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# Reducing prejudice in the society at large: A review of the secondary transfer effect and directions for future research

Loris Vezzali<sup>1</sup>  | Gian Antonio Di Bernardo<sup>1</sup> | 

Veronica Margherita Cocco<sup>2</sup>  | Sofia Stathi<sup>3</sup> | 

Dora Capozza<sup>4</sup> 

## 1 | INTRODUCTION

Ample empirical evidence has shown that intergroup contact is an effective strategy for prejudice reduction (Hodson & Hewstone, 2013; Pettigrew & Tropp, 2006). In order to test whether the effects of contact are confined to the specific situation where it occurred and only refer to attitudes toward the immediate target, or instead extend beyond it, scholars have examined different types of attitude generalizations. Research has mostly focused on generalization from the outgroup member(s) one has contact with to the larger outgroup category. There is now consistent evidence supporting this type of generalization (Pettigrew & Tropp, 2006). But there is also a further type of generalization, which, according to Pettigrew (1998), is likely the most difficult to achieve. It refers to the generalization from the outgroup one has contact with to outgroups uninvolved in the contact situation. Pettigrew (2009) referred to this as “secondary transfer effect” (STE). In particular, the STE occurs when contact with an outgroup (“primary outgroup”) impacts on attitudes toward another outgroup that was not involved in the initial contact situation (“secondary outgroup”). For example, individuals may show improved attitudes toward gay people (secondary outgroup) as a function of positive contact with immigrants (primary outgroup). This potential of contact effects to generalize beyond the primary outgroup to secondary outgroups is critical given that people cannot realistically have contact with individuals belonging to all the different groups within a given society. If contact effects do not generalize to uninvolved outgroups, although important for the immediate context, they have limited relevance when considering broader societal concerns.

In this article, we provide a review of the empirical research on the STE. Lolliot et al. (2013) previously reviewed the STE literature, attesting the existence and robustness of the phenomenon, and identifying key mediating processes and moderating variables. We believe that in the 8 years following Lolliot et al.'s review, research on the STE has notably expanded, both quantitatively (e.g., in terms of mediators uncovered) and qualitatively (e.g., allowing to differentiate three distinct categories of mediators and testing new contact forms). We thus argue that it is critical to review the existing literature in light of new developments. We will return to these points in more detail in the Discussion. The present review is also different from Boin et al.'s (2021) contribution. In their review, Boin et al. provide a brief overview of the STE, as well as of the other generalizations stemming from contact, while concentrating on the implications of such contact generalizations for social policy and interventions.

## 2 | THE PRESENT REVIEW

Surprisingly, scholars exploring the STE have not engaged in a more general conceptualization of what prejudice toward secondary outgroups means. To us, and pertinent to this review, such conceptualization aligns with the concept of ethnocentrism, specifically with generalized prejudice (Akrami, Ekehammar, & Bergh, 2011; LeVine & Campbell, 1972; Sumner, 1906). We believe that generalized prejudice and the STE are critically intertwined.

Akrami et al. (2011) differentiated between the common and the specific component of prejudice. While the specific component taps on variance referred to a specific group, the common component refers to variance of prejudice shared by all groups. The common component represents what we refer to as generalized prejudice. As an example, let us consider attitudes toward immigrants, gay people, and people with disability; such attitudes will partly reflect variance specific to each group and not shared with the other two groups (specific component). However, they will also have shared variance that is common among the three groups (common component). Akrami et al. (2011) provided empirical evidence for such a

distinction, further finding that the common component of prejudice is largely a function of personality (see also, Bergh, Akrami, Sidanius, & Sibley, 2016; Levin et al., 2016; Meeusen, Barlow, & Sibley, 2017).

A further concept related to the potential for generalization of contact effects has been proposed by Hodson, Crisp, Meleady, and Earle (2018), according to whom intergroup contact is an agent of cognitive liberalization. The effects of contact may in fact extend beyond improving outgroup attitudes; contact can provide a new lens to interpret and handle reality; it can challenge one's worldview and favor cognitive growth, empowering individuals also by fostering greater cognitive flexibility and problem-solving skills. This type of generalization has been labelled "tertiary transfer effect" (Meleady, Crisp, Hodson, & Earle, 2019; see also; Boin et al., 2021).

The main aim of our review is to examine current research on the STE, by providing tools to further understand the potential of contact for generalization beyond the initial premises of the STE (i.e., attitude generalization), highlighting the links with generalized prejudice and cognitive liberalization. After providing evidence for the STE, we will discuss methodological issues associated with it. Moving to the main focus of this review, we will consider the underlying mechanisms of the STE, by differentiating them into three categories of mediators, involving the outgroup, the ingroup, and the self, before presenting moderators of the STE. To the extent that contact can change how the person conceptualizes the ingroup, which is inextricably associated with intergroup distinctions, or the very nature of the self in terms of ideological orientations or personality, contact may have an impact that goes beyond specific outgroups. Therefore, a distinction of the processes underlying different types of generalization, as presented here, is meant to stimulate future research; see section "Future research").

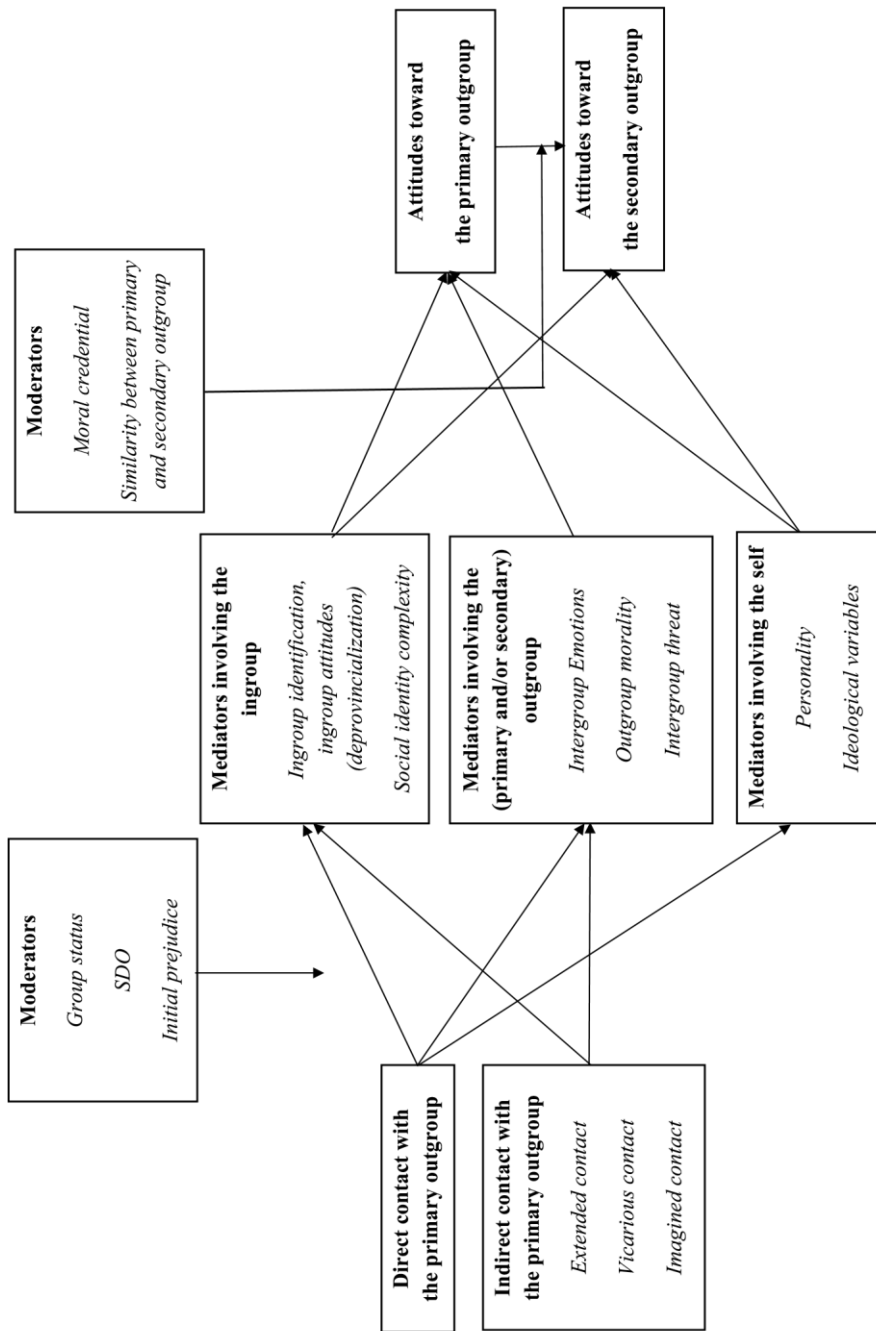
Although research has mainly considered the STE of direct contact, there is some evidence that the STE can occur via indirect forms of contact. We will review this literature, before outlining emerging research on the STE of negative contact. We will finally conclude by presenting directions for future research. In so doing, we will present a theoretical model of the STE. The reviewed studies are presented in Table 1 (experimental studies), Table 2 (longitudinal studies), and Table 3 (correlational studies). In the tables, we have provided information that may help the reader navigate the STE literature. First, we included information on participants and where the studies were conducted. Second, we specified the primary and secondary outgroups under consideration (which helps, for instance, understand whether the STE concerned stigmatized groups, or whether transfer between similar and/or dissimilar outgroup was tested). Third, we included the type of contact considered in the studies (direct contact, or some forms of indirect contact), while specifying whether it was positive or negative. Fourth, we added two columns in the tables noting the mediators and moderators tested in each study (by also categorizing mediators in terms of the distinction we suggest in this review, see section on "Mediators of the secondary transfer effect"). This way, there are clear indications regarding where existing research has concentrated on and where future research may be directed. An additional column indicates the dependent variable(s), showing the heterogeneity of the tests that have often gone beyond the mere examination of outgroup attitudes. Finally, we included two columns with the methodological controls that researchers have used, which is important when interpreting findings (see section on "Methodological issues").

