positive contact with the minority may counteract this perception and foster the acquisition of more egalitarian values, and in turn more positive attitudes toward other stigmatized, low-status groups (Pettigrew, 1998). This effect should be facilitated by increased abstract reasoning, inclusive categorization skills, and the cognitive ability to draw similarities between groups (Aboud, 2003; Aboud & Spears Brown, 2013; Doyle & Aboud, 1995). Moreover, group norms, such as the norm against discrimination (Abrams & Rutland, 2008), and especially the development of morality considerations and moral reasoning about fairness (Killen et al., 2015; Killen & Rizzo, 2014; Rutland & Killen, 2015), can concur with contact reducing the importance attached to group superiority (captured by

SDO) and increasing positive attitudes toward stigmatized groups.

These effects on SDO should, however, be smaller or null among the minority group. First, contact effects are smaller or nonsignificant among minorities (Tropp & Pettigrew, 2005). Second, reduction in perceived inequality (i.e., SDO) may be inconsistent with the development of positive attitudes toward the majority, high-status group. Both of these considerations may result in a small or null association between contact and SDO, and therefore in the absence of mediating effects.

## Method

### Participants and Procedure

The data derived from an opportunity sample of a pool of schools located in the Modena province in Northern Italy. We excluded 9 students because of excessive missing data. Thus, the final sample is composed of 224 Italian (107 male, 117 female; $M_{age}$ = 9.55, $SD$ = 0.87) and 75 children with an immigrant background (41 male, 34 female; $M_{age}$ = 9.79, $SD$ = 0.89) attending three primary schools, where the percentage of individuals with immigrant origins varied roughly from 15 to 30%. The distinction between majority and minority children was made on the basis of school indications, taking into account whether children had parents of foreign (i.e. non-Italian) origin. The children whose parents had a foreign origin comprised the minority children sample. Participants were administered a questionnaire during classes. In the case of the majority participants, the primary outgroup target was represented by the minority; vice versa, in the version for minority participants, majority children were the primary outgroup.

Regarding the majority sample size, recruited participants allowed reaching power of at least 0.8 to detect a small effect size, and with the aim to conduct a

mediation analysis, in which bias-corrected bootstrapped estimates were employed for testing indirect effects (Fritz & MacKinnon, 2007). For minority children, the sample size did not allow to reach a power of 0.8 for detecting a small effect size; however, by decreasing power to 0.75, the minority sample size was enough to reach a small effect and to conduct a mediation analysis.

**Measures**

*Contact*. Contact was measured by considering children's cross-group friendships, an especially robust form of intergroup contact (Davies, Tropp, Aron, Pettigrew, & Wright, 2011; Turner, Hewstone, Voci, Paolini, & Christ, 2007). Children were asked to report the name of their three best friends (for a similar measure, see Vezzali, Giovannini, & Capozza, 2012). Based on the names that were provided, with the help of the teachers who were familiar with the children, we determined the majority or minority origin of these friends. Since the measure obtained by summing the three items was highly skewed (144 children reported 0 minority friends, whereas 62, 15 and 3 children reported 1, 2 or 3 minority friends, respectively), a dichotomous index was created corresponding to 0 if only majority friends were indicated and 1 if at least one minority friend was mentioned. For the sake of comparability, the same dichotomous variable was created for minority children (9 students indicated having no majority friends, whereas 15, 25, and 26 children indicated having 1, 2 or 3 majority friends, respectively).[1]

*SDO*. Following preliminary meetings with children's teachers who provided advice on the framing of the items, two items were adapted from the scale developed by Sidanius and Pratto (1999): "All children should be treated in the same way"; "All children should be allowed the opportunity to do similar things" (one item was removed

due to low reliability when combined with the remaining two items after being reversed: "Children coming from some places are superior when compared with other children"). Answers were provided on a 5-step scale (1 = *not at all,* 5 = *very much*). After reverse-scoring the items, they were combined in a single measure of SDO ($r = .55$, $p < .001$, for the majority; $r = .45$, $p < .001$, for the minority).