The theoretical model is presented in Figure 1. In the model, we differentiate between direct and indirect contact (without differentiating between indirect contact forms, as research on them is still at an early stage; see section on "Indirect intergroup contact"). Mediators are included in the figure according to the distinction we propose (see section on "Mediators of the secondary transfer effect"). We also include moderators, indicating the paths they are expected to moderate (from independent variables to mediators or from mediators to dependent variables). Note that although the model is largely based on existing research, it also includes our suggestions where research is missing (e.g., the mediators that should be affected by indirect contact or some mediators that still remain to be tested, for instance personality).

### 3 | INTERGROUP CONTACT AND THE SECONDARY TRANSFER EFFECT

According to the contact hypothesis (Allport, 1954), positive interactions between members of different groups can reduce prejudice when contact is characterized by optimal conditions, that is, equal status, cooperation for common goals, and

institutional support (Allport, 1954). Decades of research revealed the effectiveness of contact for the improvement of intergroup relations, even in the absence of the optimal contact conditions (Pettigrew & Tropp, 2006). Also, in contrast to Allport's (1954) initial concerns, intergroup contact was shown to be effective (and in some cases, its effects are even stronger) among individuals more intolerant of the outgroup (Turner, Hodson, & Dhont, 2020). Research has also demonstrated that the effects of contact generalize from known outgroup members to the outgroup as a whole, especially when group membership is salient during contact (Brown & Hewstone, 2005). However, this generalization effect is more likely to emerge among admired outgroups, while negative experiences (e.g., negative contact) may have a generalization advantage in the case of stigmatized outgroups (Paolini & McIntyre, 2019).



**FIGURE 1** Illustrative model of the boundary conditions and processes explaining the secondary transfer effect. SDO, social dominance orientation

Evidence for the occurrence of the STE started accumulating in the 1970s. Weigert (1976) conducted a correlational study with Black soldiers and found that positive contact with White soldiers stationed in West Germany was associated with more positive attitudes toward West German civilians. Clement, Gardner, and Smythe (1977) found evidence in a further correlational study that contact with French Canadians was associated with Canadian Anglophones' attitudes toward French people in general. Further evidence was provided approximately two decades later by Pettigrew (1997), who surveyed cross-sectionally approximately 3,806 participants from seven national probability samples in France, the United Kingdom, West Germany, and the Netherlands. The results showed an association between cross-group friendships with immigrants and

attitudes toward several minority groups, including groups that represented a small minority in the country (for further evidence in the 1990s, see Wilson, 1996).

Pettigrew and Tropp (2006) were able to locate 18 tests of the STE in 12 studies. Their results revealed that the STE was indeed a “real” phenomenon, with contact effects typically generalizing to groups uninvolved in the contact situation. Eller and Abrams (2004, Study 1) provided the first longitudinal evidence for the STE, although with a sample of only 34 participants. In this study, friendships with French people was associated with British university students' positive attitudes toward Algerians (a group linguistically similar to the French) 6 months later (for longitudinal evidence with a larger sample, see Van Laar, Levin, Sinclair, & Sidanius, 2005). Robust evidence for the STE was provided by Tausch et al. (2010). The authors conducted a series of four studies (three correlational and one longitudinal), by considering over 4,000 participants in three contexts (Cyprus, Northern Ireland, and the United States) and a range of intergroup relationships, all consistently showing generalization to secondary outgroups. Further strong support for the STE was provided in a cross-sectional study by Schmid, Hewstone, Küpper, Zick, and Wagner (2012). By relying on a larger European survey, the authors examined a sample of over 7,000 participants from eight European countries and, considering immigrants as the primary outgroup, they found generalization of attitudes to Jews and homosexuals as the secondary outgroups.

Recent years have witnessed an increase in studies examining and providing support for the STE, by considering both adult (Schmid, Hewstone, & Tausch, 2013; Schulz & Taylor, 2018) as well as child (Berger, Benatov, AbuRaiya, & Tadmor, 2016; Vezzali, Turner, Capozza, & Trifiletti, 2018) and adolescent samples (Vezzali & Giovannini, 2012; Zvezelj, Milosevic-Dordevic, Van Niekerk, & Pavlovic, 2020). Although most of the studies focused on generalization between ethnic groups, there also is evidence of the STE toward religious groups (Tausch et al., 2010) and individuals with disability (Barr & Bracchitta, 2015).

In this review, we were able to locate 43 studies of the STE (see Tables 1–3), showing evidence for its existence. Research has been mainly conducted in Europe (26 studies) and North America (10 studies), whereas research in Asia and South America (three studies in each) and in Oceania (one study) has been scarce. We were not able to locate any study conducted in Africa.

Evidence that contact effects generalize to secondary outgroups has been obtained mainly with correlational (Brylka, Jasinskaja-Lahti, & Mähönen, 2016; Hindriks et al., 2014; Pettigrew, 2009; Vezzali et al., 2019, 24 studies, see Table 3), but also with longitudinal (Bowman & Griffin, 2012; Mähönen & Jasinskaja-Lahti, 2016; Tausch et al., 2010, Study 4; Turner & Feddes, 2011; Van Laar et al., 2005, seven studies, see Table 2), and experimental methodologies (Harwood et al., 2011; Jasinskaja-Lahti et al., 2020; Li et al., 2016; Shook et al., 2016; but see Mark & Harris, 2012, 13 studies see Tables 1; note that the study by Van Laar et al., [2005] has been included both as an experimental and a longitudinal study, see Tables 1 and 2).

## 4 | METHODOLOGICAL ISSUES

There are at least three methodological issues that can challenge the confidence in the results that support the STE. First, mirroring the more general contact research that is largely correlational, it is important to address the issue of causality. Specifically, the question that arises is, is it the intergroup contact that leads to reduced prejudice toward secondary outgroups or is it that individuals who are less prejudiced toward a wide range of groups seek out more

TABLE 1 Experimental studies evaluating the STE

Participants	Outgroups	Country	Type of contact	Tested mediator(s)	Tested moderator(s)	Dependent variable(s) about the secondary outgroup	C1	C2
Andrews et al. (2018)	157 university students in New Zealand descent 101 European, 25 Asian, 9 Maori, 8 Indian, 5 Pasifika, 2 Middle Eastern, and 7 other)	Primary outgroup: Russians Secondary outgroups: Arabs, Americans, and Chinese people	New Zealand	Positive and negative vicarious contact	/	Attitudes		No /
322 third and fourth grade Israeli-Jewish and Israeli-Palestinian school children	Primary outgroup: Israeli-Jewish for Israeli-Palestinian children and Israeli-Palestinian for Israeli-Jewish children Secondary outgroup: Ethiopian children	Israel	Direct contact	/	/	Assessed both immediately after the intervention and 15 months later) Stereotypes Negative feelings Discriminatory tendencies toward the secondary outgroup Contact intentions	No	/
Clement et al. (1977)	379 Canadian Anglophone eighth grade students	Primary outgroup: French Canadians Secondary outgroups: European French people	Canada	Direct contact	//	Attitudes Ethnocentrism toward outgroups in general) Behavioral intentions		No /

## Study

Berger et al. (2016)  
post-test attitudes  
(measures  
immediately after  
the intervention and  
15 months later)

TABLE 1 Continued

Study	Participants	Outgroups	Country	Type of contact	Tested mediator(s)	Tested moderator(s)	Dependent variable(s) about the secondary outgroup	C1	C2
De Carvalho-Freitas and Stathi (2017) Study 1	300 university students	Primary outgroup: Individuals with a specific disability (deaf, blind, physical, depending on condition) Secondary outgroups: People with disability as a whole	Brazil	Imagined contact	Belief in performance level of the secondary outgroup (2)	/	Expected work-related outcomes	Yes	/
De Carvalho-Freitas and Stathi (2017) Study 2	138 adult workers	Primary outgroup: Individuals with a specific disability (deaf, blind, physical, depending on condition) Secondary outgroups: People with disability as a whole	Brazil	Imagined contact	Belief in performance level of the secondary outgroup (2)	/	Support for workplace rights	Yes	/
Harwood et al. (2011)	158 American university students	Primary outgroup: Illegal immigrants Secondary outgroups: 20 different outgroups	United States	Positive and negative imagined contact	Attitudes toward the primary outgroup (2)	Similarity between primary and secondary outgroup	Attitudes	No	No

Continues

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TABLE 1 Continued

Participants	Outgroups	Country	Type of contact	Tested mediator (s)	Tested moderator(s)	Dependent variable(s) about the secondary outgroup	C1	C2
Jasinskaja-Lahti et al. (2020)	299 Finnish adults	Finland	Primary outgroup: Immigrants with African or Russian origins counterbalanced between participants) ( Secondary outgroups: Immigrants with Russian or African origins counterbalanced between participants)	Positive and negative direct contact	Attitudes toward the primary outgroup (2)	Initial attitudes toward the primary outgroup Moral licensing	Attitudes	Yes No
147 US university students ethnicity 125 White, 8 Latino, 4 Asian, 3 Black, 2 Native American, and 4 other)	Primary outgroup: Illegal immigrants Secondary outgroups: Eight different outgroups	United States	Positive and negative vicarious contact	Attitudes toward the primary outgroup (2)	Attitudes toward the primary outgroup /	Attitudes	No	No
Li et al. (2016)	78 Singaporean university students	Singapore	Primary outgroup: Koreans Secondary outgroup: Japanese people	Singapore	Direct contact /	Appreciation for collaboration	Forgiveness	No /

TABLE 1 Continued

	C1	C2	Study
Attitudes	No	/	Joyce and Harwood (2014)

Continues

Participants	Outgroups	Country	Type of contact	Tested mediator(s)	Tested moderator(s)	Dependent variable(s) about the secondary outgroup
195 White university students	Primary outgroup: Roommate's ethnic group Asian, Black, ( Hispanic, Latino, multiracial, other) Secondary outgroups: Other ethnic groups excluding the group of participants' roommate	United States	Direct contact	/	/	Number of friends

Shook et al. (2016)	109 university students (76% Whites, 11.9% Hispanics/Latinos, 5.5% Asians, 3.7% African - Americans, and 2.8% other).	United States	Primary outgroup: Roommate's ethnic group Secondary outgroups: Other ethnic groups Asian, Hispanic/Latino, White, and African-American) excluding the group of participants' roommate	Roommate's ethnic group	United States	Ingroup attitudes (no effect) (1) Social dominance orientation (3)
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**Study**

Mark and Harris (2012)



TABLE 1 Continued

Outgroups	Country	Type of contact	Tested mediator(s)	Tested moderator(s)	Dependent variable(s) about the secondary outgroup	C1	C2
Primary outgroup: roommate's ethnic group Secondary outgroups: Other ethnic groups African - American, Asian, Latino, and White) excluding the group of participants' roommate	United States	Direct contact	/	Group status	Attitudes SDO General prejudice General anxiety Multicultural competence Symbolic racism Attitudes toward inter-ethnic dating Friendship heterogeneity	No	/
	Primary outgroup: British Muslims Secondary outgroups: Moroccans, individuals with physical disability, Asians, people with schizophrenia)	United Kingdom Imagined contact	/	Typicality of the primary outgroup Ideology mindset multicultural, color-blind)	Stereotypes	No	/

Note: C1 = contact toward the secondary outgroup was controlled for (yes vs. no), C2 = when their association was tested, generalization from primary to secondary outgroup(s) between similar constructs was assessed with different measures (yes vs. no). The number in brackets after each mediator refers to our classification of mediators: 1 = mediators involving the ingroup, 2 = mediators involving the outgroup, 3 = mediators involving the self.

Abbreviations: SDO, social dominance orientation; STE, secondary transfer effect.

<sup>a</sup>Van Laar et al. (2005) conducted two sets of analysis: experimental (relying on roommate assignment) and longitudinal (using contact measures as predictors); therefore, the study is reported with corresponding analyses) both in Tables 1 and 2. (

Study	Participants
Van Laar et al. (2005) <sup>a</sup>	1,794 university students (748 Whites, 753 Asians, 255 Latinos, and 68 African - Americans) participants during the first of five waves of data collection of a larger study)

Visintin et al. (2017) 76 non-Asian university students

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TABLE 2 Longitudinal studies evaluating the STE

Participants	Outgroups	Country	Type of contact	Tested mediator(s)	Tested moderator(s)	Dependent variable (s) about the secondary outgroup	C1	C2
34 British university students	Primary outgroup: French people Secondary outgroups: Algerians	United Kingdom	Direct contact	Ingroup identification (no effect) (1) Inclusion of the other in the self (2) Changing behavior (no effect) (2) Learning about the outgroup (no effect) (2) Group representations (no effects) (2)	/	Attitudes	No	/
						Closeness	No	No

Continues

Study	Waves
<p>Bowman and Griffin (2012 )</p> <p>Four waves separated by approximately 6 months from first and second wave, and 1 year between second, third, and fourth wave)</p> <p>3,098 university students (814 Whites, 798 Blacks, 765 Asians, and 721 Hispanics)</p> <p>For the members of each group White, Black, Asian, and Hispanic, the other three groups were used as both primary or secondary outgroups in the analyses</p>	<p>United States</p> <p>Direct contact</p> <p>Attitudes toward the primary outgroup (2)</p>
<p>Eller and Abrams (2004 ) Study 1</p> <p>Two waves separated by approximately 6 months)</p>	<p>United States</p> <p>Direct contact</p> <p>Attitudes toward the primary outgroup (2)</p>

C2

/

Yes No

TABLE 2 Continued

Waves	Participants	Outgroups	Country	Type of contact	Tested mediator(s)	Tested moderator(s)	Dependent variable (s) about the secondary outgroup	C1
Eller and Abrams (2004), Study 2	Two waves separated by approximately 2 months	67 Mexican adults	Primary outgroup: US people Secondary outgroups: Canadians	Mexico Direct contact	Ingroup identification (no effect) (1) Inclusion of the other in the self, no effect (2)	/	Attitudes	No /
Two waves separated by approximately 1-2 years)	85 Ingrian-Finnish immigrants emigrated to Russia and remigrating to Finland)	Primary outgroup: Finnish people Secondary outgroups: Immigrant groups other than Russians	Finland	Positive and negative direct contact	Realistic and symbolic threat toward the primary outgroup (2) no effect Realistic and symbolic gains toward the primary outgroup (2)	/	Attitudes	No
Tausch et al. (2010), Study 4	Two waves separated by approximately 1 year	411 Northern Irish adults (185 Catholics and 226 Protestants)	Primary outgroup: Protestants for Catholics, Catholics for Protestants Secondary outgroups: Racial minorities	Northern Ireland Primary outgroup: Protestants for Catholics, Catholics for Protestants Secondary outgroups: Racial minorities	Direct contact	Ingroup attitudes, no effect (1) Private collective self-esteem, no effect (1) Attitudes toward the primary outgroup (2)	Group status (no effect) Attitudes	Attitudes

Study

Mähönen and  
Jasinskaja -  
Lahti (2016)

TABLE 2 Continued

Participants	Outgroups	Country	Type of contact	Tested mediator(s)	Tested moderator(s)	Dependent variable (s) about the secondary outgroup	C1	C2
156 White British university students	Primary outgroup: Nominated friends from a different social group based on ethnicity, (sexuality, religion, or nationality) Secondary outgroups: 14 different groups	United Kingdom	Direct contact	General anxiety toward a wide range of outgroups (2)	/	Attitudes toward a wide range of outgroups	No	/

Group status	Attitudes	Yes	/
SDO	General prejudice		
	General anxiety		
	Multicultural competence		
	Symbolic racism		
	Attitudes toward interethnic dating		
	Friendship heterogeneity		

Note: C1 = contact toward the secondary outgroup was controlled for (yes vs. no). C2 = when their association was tested, generalization from primary to secondary outgroup(s) between similar constructs was assessed with different measures (yes vs. no). The number in brackets after each mediator refers to our classification of mediators: 1 = mediators involving the ingroup, 2 = mediators involving the outgroup, 3 = mediators involving the self.

Abbreviations: SDO, social dominance orientation; STE, secondary transfer effect.

<sup>a</sup>The study by Turner and Feddes (2011) also used an experimental manipulation, aimed at making salient intragroup versus intergroup contact; however, given its clear longitudinal nature, we decided to present the study in Table 2.