*Prejudice toward the primary outgroup*. To measure prejudice toward the primary outgroup, three items of social distance adapted from Esses and Dovidio (2002) were employed. In particular, participants were asked how likely it is they would accept an immigrant [Italian] as a neighbor, as a desk buddy, and as a friend. Answers were provided on a 5-step scale, 1 = *not at all* and 5 = *very much*. Before being averaged, items were recoded so that higher scores expressed higher distance toward the primary outgroup and, therefore, more prejudice (alphas = .82 and .60 for the majority and minority respectively).

*Prejudice toward the secondary outgroup*. Participants were asked to indicate how they felt toward disabled children on a scale anchored by 0 (*I don't like them at all*) and 10 (*I like them very much*) (see Converse, Dotson, Hoag, & McGee, 1980). The item was reverse-coded, so that higher scores indicated more prejudice.

## Results

Descriptive statistics and differences between groups are shown in Table 1. As can be seen, about one third of majority children reported that at least one of their friends was from the minority group; most part of minority children declared at least one majority friend ($\chi^2 = 61.48$, $p < .001$). Participants endorsed on average low levels of SDO, which were significantly different from mid-point of the scale, both for majority and for minority children, $t$s > 6.31, $p < .001$. Moreover, no differences

emerged in SDO between the two groups. Regarding prejudice, both majority and minority children endorsed positive evaluations toward the respective primary outgroup and toward the secondary outgroup, as indicated by the fact that means are different from the neutral point of the scale, $t$s > 9.62, $p < .001$. However, minority children displayed more positive attitudes toward majority children than vice versa, $t(297) = 3.41$, $p < .01$. When the secondary outgroup was the target, no differences between the majority and the minority emerged.

Correlations are reported in Table 2. For the majority group, contact was negatively correlated with SDO, and with prejudice toward the primary outgroup. SDO was positively associated with prejudice toward both target groups. Finally, prejudice toward primary and secondary outgroups were positively associated. For the minority group, we found a negative association between contact and prejudice toward the primary outgroup, and a positive (although marginal) correlation between the two prejudice measures.

To test our hypotheses, a structural equation model with latent variables for the majority, and observed variables for the minority was applied (Jöreskog & Sörbom, 2007). In the proposed model, contact represented the exogenous variable, SDO the first level mediator, prejudice toward the primary outgroup the second level mediator, and prejudice toward the secondary outgroup the dependent variable. Gender and age were included as covariates.

For the majority group, concerning latent factors, two indicators were created for SDO (the two items were considered as separated indicators) and for prejudice toward the primary outgroup (in line with the indications by Little, Cunningham, Shahar, & Widaman, 2002). The latent constructs of contact, prejudice toward the minority

outgroup, gender and age loaded each on a single indicator (error variance was fixed to zero). For the majority, the direct associations from contact to the two prejudice measures, and from SDO to prejudice toward the secondary outgroup, were estimated.[2]

The direct paths from contact to the two prejudice measures, and from SDO to prejudice toward the secondary outgroup, were however not included when testing the model for the minority group; in fact, since observed variables were used, including the direct paths would have produced a model with the perfect fit (note that, when including the direct paths and obtaining a perfect fit, relationships between variables do not change).

We also estimated correlations between the three exogenous factors (contact, gender, age). An acceptable fit to the data is represented by a $\chi^2/df$ lower than 3, a CFI greater than .95, a SRMR equal or smaller than .08, and a RMSEA equal or smaller than .06 (Hu & Bentler, 1999). The significance of the indirect effects was tested with bootstrapping procedures, using 5,000 resamples.

*Majority group*

The hypothesized model showed an excellent fit to data, $\chi^2(9) = 11.59$, $p = .24$; $\chi^2/df = 1.29$; RMSEA = .03; CFI = .99; SRMR = .02. As can be seen in Figure 1, contact was associated with lower levels of SDO that, in turn, was positively correlated with prejudice toward the primary outgroup. Moreover, prejudice toward the primary outgroup was positively associated with prejudice toward the secondary outgroup. A negative relation also emerged between contact and prejudice toward the primary outgroup.

Results regarding indirect effects are reported in Table 3. As can be seen, reduced SDO mediated the relationship between contact and reduction of prejudice

toward the primary outgroup. We also estimated the indirect effect from contact to lower prejudice toward the secondary outgroup via reduced prejudice toward the primary outgroup. The indirect effect is significant, thus providing support for previous studies testing outgroup attitudes as the mediating process of the secondary transfer effect. More relevant for the present work, supportive of hypotheses, the mediation path from contact to prejudice toward the secondary outgroup via SDO and prejudice toward the primary outgroup was significant.