<sup>b</sup>Van Laar et al. (2005) conducted two sets of analysis, experimental (relying on roommate assignment) and longitudinal (using contact measures as predictors), therefore the study is reported with corresponding analyses both in Tables 1 and 2. (

Study	Waves
Van Laar et al. (2005) <sup>b</sup> Three waves separated by approximately 1 year 1,794 university students (748 Whites, 753 Asians, 255 Latinos, and 68 African - Americans) ( participants during the first of five waves of data collection of a larger study)	Turner and Feddes (2011) <sup>a</sup> Two waves separated by approximately 6 weeks

Study	Waves	Country	Contact
Van Laar et al. (2005) <sup>b</sup> Three waves separated by approximately 1 year 1,794 university students (748 Whites, 753 Asians, 255 Latinos, and 68 African - Americans) ( participants during the first of five waves of data collection of a larger study)	Primary outgroup: roommate's ethnic group Secondary outgroups: Other ethnic groups African - American, ( Asian, Latino, and White) excluding the group of participants' roommate	United States	Direct contact





TABLE 3 Correlational studies evaluating the STE

Outgroups	Country	Type of contact	Tested mediator(s)	Tested moderator(s)	Dependent variable(s) about the secondary outgroup	C1	C2
				/	Attitudes	Yes	Yes /
Primary outgroup: Majority Finnish group Secondary outgroup: Estonian immigrants for Russian immigrants, Russian immigrants for Estonian immigrants	Finland	Positive and negative direct contact	Public collective self-esteem (1) Attitudes toward the primary outgroup (2)	Group status	Attitudes	Yes	No
Primary outgroup: Moroccans, for Turkish people, for Moroccans Secondary outgroups: Dutch majority, individuals with Surinamese/Antillean origins	The Netherlands	Direct contact	Direct contact	Empathy toward the primary outgroup (2)	Perceived heterogeneity Policies support Acculturation orientations	Yes	No /
			/	/	Social distance	Yes	/

Study	Participants
Barr and Bracchitta (2015) 258 university students 3 disability types (physical, developmental, and behavioral) served as both primary and secondary outgroups in the analyses	United States Direct contact
Brylka et al. (2016) 171 Estonian immigrants and 180 Russian immigrants	United States Direct contact
Giovannini and Vezzali (2011) 128 Italian teachers	Italy Primary outgroup: Immigrant parents Secondary outgroup: Immigrant pupils
Hindriks et al. (2014) 1987 individuals over 15 years old with Moroccan and Turkish origins in The Netherlands approximately 50% for each group)	United States Direct contact

TABLE 3 Continued

Outgroups	Country	Type of contact	Tested mediator (s)	Tested moderator(s)	Dependent variable(s) about the secondary outgroup	C1	C2
			Positive and negative direct online and offline contact	Attitudes toward the primary outgroup (2)	Attitudes	No	No
Primary outgroup: Muslim immigrants Secondary outgroups: Eastern European immigrants, Indian immigrants, Black African immigrants	United Kingdom	Positive and negative direct contact	Contact intentions toward the primary outgroup (2)	/	Contact intentions	Yes	Yes
				/	Attitudes Social policies support	No	/
Primary outgroup: Foreign residents Secondary outgroups: gay people, homeless people, Jews, Muslims, nontraditional women	Germany	Direct contact	Ingroup national identification (1) Attitudes toward the primary outgroup (2)	/		No	Yes

Study	Participants
Lissitsa and Kushnir (2018)	450 Israeli Jew adults Primary subgroup: Israeli Palestinians Secondary subgroup: Non-Israeli Palestinians
Meleady and Forder (2019)	206 White British University students
Pettigrew (1997)	3806 adults from seven national probability samples Primary subgroup: Individuals with a different nationality Secondary subgroups: Nine different national or ethnic groups including groups with little presence in the countries under investigation France, West Germany, The Netherlands, and the United Kingdom Direct contact
Pettigrew (2009), Sample A	2559 German adults from a German national probability sample

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TABLE 3 Continued

Tested mediator(s)	Tested moderator(s)	Dependent variable(s) about the secondary outgroup	C1	C2
Attitudes toward the primary outgroup (2)	Social dominance orientation (3)	Attitudes	No	Yes
Direct contact	Social identity complexity similarity ( complexity ( no effect) (1) Ingroup attitudes ( no effect) (1) Ingroup national identification ( no effect) (1) Attitudes toward the primary outgroup (2)	/	Attitudes	Yes No

TABLE 3 Continued

C1	C2
Yes	No

Study	Participants	Outgroups	Country	Type of contact
Pettigrew (2009) Sample B	1275 German adults from a German national probability sample	Primary outgroup: Foreign residents Secondary outgroups: Gay people and homeless people	Germany	Ingroup national identification (1) Direct contact Attitudes toward the primary outgroup (2)
Schmid et al. (2012)	7042 adults from nationally representative samples in eight European countries (865 Germany, 711 France, 882 Hungary, 972 Italy, 922 The Netherlands, 921 Poland, 937 Portugal, and 832 UK)	Primary outgroup: Immigrants Secondary outgroups: Gay people, Jews	Germany, France, Hungary, Italy, The Netherlands, Poland, Portugal, and the United Kingdom	Direct and extended contact combined in a single measure)

Social distance No Yes

Schmid et al. (2013) Study 1  
1,381 Christian German adults  
Primary outgroup: Turks  
Secondary outgroups: West European immigrants and Russian immigrants

Continues

Participants	Outgroups	Country	Type of contact	Tested mediator (s)	Tested moderator(s)	Dependent variable(s) about the secondary outgroup
1,948 Northern Irish adults (970 Catholics and 978 Protestants)	Primary outgroup: Protestants for Catholics, Catholics for Protestants Secondary outgroups: Gay people, racial minorities, and travelers	Northern Ireland	Direct contact	Social identity complexity similarity complexity (1) Social identity complexity overlap complexity (1) Ingroup attitudes (no effect) (1) Ingroup national identification (no effect) (1) Attitudes toward the primary outgroup (2)	/	Attitudes

Schulz and Taylor (2018)

378 Northern Irish adults (160 Catholics and 218 Protestants)

Primary outgroup: Protestants for Catholics, Catholics for Protestants  
Secondary outgroups: Syrian refugee

Northern Ireland

Direct contact

Attitudes toward the primary outgroup (2)  
Dispositional perspective - taking (3)



**Study**

Schmid et al. (2013)  
Study 2

TABLE 3 Continued

Outgroups	Country	Type of contact	Tested mediator(s)	Tested moderator(s)	Dependent variable(s) about the secondary outgroup	C1	C2
Primary outgroup: Greek Cypriots for Turkish Cypriots, Turkish Cypriots for Greek Cypriots Secondary outgroups: Mainland Greeks for Turkish Cypriots, mainland Turks for Greek Cypriots	Cyprus	Direct contact	Private self-esteem (1) Attitudes toward the primary outgroup (2)	Group status	Attitudes	No	No

Yes No

Primary outgroup: Hispanics Secondary outgroups: Indian people, Vietnamese people	United States	Direct contact	Ingroup attitudes (no effect) (1) Attitudes toward the primary outgroup (2)	Group status (no effect) Social desirability (no effect)	Attitudes	Yes	No	
Vezzali et al. (2019)	552 high-school students (422 Italians and 130 immigrants)	Primary outgroup: Immigrants for Italians, Italians for immigrants Secondary outgroup: Individuals with disability	Italy Immigrants for Italians, Italians for immigrants Secondary outgroup: Individuals with disability	Direct and extended contact Attitudes toward the primary outgroup (2) Morality of the primary outgroup (2) Morality of the secondary outgroup (2)	Attitudes toward the primary outgroup (2) Morality of the primary outgroup (2) Morality of the secondary outgroup (2)	Group status Attitudes toward the primary outgroup (2) Morality of the primary outgroup (2) Morality of the secondary outgroup (2)	Attitudes Contact intentions Group status	Yes Yes

Study	Participants
Tausch et al. (2010) Study 1	1,653 Greek adults (800 Greek Cypriots and 853 Turkish Cypriots)
Tausch et al. (2010) Study 2	1973 Northern Irish adults (983 Catholics and 990 Protestants) Primary outgroup: Protestants for Catholics, Catholics for Protestants Secondary outgroups: Racial minorities
Tausch et al. (2010) Study 3	275 university students (199 White and 76 Blacks) Ingroup attitudes (no effect) (1) Attitudes toward the primary outgroup (2)

TABLE 3 Continued

Outgroups	Country	Type of contact	Tested mediator(s)	Tested moderator(s)	Dependent variable(s) about the secondary outgroup	C1	C2
Primary outgroup: Immigrants for Italians, Italians for immigrants Secondary outgroup: Children with disability	Italy	Direct contact	Attitudes toward the primary outgroup (2) Social dominance orientation (3)	Group status	Attitudes	No	Yes
			Direct contact	Perspective - taking toward the primary outgroup (2)	Attitudes	Yes	Yes
Primary outgroup: Immigrants Secondary outgroup: Individuals with disability	Italy	Direct contact	Social distance toward the primary outgroup (2) Anxiety toward the primary outgroup (2) Anxiety toward the secondary outgroup (2) Perspective - taking toward the primary outgroup (2) Perspective - taking toward the secondary outgroup (2)	/	Social distance	Yes	No

Continues

Study	Participants
Vezzali, Di Bernardo, et al. (2018)	299 elementary schoolchildren (224 Italians and 75 immigrants)
Vezzali and Giovannini (2011)	140 Italian high-school students Primary subgroup: Immigrants Secondary subgroup: Individuals with disability
Vezzali and Giovannini (2012)	250 Italian high-school students

TABLE 3 Continued

C1	C2
	Yes /

No /
------

Social distance Yes No

Participants	Outgroups	Country	Type of contact	Tested mediator(s)	Tested moderator(s)	Dependent variable(s) about the secondary outgroup
Weigert (1976)	454 Black soldiers in Germany Secondary outgroup: German civilians	Germany	Direct contact	Direct contact	/	Attitudes
1372 White American adults	Primary outgroup: Blacks Secondary outgroups: Asians, Hispanics, Jews, Whites	United States	Direct contact	/	/	Stereotypes Social distance
Zezejj et al. (2020)	1046 adolescents from Balkan countries from probability samples Secondary outgroups: gay people	Primary outgroup: Ethnic outgroups, Roma people, poor people, and individuals with physical disability Secondary outgroups: gay people	Bosnia -Herzegovina, Kosovo, Macedonia, Montenegro, and Serbia	Ethnic outgroups, Roma people, poor people, and individuals with physical disability	Direct contact	Trust toward the primary outgroups (2) Trust toward the secondary outgroups (2) Social distance toward the primary outgroups (2)

Study

Wilson (1996)



TABLE 3 Continued

Outgroups	Country	Type of contact	Tested mediator(s)	Tested moderator(s)	Dependent variable(s) about the secondary outgroup	C1	C2
Primary outgroup: Roma people	Slovakia	Positive and negative direct contact	Intergroup threat realistic and symbolic toward the primary outgroup (2)	/	Voting behavior	Yes	/
Secondary outgroups: Gay people			Intergroup threat realistic and symbolic toward the secondary outgroup (2) Attitudes toward the primary outgroup (no effect) (2) Attitudes toward the secondary outgroup (no effect) (2)				

Note: C1 = contact toward the secondary outgroup was controlled for yes vs. no). C2 = when their association was tested, generalization from primary to secondary outgroup(s) between similar constructs was assessed with different measures yes (vs. no). The number in brackets after each mediator refers to our classification of mediators: 1 = mediators involving the ingroup, 2 = mediators involving the outgroup, 3 = mediators involving the self.

Abbreviation: STE, secondary transfer effect.

Study	Participants
Zingora and Graf (2019)	232 Slovak adults

intergroup contact? Evidence from longitudinal (Eller & Abrams, 2004, Study 1; Mähönen & Jasinskaja-Lahti, 2016; Tausch et al., 2010, Study 4; Turner & Feddes, 2011; Van Laar et al., 2005) as well as from experimental studies (Harwood et al., 2011; Jasinskaja-Lahti et al., 2020) support the contact-attitude path, although the process is likely to be bidirectional, as indicated in the broader contact literature (e.g., Binder et al., 2009).

A related issue that needs consideration is that individuals with more contact with the primary outgroup may be more open to diversity and, as a consequence, have more contact with secondary outgroups. In this case, the STE might be a product of contact with secondary outgroups, rather than of contact with the primary outgroup that generalizes beyond the contact situation. In Tables 1–3, we provided indications about this methodological limitation, by indicating for each study whether contact with the secondary outgroup(s) was controlled for. Ruling out this concern, according to our tables, 19 studies statistically controlled for contact with the secondary outgroup and still provided evidence for the STE (e.g., Tausch et al., 2010, Studies 2–4; Van Laar et al., 2005; Vezzali & Giovannini, 2012; Weigert, 1976; Zezelj et al., 2020).

A further methodological issue concerns the measures used to assess attitudes toward primary and secondary outgroups. Some studies used similar scales to assess attitudes toward the primary and secondary groups, therefore inflating not only the risk of shared method variance but also the likelihood for socially desirable responding (e.g., Schmid et al., 2013; Shook et al., 2016). In Tables 1–3, we included a column indicating for each study whether (wherever relevant) different measures were used to assess attitudes toward both primary and secondary outgroups. Addressing this concern, eight studies demonstrated the existence of the STE by using different measures of attitudes toward primary and secondary outgroups (e.g., Schmid et al., 2012; Vezzali, Di Bernardo et al., 2018). Especially strong support is provided by studies that used different conceptual measures for primary and secondary outgroups, for instance, assessing generalization from attitudes toward the primary outgroup to contact intentions toward the secondary outgroup (Vezzali et al., 2019).

In addition, the STE has also emerged when controlling for strong predictors of prejudice, such as social dominance orientation (SDO), demonstrating the robustness of the effect (Vezzali & Giovannini, 2011).

In sum, current research on the STE has considered and addressed various methodological limitations, and provided evidence to exclude that the STE is inflated by such constraints.

## 5 | MEDIATORS OF THE SECONDARY TRANSFER EFFECT

We believe an examination of the processes underlying the STE is especially relevant for two main theoretical reasons. First, it allows to understand how to reduce prejudice beyond the outgroup one has contact with, therefore potentially impacting on how to tackle generalized prejudice. Second, research has yet not provided evidence for mediators specific to the STE effect, explaining how the effects of contact can spread to affect prejudice in the wider society. This also implies a conceptual difference between mediators of the effects of contact on the primary outgroup (the “classic” contact effect) and mediators of effects toward secondary outgroups.

While traditional mediators of contact focus on the outgroup (e.g., contact reduces intergroup anxiety and improves empathy felt toward the primary outgroup), mediators of the STE involve different centers of attention. We distinguish here between three categories of mediators. One set of mediators refers to changes in outgroup perceptions. A second set relates to changes in how the ingroup is represented. A third set concerns changes in the self, which may impact on intergroup relations more generally. This distinction, underlying a theoretical model of processes driving the STE, is presented in Figure 1. Largely supported by research findings, we believe that the three types of processes underline the STE stemming from contact.

## 5.1 | Mediators involving the outgroup

### 5.1.1 | Outgroup attitudes

Attitude generalization is by far the most studied mediator of the STE and has received ample empirical support. This mechanism is based on the idea that contact with the primary outgroup improves attitudes toward the primary outgroup; in turn, these attitudes mediate the relationship between contact with the primary outgroup and attitudes toward the secondary outgroup. Pettigrew (2009) provided the first evidence for this mechanism in a cross-sectional study. Germans who had contact with foreigners showed less prejudice toward gay and homeless people via reduced prejudice toward foreigners. This study, however, did not control for prior contact with the secondary outgroups. Support for attitude as the mediating mechanism was provided by Tausch et al. (2010), in four studies (also when using longitudinal analyses, Study 4). In these studies, the authors controlled for contact with the secondary outgroup (Studies 2–4), included a measure to statistically control for social desirability (Study 3), and tested other concurrent mediators, providing, therefore, a stringent test for the attitude generalization mechanism.

In recent years, further evidence from cross-sectional studies has demonstrated the robustness of the attitude generalization mediating effect (Bowman & Griffin, 2012; Brylka et al., 2016; Jasinskaja-Lahti et al., 2020; Schmid et al., 2012, 2013; Schulz & Taylor, 2018; Vezzali, Di Bernardo, et al., 2018, 2019; Vezzali & Giovannini, 2011, 2012; Zezelj et al., 2020; for evidence of generalization via contact intentions, see Meleady & Forder, 2019, Study 3; but see Zingora & Graf, 2019, for evidence against attitude generalization), qualifying it as the main mediator of the STE.

### 5.1.2 | Intergroup emotions

Intergroup emotions, such as empathy and intergroup anxiety, have been found to be the key mediating processes of the intergroup contact-outgroup attitudes path (Brown & Hewstone, 2005; Pettigrew & Tropp, 2008). However, the role of intergroup emotions has only received scarce attention in STE research.

Evidence for the role of intergroup emotions was provided by Vezzali and Giovannini (2012). They found cross-sectionally that Italian high-school students' positive contact with immigrants (primary outgroup) was indirectly associated with improved attitudes toward gay people and individuals with disability (secondary outgroups), via attitudes toward the primary outgroup, and via anxiety and perspective-taking toward secondary outgroups (for additional evidence of perspective-taking as a mediator of the STE, see Schulz & Taylor, 2018; Vezzali & Giovannini, 2011). Similarly, Turner and Feddes (2011) found that White undergraduates' intimacy of disclosure with an outgroup person was associated with lower anxiety toward a wide range of secondary outgroups and in turn with more positive outgroup attitudes toward these groups approximately 6 weeks later.

Giovannini and Vezzali (2011) investigated whether contact between Italian teachers and immigrant parents (primary outgroup) generalizes to reduced prejudice for immigrant children (secondary outgroup), in terms of supporting social policies favoring this group, desire for their school integration, and perceptions of them as an heterogeneous group. Results showed support for the STE, which was mediated by increased empathy toward the primary outgroup.

The range of emotions explaining the STE was expanded by Zezelj et al. (2020) to include outgroup trust. Using a probability sample of adolescents from five Balkan countries, the authors conducted a cross-sectional study, where various marginalized groups represented the primary outgroup (people with disability, Roma, ethnic groups, poor people) and gay people was the secondary outgroup. Results provided evidence for increased trust toward both the primary and secondary outgroup, and attitude generalization, as the underlying processes.

### 5.1.3 | Outgroup morality

Morality, concerning perceptions of what is right and wrong, has been shown to impact on impression formation over important dimensions like sociability and competence (Brambilla, Biella, & Freeman, 2018; Leach, Ellemers, & Barreto, 2007), and to be an antecedent of outgroup attitudes (Brambilla & Leach, 2014). Although traditionally separate, some studies integrating contact and morality research have shown that contact is associated with greater perceptions of the outgroup as moral, which is in turn associated with reduced prejudice (Brambilla, Hewstone, & Colucci, 2013; Vezzali, Brambilla, Giovannini, & Colucci, 2017).