*Minority group*

The hypothesized model with observed variables showed a quite poor fit to the data, $\chi^2(2) = 3.93$, $p = .14$; $\chi^2/df = 1.96$; RMSEA = .11; CFI = .91; SRMR = .05, not allowing a clear interpretations of the coefficients. Results showed that only age was negatively associated with SDO ($\beta = -.42$, $p < .001$). No other significant relations between contact, SDO and the two prejudice measures emerged. When the model without covariates was tested, similar results were obtained, namely a poor fit to the data and no significant associations between variables. At an exploratory level, we also conducted bootstrap analyses considering the critical paths emerged with the majority sample. As expected, no significant indirect effects emerged.

Both for the majority and the minority group, we tested the same model without covariates, by excluding age and gender as endogenous variables. For the majority, the model fit is excellent, $\chi^2(5) = 8.51$, $p = .13$; $\chi^2/df = 1.70$; RMSEA = .05; CFI = .99; SRMR = .03. Regarding coefficients, the only difference with the model with covariates included is that the direct residual path from contact to prejudice toward the primary becomes nonsignificant. In addition, bootstrapping procedures confirmed the

significance of the indirect effects. For the minority, the fit of the model is not acceptable, $\chi^2(2) = 4.93$, $p = .08$; $\chi^2/df = 2.47$; RMSEA = .14; CFI = .23; SRMR = .09. At a descriptive level, relationships between variables do not change.

**Additional analyses**

Although findings for the majority group revealed evidence of a secondary transfer effect and were consistent with expectations, based on the idea that changes in SDO can be reflected in attitudes toward a wide range of stigmatized groups (Sidanius & Pratto, 1999), it is also possible that SDO acts as a mediator between contact and attitudes toward both primary and secondary group simultaneously. To test this hypothesis, we tested with the majority group a mediation model in which contact with the primary outgroup was the independent variable, SDO the mediator, and prejudice toward primary and secondary outgroups the dependent variables. In the model, we included direct paths from contact to attitudes toward the two groups, and we allowed correlations between the two dependent variables. The fit of the model was good, $\chi^2(9) = 11.59$, $p = .24$; $\chi^2/df = 1.29$; RMSEA = .03; CFI = .99; SRMR = .02. In the model, contact was negatively related with SDO ($\beta = -.15$, $p < .05$) and with prejudice toward the primary outgroup ($\beta = -.16$, $p < .05$). SDO was associated with increased negative evaluations of both primary ($\beta = .35$, $p < .001$) and secondary outgroups ($\beta = .29$, $p < .01$). Boostrapping analyses confirmed the mediational role of SDO in the relation between contact and prejudice toward both primary (95% CI [-0.2196, -0.0034], point estimate = 0.0771) and secondary outgroup (95% CI [-0.5413, -0.0045], point estimate = -0.1928).

## Discussion

We conducted a study with the aim of testing the occurrence of the secondary

transfer effect among children, and of testing SDO and prejudice toward the primary outgroup as the underlying mediating processes.

First, our results revealed that, in line with research on adult samples (Lolliot et al., 2013), among majority children, contact with the primary outgroup is also associated with improved attitudes toward a secondary outgroup. Note that we used different outgroup measures to assess prejudice toward primary and secondary outgroups, in order to reduce concerns of shared method variance. In addition, our findings showed that the secondary transfer effect occurred between groups that are clearly dissimilar, i.e. minority (children with immigrant background) and disabled people. Although both groups may be socially stigmatized, the type of stigma ascribed to them varies. Goffman (1963) differentiated between three types of stigma, two of which are directly relevant to the present study. The first is tribal stigma, referring to prejudice toward racial, ethnic or religious groups. The second concerns abomination of the body, associated to traits and characteristics denoting some types of disability. The third, which does not directly relate to our study, refers to blemishes of individual character, and in particular to the identification of traits that deviate from accepted social norms. Since attitude generalization is more likely to occur between similar attitude objects (Fazio et al., 2004), this finding represents an especially strong confirmation for the contact theory among children, and supports research conducted with adolescents (Vezzali & Giovannini, 2012) and adults (Schmid et al., 2012).