Vezzali et al. (2019) conducted a cross-sectional study with majority (Italian) and minority (immigrant) highschool participants, testing morality and attitude generalization as concurrent processes. The primary outgroup was represented by the ethnic group (Italians for immigrants and immigrants for Italians); individuals with disability were the secondary outgroup. Results for the majority group revealed that the contact effects generalized to more positive attitudes and behavioral (contact) intentions toward the secondary outgroup via morality of the primary and secondary outgroups, and via attitudes toward the primary outgroup. Results for the minority group revealed mediation via morality of the secondary outgroup and attitudes toward the primary outgroup.

### 5.1.4 | Intergroup threat

Intergroup threat is a strong predictor of prejudice (Riek, Mania, & Gaertner, 2006) and an established mediator of the contact-reduced prejudice relationship (Aberson, 2019). Mähönen and Jasinskaja-Lahti (2016) conducted a study with a longitudinal two-wave design to examine the STE and mediation by intergroup threat. Participants were Russians living in Finland; Finnish people were the primary outgroup and other immigrants were the secondary outgroup. Intergroup threat toward the primary outgroup was operationalized with measures of perceived realistic and symbolic gains (conceptually, the opposite of threat), and with realistic and symbolic threat. Results showed mediation for perceived gains, but not for intergroup threat.

Further evidence for the mediating role of threat toward the primary outgroup was provided by Zingora and Graf (2019), who conducted a cross-sectional study to examine the STE from contact between Slovak and Roma people (primary outgroup) to attitudes and supportive voting behavior toward gay people (secondary outgroup). In this case, the STE emerged via threat toward the primary and, in turn, the secondary outgroup (a measure combining both realistic and symbolic dimensions of threat) rather than via attitude generalization; specifically, positive contact was associated with lower and negative contact (see section “Negative intergroup contact”) with higher threat, which in turn mediated contact effects on outcome variables.

## 5.2 | Mediators involving the ingroup

### 5.2.1 | Deprovincialization: Ingroup identification and ingroup attitudes

According to Pettigrew (1998), intergroup contact can widen individuals' horizons, demonstrating that social reality can be approached not solely based on social norms and traditions characterizing the ingroup, and that other groups and cultures can be characterized by equally acceptable social norms and customs. In other words, according to the deprovincialization hypothesis, a less provincial view of the ingroup would allow prejudice reduction. This hypothesis fits well with the premises of the STE. In fact, when individuals re-evaluate the ingroup, it is possible to improve attitudes toward several outgroups and not only toward one specific outgroup.

A potential issue concerning the deprovincialization hypothesis is that Pettigrew (, 1998) drafted it conceptually, but the actual operationalization of the ingroup reappraisal implied by deprovincialization is open to different approaches. Various scholars, for example, interpreted it in terms of ingroup identification: contact would lead to less identification with the ingroup and reduced identification would in turn lead to improved outgroup attitudes (Verkuyten, Thijs, & Bekhuis, 2010). In the study by Pettigrew (2009), intergroup contact was indirectly associated with more positive attitudes toward secondary outgroups not only via improved outgroup attitudes toward the primary outgroup, but also via reduced identification with the national ingroup. However, ingroup identification was not a mediator of the STE in two studies conducted by Schmid et al. (2013), where instead outgroup attitudes and social identity complexity (in Study 2) emerged as significant underlying processes.

Adopting a different measure of ingroup identification, Tausch et al. (2010, Study 1), operationalized deprovincialization as private collective self-esteem (capturing self-esteem referred to both the self and the ingroup). Results revealed that contact predicted lower self-esteem and, in turn, reduced prejudice toward the secondary outgroup (note, however, that mediation by outgroup attitudes was stronger than mediation by collective self-esteem). Similarly, Brylka et al. (2016) used a measure of public collective self-esteem to test whether deprovincialization could account for the STE. The authors investigated whether contact between two minorities (Estonians and Russians) and the majority group (Finnish people) in Finland would be associated with more positive attitudes toward the other minority group, serving as the secondary outgroup (Estonians, for Russians; Russians, for Estonians). Results revealed that public collective self-esteem (together with attitudes toward the primary outgroup) mediated the STE for both groups. Note however that, in partial contrast with findings by Tausch et al. (2010, Study 1), the mediation effect was driven by the improvement and not the reduction in collective self-esteem. Findings for collective self-esteem were, in any case, not replicated in Tausch et al.'s (2010) longitudinal study (Study 4), where only outgroup attitudes and not private collective self-esteem emerged as a significant mediator.

Deprovincialization or ingroup reappraisal has also been operationalized as ingroup attitudes. The hypothesis in this case is that contact leads to a re-appraisal of the ingroup; by evaluating the ingroup less positively, attitudes toward the secondary outgroup are, in turn, improving. Tausch et al. (2010) tested ingroup attitudes as a form of deprovincialization in three of their four studies (Studies 2–4), but they found no supporting evidence for it. Similar findings were obtained in the two studies conducted by Schmid et al. (2013) and in one experimental study by Shook et al. (2016).

Overall, research regarding the role of ingroup identification and ingroup attitudes, as operationalizations of deprovincialization, is rather inconclusive, showing little evidence for deprovincialization as an underlying process characterizing the STE.

### 5.2.2 | Social identity complexity

Schmid et al. (2013) identified social identity complexity as a further potential process underlying the STE. Social identity complexity is a construct originally proposed by Brewer and collaborators (Brewer & Pierce, 2005; Roccas & Brewer, 2002), referring to the appraisal of one's ingroup identities as more or less complex, in terms of how they are differentiated and inclusive. It is possible to distinguish two forms of social identity complexity. Overlap complexity concerns the extent to which one believes their ingroup identities overlap, with complexity increasing the more ingroup identities are perceived as distinct. Similarity complexity, instead, refers to whether the properties of ingroup categories (e.g., prototypes) are appraised as similar: the more individuals perceive dissimilarity among categories, the more they are characterized by similarity complexity.

Schmid et al. (2013) argued that intergroup contact may bring attention to the outgroup and to the fact that its members may form an outgroup on some categories, but also an ingroup on other categories, increasing the perceived complexity of ingroup categories (e.g., for a British woman, an Indian woman is an outgroup member in terms of the nationality category,

but an ingroup in terms of the gender category). In turn, social identity complexity, drawing on the principles of multiple categorization (Crisp & Hewstone, 2007), whereby simultaneous awareness of belonging to different groups reduces prejudice, should relate to more positive outgroup attitudes (Schmid, Hewstone, Tausch, Cairns, & Hughes, 2009). Social identity complexity may also be relevant to the STE: to the extent that individuals perceive that their identities are complex and often shared, at least in part, with other individuals, prejudice toward a wide range of outgroups should be reduced.

This hypothesis was tested in two cross-sectional studies by Schmid et al. (2013). In the first study, participants were Germans, the primary outgroup was Turks, and the secondary outgroups were West-Europeans and Russians. In the second study, participants were Catholics and Protestants from Northern Ireland, the primary outgroup was the opposing religious group (Protestants for Catholics, and vice versa), and the secondary outgroups were racial minorities, gay people, people belonging to the travelling community. Results of Study 2 revealed mediation by both types of social identity complexity (overlap and similarity), although the indirect effects via attitude generalization were of greater magnitude. In contrast, Study 1 did not yield evidence for social identity complexity as a mediator.

Based on the above findings, although social identity complexity is theoretically a relevant factor that can explain the STE, current empirical evidence is inconclusive. Further research is necessary to explore this factor in more depth.

## 5.3 | Mediators involving the self

### 5.3.1 | Personality and ideological variables

Adding to research showing that personality is associated with intergroup contact (Sibley & Duckitt, 2008; Turner, Dhont, Hewstone, Prestwich, & Vonofakou, 2014), Vezzali, Turner et al. (2018) showed that this correlation is bidirectional. In other words, not only can personality influence the frequency and quality of contact, but contact can contribute to shape personality. We posit that changes in personality might also explain the STE. To the extent that a person becomes more open to experiences and agreeable as a function of contact (Vezzali, Turner et al., 2018), and that these factors are associated with improved outgroup attitudes (Sibley & Duckitt, 2008), then prejudice toward a variety of groups (Akrami et al., 2011; Sibley & Duckitt, 2008) (and not only toward the outgroup one has had contact with) may decline.

Empirical support for this hypothesis was provided by testing the role of SDO as a mediator of the STE. SDO can be conceptualized as a social-ideological, individual difference variable reflecting support for social hierarchies. Although SDO is shaped by multiple factors, personality is a strong determinant of it, which is why SDO largely qualifies as a personality factor (Sidanius & Pratto, 1999). Evidence suggests that contact can change SDO, making individuals more oriented toward tackling intergroup inequalities (Dhont, Van Hiel, & Hewstone, 2014). By developing an orientation against intergroup inequalities, individuals may as well display reduced prejudice toward a wide range of outgroups, therefore supporting the main idea underlying the STE.

Direct evidence for the role of SDO as a mediator of the STE was provided by Shook et al. (2016) in one rare study examining the STE with an experimental approach. Participants were first-year university students who had randomly been assigned to live with a same-race or another-race roommate. Results showed that participants assigned to live in rooms with another-race partner displayed less SDO, and in turn reduced prejudice toward a series of racial secondary outgroups 2–3 months after room assignments.