Moreover, findings from the majority children group support the mechanism of attitude generalization, which has repeatedly been replicated with adult samples (e.g., Schmid et al., 2013; Tausch et al., 2010). In particular, we found that lower prejudice toward the primary outgroup, stemming from reduction in SDO, was associated with

more positive attitudes toward the secondary outgroup.

As anticipated, the secondary transfer effect did not emerge among minority children, an effect probably driven by the nonsignificant association between attitudes toward primary and secondary outgroups, in addition to the weak association between contact and prejudice toward the primary outgroup (cf. Table 2). It is therefore possible that, although secondary transfer effects may emerge for dissimilar outgroups, there should be some unifying characteristics allowing to associate them. In the case of minority children, the majority and the disabled outgroup did not share the characteristic of being stigmatized, and possibly it was this lack of perceived similarities that drove the nonsignificant association.

A further relevant finding is that we found among majority members sequential mediation by SDO and attitudes toward the primary outgroup. Mediation by SDO supports the only existing research, conducted with adults by Shook et al. (2016), and shows that the secondary transfer effect is a function of a reduction in the generalized tendency to prefer unequal status hierarchies. To the extent that individuals desire a more equal society, it becomes understandable that they reduce prejudice toward stigmatized groups in lower positions of the status hierarchy.

Note that, according to our conceptualization of the secondary transfer effect, one might have expected that changes in SDO following contact would be reflected on prejudice toward both outgroups *simultaneously*. In fact, if contact reduces the tendency to desire a hierarchical society, this reduction should be in turn a direct predictor of prejudice toward several marginalized outgroup targets. We tested and found support for this hypothesis in additional analyses reported at the end of the Results section. However, we preferred maintaining the model that tests sequential mediation as our

primary analysis. This is because this model tests our hypothesis, which is not only in line with previous research and theorization but also extends the literature by showing that the secondary transfer effect is a function *both* of a reduction in SDO and of attitude generalization.

As expected, SDO did not mediate the relationship between contact and attitudes toward primary and secondary groups among minority members. For this sample, in fact, there is inconsistency between reduction in desire for power differential between groups (i.e. SDO) and improved attitudes toward groups with higher (majority) or possibly perceived similar status (disabled people).

It is worth noting that even among the majority group we did not obtain a direct effect from contact with the primary outgroup to attitudes toward the secondary outgroup (cf. also the nonsignificant correlation between these two variables in Table 1). This is not in contrast with our hypotheses, since we hypothesized that the secondary transfer effect would occur indirectly, via reduction of the general tendency to desire hierarchical relationships between groups (i.e., SDO) and improvement of attitudes toward the primary outgroup. In fact, it would be unrealistic to expect a *direct* transfer between two dissimilar outgroups such as the ones we considered in this study. However, future research should test other types of secondary transfer effects in children, and examine whether a direct relation between contact with the primary outgroup and attitudes toward the secondary outgroup exists when two similar groups (e.g., two ethnic groups) are considered.

Meeusen, Barlow, and Sibley (2017) examined the differential predictors of generalized and specific components of prejudice. They found that SDO was a strong predictor of generalized prejudice, whereas variables more related to the specific

context, such as intergroup contact, captured target-specific prejudice. In fact, in their study, contact (i.e., cross-group friendships) had a small effect on generalized prejudice. Therefore, prejudice can be changed both by acting on more abstract psychological constructs such as SDO, and on contextual variables such as degree of contact with specific groups. Our findings go a step further, by suggesting that contact with a specific target outgroup, in addition to affecting target-specific prejudice directly (i.e. prejudice toward the primary group), can have an indirect effect, via SDO (that is a more abstract psychological construct), on generalized prejudice.

Our findings contribute significantly to the literature. First, they show for the first time the emergence of the secondary transfer effect among children. Second, this is, to our knowledge, the first study to assess SDO in a child sample. Third, our findings support the recent literature on the role of SDO as a mediator of the secondary transfer effect (Shook et al., 2016), by integrating it with the general process of attitude generalization identified by previous research (Lolliot et al., 2013) and by extending these findings to a child sample.