Additional evidence was provided by Vezzali, Di Bernardo, et al. (2018), who examined cross-sectionally the relationship between contact among Italian elementary schoolchildren and immigrants (with immigrants being the primary outgroup for Italians, and vice versa) and attitudes toward children with disability (secondary outgroup). Results revealed that among Italians contact was indirectly associated with reduced prejudice toward the secondary outgroup via a reduction in SDO, and in turn improved attitudes toward the primary outgroup. The results yielded support to both SDO and attitude generalization

as mediating processes. The STE, however, did not emerge when considering immigrant children as participants (i.e., it only emerged when testing the majority group, but not the minority group), an effect likely due to the lower effectiveness of contact among minority groups (Tropp & Pettigrew, 2005).

Taken together, we can state that personality can be a pertinent explanation for the STE, but additional empirical evidence is needed. A comprehensive integration of personality and STE literature can provide a fruitful avenue of research that can shed further light in factors that explain the STE.

In conclusion, research has provided evidence for the three types of mediators. However, while according to our tables scholars mostly focused on mediators concerning the outgroup (48 tests from 30 studies, 21 of which examined attitude generalization), they overlooked mediators concerning the ingroup (18 tests from 12 studies) and, especially, mediators involving the self (three tests from three studies). It is worth noting that in the three studies testing mediators involving the self, two focused on SDO. Therefore, although we hypothesize STE via personality (Figure 1), research has yet to provide evidence for such a relationship.

## 6 | MODERATORS OF THE SECONDARY TRANSFER EFFECT

Research has mainly explored mediators, rather than moderators of the STE. Therefore, research on moderators is rather scarce. Generally, we argue that moderators of the STE largely coincide with moderators of the effects of intergroup contact on the primary outgroup. Specifically, variables that strengthen or diminish the effects of contact on attitudes toward the outgroup are likely to have a cascade effect on attitudes toward the secondary outgroup. One such moderator is *group status*, with effects that sometimes differ between majority and minority groups. In line with the contact literature (Tropp & Pettigrew, 2005), STE outcomes are generally larger among the majority group (Vezzali, Di Bernardo et al., 2018, 2019; but see Tausch et al., 2010, Study 1). SDO was identified as a further moderator but interestingly, in contrast with findings that point to contact effects being generally stronger for individuals high in SDO (Hodson, Turner, & Choma, 2017), the STE emerged for individuals low in SDO (Schmid et al., 2012). This finding requires some further examination as the scale used to assess SDO was a shorter version of the oft-used SDO<sub>6</sub> scale.

Pettigrew (2009) hypothesized the existence of a similarity gradient, such that the STE might be more likely to occur when primary and secondary outgroups are similar rather than dissimilar. However, various studies found generalization for both similar and dissimilar outgroups (e.g., Pettigrew, 2009; Tausch et al., 2010; Vezzali et al., 2019), therefore providing modest evidence for a similarity gradient. The only test for *similarity between primary and secondary outgroups* that we are aware of has been conducted by Harwood et al. (2011), focusing on an indirect form of contact (see section “Indirect intergroup contact”), and using external raters to define secondary outgroups as similar or dissimilar compared to the primary outgroup. Results revealed that American students' (imagined) contact with illegal immigrants was associated with more positive attitudes toward a higher number of similar than dissimilar outgroups (but a formal test of moderation was missing). Note that defining whether outgroups are similar or dissimilar may be difficult (cf. Lollot et al., 2013; Pettigrew, 2009) and highly subjective, complicating the investigation of this moderator.

Jasinskaja-Lahti et al. (2020) conducted an experimental study investigating a moderator specific to the STE (which should moderate the generalization from attitudes toward the primary outgroup to attitudes toward the secondary outgroup; see Figure 1), in addition to a further moderator of contact, that is *initial prejudice*. The authors focused on the role of *moral credentials* and specifically on the moral licensing effect (Monin & Miller, 2001). This effect is based on the notion that acquiring moral credentials with a moral act might inhibit a subsequent moral act. Applied to the STE, the authors investigated whether performing a moral act toward the primary outgroup would block generalization to the secondary outgroup. Participants were Finnish people; immigrants with African origins were the primary outgroup and immigrants with Russian origins were the secondary outgroup, respectively (but primary and secondary outgroups were counterbalanced between



participants, so that for half of the participants Russian immigrants were the primary outgroup and African immigrants were the secondary outgroup).

Participants in the experimental condition engaged in the acquisition of moral credentials, by hiring an individual belonging to the primary outgroup (who was the best candidate for the job in the scenario presented); participants selected an ingroup person (presented as the best candidate) in the control condition. Results revealed that the effects of contact on attitudes toward the secondary outgroup via attitudes toward the primary outgroup were blocked (i.e., the STE did not emerge) in the experimental condition and when participants displayed higher initial prejudice. Interestingly, although individuals generally benefit more from intergroup contact when they are highly prejudiced (Hodson et al., 2017), the results of this study show that, consistent with the aversive racism paradigm (Dovidio & Gaertner, 2004), they do not show a generalized reduction in prejudice if they can avoid it (by “using” acquisition of moral credentials as an excuse).

The scarce research on moderators of the STE implies the imperative need for further examination of relevant moderating factors. It is in fact important to understand when and under which conditions the STE emerges, as this will allow more effective implementation of ways to enhance it.

## 7 | INDIRECT INTERGROUP CONTACT

Research over the past 20 years has provided evidence for the effectiveness of indirect contact methods, that is, contact which is not face-to-face, and that can be used when direct contact is not feasible or can complement direct contact methods (Turner, Hewstone, Voci, Paolini, & Christ, 2007). The main types of indirect contact identified by research are imagined contact, that is, the mental simulation of a positive intergroup interaction (Crisp & Turner, 2012); extended contact, that is, knowing that ingroup members have contact with outgroup members; and vicarious contact, referring to the observation of an intergroup encounter (Vezzali, Hewstone, Capozza, Giovannini, & Wölfer, 2014; Wright, Aron, McLaughlin-Volpe, & Ropp, 1997; Zhou, Page-Gould, Aron, Moyer, & Hewstone, 2019).

Research on indirect contact and the STE is still in its infancy. As can be seen in the tables, only eight studies investigated the STE stemming from indirect contact. Of these, six (four on imagined contact and two on vicarious contact) have been conducted experimentally, and none longitudinally; of the two studies using cross-sectional data (both on extended contact), one used a combined measure that did not allow to distinguish extended from direct contact (Schmid et al., 2012). However, findings show that indirect contact, although its effects may be weaker than those of direct contact (Christ et al., 2010), can result in STE. Vezzali et al. (2019) found that extended contact led to STE both via attitude generalization and via perceived morality of primary and secondary outgroups among both majority and minority group members. With respect to vicarious contact, Joyce and Harwood (2014) showed that observing a positive (vs. negative or neutral) intergroup interaction generalized to more positive attitudes toward secondary outgroups by means of attitude generalization. Andrews (2018) tested the effects of observing a positive, a negative, or a neutral interaction between an ingroup poker player and a Russian (outgroup) player among New Zealand participants. Attitudes toward Chinese people—the secondary outgroup—were more positive in the positive versus the negative and neutral conditions (but no STE emerged for the secondary outgroups of Arabs or Americans).

Finally, four experimental studies showed that imagined contact can result in STE, also toward dissimilar outgroups (Harwood et al., 2011, via attitude generalization; Visintin et al., 2017), and in naturalistic contexts like in the workplace (De Carvalho-Freitas & Stathi, 2017).

Given this evidence, we hypothesized in Figure 1 that indirect contact could exert its effects mainly via mediators concerning the outgroup or the ingroup (although research only provided evidence on mediators concerning the outgroup). Given the weaker effects of indirect compared to direct contact (Christ et al., 2010), it may not be sufficiently strong to impact

on relatively stable constructs such as ideological and personality variables (although this is also a research direction worthy of investigation).

## 8 | NEGATIVE INTERGROUP CONTACT

Negative contact is the focus of ample emerging contact literature (Graf & Paolini, 2017). Research has shown that negative contact is typically associated with increased prejudice, and its effects are sometimes of greater magnitude than those of positive contact (Barlow et al., 2012; Paolini, Harwood, & Rubin, 2010; Paolini & McIntyre, 2019). Research is also emerging with respect to negative contact and the STE.

Research findings generally show the existence of the STE also in the case of negative contact, although research is scarce (nine studies, three of which on indirect contact, see Tables 1–3). The mediating processes seem to be the same as those identified for the STE of positive contact. Meleady and Forder (2019, Study 3) tested an “avoidance generalization effect,” and found that negative contact was associated with lower intentions to engage in contact with the primary outgroup and, in turn, with the secondary outgroup (in some way, showing attitude generalization of negative contact). Brylka et al. (2016) found evidence for the STE also for negative contact, mediated by public collective self-esteem and attitudes toward the primary outgroup (as was the case of positive contact, but in the opposite direction). Lissitsa and Kushnirovich (2018) found that both positive and negative contact effects generalized to the secondary outgroup via attitudes toward the primary outgroup (but the indirect effect was greater for positive than for negative contact).