Although not the main concern of this article, it is interesting that both for the majority and the minority sample a negative correlation emerged between age and SDO. This is consistent with literature on the development of moral cognitions between middle and late childhood (e.g., Killen et al., 2006, 2015; Rutland & Killen, 2015), and suggests that older children are less likely to prefer a world structured in social hierarchies where there are dominant and subordinate groups. However, we suggest caution in interpreting this correlation, due to the limitations of our SDO measure (see below).

It is worth noting that these findings were obtained among children in late

childhood. This is consistent with research on the developmental trajectories of prejudice, related to greater acquisition and flexibility of cognitive skills (Aboud, 2003), development of morality and greater attention to social norms (Rutland & Killen, 2015). However, although contact should positively affect prejudice toward the primary outgroup also in younger samples (Aboud et al., 2012; Tropp & Prenovost, 2008), egocentrism and weaker abilities to consider simultaneously different groups and draw similarities between them (Aboud, 1988, 2008) may impair secondary transfer effects. Future research should compare different age groups and test when the emergence of secondary transfer effects is more likely to occur.

Nonetheless, there are several areas worth of further investigation. First of all, there are several additional mediators, such as emotions toward the primary group and ingroup reappraisal (i.e. deprovincialization), that should be tested among children. In fact, consistent with literature pertaining to adult or adolescent samples, intergroup emotions such as reduction in intergroup anxiety (Vezzali & Giovannini, 2012) and ingroup reappraisal (Schmid et al., 2013, Study 1) can explain why contact effects transfer to more positive attitudes toward secondary groups. Moreover, given the importance and effectiveness of interventions based on indirect contact among children (Turner & Cameron, 2016), it is important to test whether the secondary transfer effect can also stem from indirect contact strategies, such as extended/vicarious contact (i.e., knowing about or watching a positive intergroup interaction; Vezzali et al., 2014) and imagined contact (i.e., imagining a positive intergroup interaction; Crisp & Turner, 2012; Stathi, Crisp, Turner, West, & Birtel, 2012), and whether this is also true among children. Initial steps in this direction are promising (for imagined contact, see De Carvalho-Freitas & Stathi, 2017; Harwood, Paolini, Joyce, Rubin, & Arroyo, 2011;

Visintin, Birtel, & Crisp, 2017; for vicarious contact, see Joyce & Harwood, 2014). However, future research is needed to confirm the secondary transfer effect stemming from indirect contact, together with its underlying processes and boundary conditions. Finally, since there is initial evidence that the secondary transfer effect also applies to negative intergroup contact (Brylka et al., 2016), research should also take into account negative contact experiences and their effects on secondary outgroups.

Our findings have relevant practical implications, and highlight the importance of conducting contact interventions in schools in order to reduce generalized prejudice. In fact, not only can contact interventions help reduce prejudice toward stigmatized group members who are relatively numerous within classes, but it can also help improve attitudes toward less numerous minorities, such as disabled people. This is not to say that interventions for favoring positive relations with the primary outgroup should replace interventions directly addressing relationships with the secondary outgroup. But running such interventions with the primary outgroup can represent a preparatory step for reducing prejudice toward less numerous outgroups, or toward highly stigmatized outgroups with whom initial contact may be especially stressful. This is even more true when considering that we obtained evidence that contact is negatively associated with SDO, implying a more open orientation toward an equal society and, therefore, toward stigmatized groups in general.

We also acknowledge some limitations in the present study. First, the data obtained are correlational. It should be noted that they are consistent with previous longitudinal (Tausch et al., 2010, Study 4) and experimental studies (Shook et al., 2016) providing evidence for the secondary transfer effect and mediation by SDO. However, testing complex causal models relying on cross-sectional data is problematic, also

because several psychological processes related to intergroup contact are better understood in terms of bi-directionality (Abrams & Eller, 2017; Vezzali, Turner, Capozza, & Trifiletti, 2017). We therefore need additional evidence from experimental and longitudinal studies (see Pettigrew & Hewstone, 2017), especially in order to confirm the negative link between contact and SDO, which had never been tested in child samples. Second, the minority group sample was underpowered. In addition, fit indices were poor, therefore the relevant findings should be interpreted with special caution.

Third, our measure of social dominance orientation consisted of only two items, when the classic $SDO_6$ scale is composed by 16 items (Sidanius & Pratto, 1999). The decision to use a short and simplified version of SDO was in accordance with the school teachers, who assisted in selecting and adapting the items most likely to be understood by children. This obviously limits the generalization of our findings and calls for replications with more standardized measures of SDO. Tangentially, we highlight the importance of designing and validating social ideological measures, such as of social dominance orientation or authoritarianism, for children. Fourth, we did not include a measure of contact with the secondary outgroup. However, previous studies using this control (e.g., Tausch et al., 2010; Vezzali & Giovannini, 2012) ruled out the possibility that the secondary transfer effect is merely due to self-selection effect, which provides confidence in our results. Fifth, since there are indications that secondary transfer effects are more difficult to obtain when behavioral variables are taken into account (Mark & Harris, 2012), a priority of researchers should be to examine whether secondary transfer effects also apply to real behavior, and under what conditions this transfer may occur.

In conclusion, positive contact effects are not limited to the outgroup one has contact with but contribute to reducing children's tendencies toward social inequality and generalized prejudice. Theorists and practitioners should capitalize on these findings in order to design effective strategies for improving intergroup relations within educational contexts.

## Footnotes

1. Results for the minority group do not change when contact is included in the model as a continuous instead of a dichotomous variable.

**2.** We also ran the model without considering direct effects. Removing direct paths did not alter the results obtained.

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# Tables

Table 1. Means and standard deviations for majority and minority children.

| Measures | Majority ($N$ = 224) | Minority ($N$ = 75) | $t$(297) | Cohen's $d$ |
|---|---|---|---|---|
| Contact | 35.7% | 86.6% | ------- | ------- |
| SDO | 2.04 (1.22) | 2.15 (1.16) | 0.72 | 0.10 |
| Prejudice toward the primary outgroup | 2.00 (0.89) | 1.68 (0.63) | 3.41** | 0.42 |
| Prejudice toward the secondary outgroup | 2.01 (2.35) | 2.16 (2.56) | 0.46 | 0.06 |

*Note*. Contact = % of participants who had a least one outgroup friend. SDO = Social Dominance Orientation. Standard deviations in parentheses.

*$p$ < .05. **$p$ < .01. ***$p$ < .001.

Table 2. Zero-order correlations between constructs for majority ($N$ = 224) and minority children ($N$ = 75).

| | *1* | *2* | *3* | *4* | *5* | *6* |
|---|---|---|---|---|---|---|
| 1. Contact | - | -.13 | -.23* | -.14 | .14 | .17 |
| 2. SDO | -.20** | - | -.03 | .01 | -.45*** | .13 |
| 3. Prejudice toward the primary outgroup | -.19** | .24*** | - | .20† | -.08 | -.05 |
| 4. Prejudice toward the secondary outgroup | -.02 | .19** | .36*** | - | -.13 | -.17 |
| 5. Age | .22*** | -.38*** | -.01 | .00 | - | -.16 |
| 6. Sex | -.02 | .05 | -.20** | -.15* | -.12 | - |

*Note*: Sex: 1 = male; 2 = female. SDO = Social dominance orientation. Correlations for the majority are displayed below the diagonal; correlations for the minority are above the diagonal.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

Table 3. Indirect effects in the hypothesized model for the majority group ($N = 224$).

| Predictor | First level mediator | Second level mediator | Dependent variable | Mean bootstrap estimate | Percentile confidence interval (95%) |
|---|---|---|---|---|---|
| Contact | SDO | - | Prejudice toward the primary outgroup | -0.0771 | [-0.2196, -0.0034] |
| Contact | Prejudice toward the primary outgroup | - | Prejudice toward the secondary outgroup | -0.2862 | [-0.7577, -0.0363] |
| SDO | Prejudice toward the primary outgroup | - | Prejudice toward the secondary outgroup | 0.2730 | [0.1008, 0.6363] |
| Contact | SDO | Prejudice toward the primary outgroup | Prejudice toward the secondary outgroup | -0.0886 | [-0.2953, -0.0076] |

*Note*: Mean bootstrap estimates are based on 5,000 bootstrap samples.

Figure 1. Structural equation model of the effects of contact on prejudice toward the secondary outgroup via SDO and prejudice toward the primary outgroup (majority group, $N = 224$). Sex: 1 = male; 2 = female. Only significant paths are shown. Significant standardized coefficients and correlations are reported. *$p < .05$. ***$p < .001$.