Zingora and Graf (2019) found that the STE emerged for negative contact, mediated by realistic and symbolic threat toward primary and secondary outgroup (but no evidence for attitude generalization emerged). In contrast, in the longitudinal study by Mähönen and Jasinskaja-Lahti (2016), the STE for negative contact did not emerge, neither via perceived gains nor via intergroup threat. Finally, Jasinskaja-Lahti et al. (2020) showed that the STE for negative contact emerged when individuals could not “use” the acquisition of moral credentials to prevent it or when moral credentials were acquired by low-prejudiced individuals.

## 9 | FUTURE DIRECTIONS

We argue that our distinction of mediators in three categories can shed light on the potential of contact to foster different generalizations and stimulate new research. Such a distinction also allows to highlight that while there is ample research in terms of processes involving the outgroup, which are largely similar to mediators identified by classic contact research, we know little about processes involving the ingroup, and even less about processes involving the self. As such, more emphasis can be placed on identifying and testing relevant mechanisms in the effort to fully understand the STE.

As anticipated, one research direction worthy of exploration concerns the nature of prejudice toward the secondary outgroup(s). Surprisingly, literature on the STE has been detached from that on generalized prejudice, despite that the STE clearly speaks to it. Therefore, integrating these two perspectives can be fruitful both theoretically and empirically. For instance, researchers may identify different underlying processes predicting the different types of generalization. Drawing on our distinction, mediators involving the ingroup or the self would likely be good candidates in explaining changes concerning generalized prejudice. Also, changes in how the primary outgroup is appraised may produce generalization to members of that outgroup or similar outgroups, but they may be unlikely to produce attitude change toward dissimilar outgroups (since such changes are based on the characteristics of the outgroup encountered). In contrast, perceiving the ingroup as deprovincialized would allow to restructure own perceptions about the ingroup and how it should relate to other groups, rather independently from the outgroup under consideration; this process would therefore permit a reduction in generalized prejudice. Similarly, changes in the self (e.g., strength of personality traits) are unrelated to a defined outgroup category but

would allow modifying the way one approaches other persons or groups in general; this way, attitude change would include a wide range of outgroups (cf. Vezzali & Stathi, 2021, Chapter 6).

A related direction for future research concerns the potential of intergroup contact to achieve cognitive liberalization. Hodson et al. (2018) attribute this potential to the fact that contact can take many forms and impact on a wide range of psychological processes, allowing multifaceted effects. Amongst these are effects unrelated to intergroup interactions and outgroup attitudes, such as increases in flexibility, creativity, and problem-solving skills (Crisp & Turner, 2011; Gocłowska & Crisp, 2014), as well as unexpected outcomes apparently unrelated to intergroup relations, such as increased environmental concerns (Meleady, Crisp, Dhont, Hopthrow, & Turner, 2020).

Our classification of mediators reflects the cognitive liberalization posited by Hodson, Meleady, and colleagues. Also in this case, mediators that can be especially relevant are those involving the ingroup and the self. In fact, changes related to the ingroup(s) reflect a new conceptualization of the society and of hierarchy structures, based on which the ingroup is just one of its components. This relates to abstract categorization and higher-order processes that facilitate the understanding of a complex society. Changes related to the self imply different ways of approaching issues and social relations, likely impacting much more than the single group one has had contact with on processes like flexibility and creativity. We argue that future research should better understand the different ways contact can act as a liberalizing agent, how this relates to the STE and consequently to generalized prejudice.

More generally, the question therefore is not whether the STE emerges more strongly when primary and secondary outgroups are similar or dissimilar, or which are the types of generalizations that can be achieved, but which are the *specific* processes driving each of these effects (cf. Vezzali & Stathi, 2021, Chapter 6).

We also identify more clearly defined directions for future research, as implied by the different sections of this article. First, more research is needed on the STE of negative contact. As the line of research on negative contact is growing, a focus on the STE can be particularly fruitful. Second, research on indirect contact and the STE is only scarce and also requires further exploration. With respect to these points, it is worth investigating the combined effects of positive and negative contacts, as well as that of the different types of contact. For instance, ingroup and outgroup norms, tapping on mediators that we classified as regarding the ingroup or the outgroup, have been shown to be the primary mediators of extended and vicarious contacts (White et al., 2020). Again, based on the notion that indirect experiences produce weaker effects than direct experiences (Fazio, Powell, & Herr, 1983), various authors theorized that the effects of indirect forms of contact can be lower than that of direct contact (Crisp & Turner, 2012; Turner et al., 2007). Since we argued that mediators involving the self largely refer to personality or ideological variables likely resistant to change, they may be less affected by indirect forms of contact (see Figure 1). Third, it is important to identify mediators and moderators specific to the STE, rather than focusing solely on those identified in the contact literature. In other words, we should understand not only when and why contact reduces prejudice (we already have ample empirical evidence on this), but also when and why this effect will generalize beyond the specific outgroup(s) encountered. For instance, salience of shared characteristics between primary and secondary outgroups, or their inclusion in an overarching category (e.g., humanity), may facilitate the STE.

## 10 | CONCLUSION

Lolliot et al.'s (2013) review already provided evidence for the occurrence of the STE. It also identified key mediating processes, such as attitude generalization, deprovincialization via ingroup attitudes and identification, empathy, and moderating variables, such as SDO and similarity between primary and secondary outgroups. We believe that in the years following Lolliot et al.'s literature, the findings on the STE largely expanded. At the quantitative level, the existence of the STE has been largely confirmed, as has its potential to transfer to dissimilar outgroups. Methodological issues have been substantially overcome. New mediators have been uncovered, deprovincialization has been largely questioned as a mediating

process (at least, in terms of how the variable has been operationalized), attitude generalization has been confirmed as the main driving process (probably reflecting the scholars' attention to studying it). Research has rather neglected the investigation of moderators, although new moderators emerged since Lolliot et al.'s review (notably, moral licensing as a moderator specific to the STE; Jasinskaja-Lahti et al., 2020).

We believe that the main improvements from Lolliot et al.'s (2013) review are at the conceptual level. First, with a wide range of mediators and empirical support for them, we were able to classify them in distinct categories that may drive future research. Second, paralleling the growth of studies of negative contact in the more general contact research, it is now clear that the STE also applies to negative contact, and its effects may counteract (or interact) with those of positive contact. Third, mirroring the growing amount of research on indirect contact, there are indications that the different indirect contact strategies may also drive the STE.

The aim of the present article was to review research on the STE related to different forms of contact (direct and indirect, positive and negative), identifying and categorizing the main underlying processes of the STE, especially in light of the development of future research. A quantitative analysis (i.e., a meta-analysis) focusing on establishing the effect size of the STE, the eventual role of publication bias, the relative impact of methodological issues (e.g., research design), was therefore beyond the scope of this review. However, we argue for the need of such quantitative analysis that will allow to better define the size of the STE as well as some of its defining conditions.

Research on the STE has progressed substantially in these few years, although it is still quite limited compared to the amount of research pertaining to the effects of intergroup contact on the primary outgroup. Our belief is that the STE is still an under-studied topic, but one that has a lot of potential. At the academic level, it can sensibly expand knowledge on strategies and mechanisms of prejudice reduction. Importantly, this can be done at an interdisciplinary level. As an example, various authors suggested that prejudice reduction interventions should occur early during the development, when attitudes are still malleable (Raabe & Beelmann, 2011). The role of cognitive, social, and moral development should therefore be taken into account (Rutland & Killen, 2015), calling for an integration between the fields of social, cognitive, and developmental psychology. This review can also inform policy considerations and interventions. Identifying effective strategies that promote generalized reductions in prejudice may tackle conflict which pervades diverse societies. With respect to this point, the examination of indirect contact strategies is especially relevant. The main benefit of indirect compared to direct contact is its greater ease of implementation (e.g., use in segregated contexts) and the possibility to reach a larger number of individuals (Vezzali & Stathi, 2021, Chapter 6). In addition, to the extent that the broader benefits of contact (relating to cognitive liberalization) have yet to be identified, such strategies may do more than “simply” reduce prejudice, allowing for a more extensive improvement of the individuals and the society as a whole.

To the extent that researchers are interested in understanding how contact can lower social inequalities and lead to a positive approach to diversity and to greater social equality, understanding how prejudice toward a wide range of groups can be reduced is of primary importance.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## ORCID

Loris Vezzali  <https://orcid.org/0000-0001-7536-9994>

Gian Antonio Di Bernardo  <https://orcid.org/0000-0002-3922-5712>

Veronica Margherita  <https://orcid.org/0000-0002-1777-397X>

Sofia Stathi  <https://orcid.org/0000-0002-1218-5239>

Dora Capozza  <https://orcid.org/0000-0002-9322-8287>

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## AUTHOR BIOGRAPHIES

**Loris Vezzali** is full professor of social psychology at the University of Modena and Reggio Emilia. His research mainly focuses on intergroup contact and the promotion of more positive intergroup relations.

**Gian Antonio Di Bernardo** is assistant professor of social psychology at the University of Modena and Reggio Emilia. His research interests mainly concern prejudice reduction, social change, humanity attributions in intergroup processes.

**Veronica Margherita Cocco** is a PhD student in social psychology. Her research focuses on collective action, intergroup bullying, and strategies aimed to reduce prejudice.

**Sofia Stathi** is Associate Professor of Social Psychology and Leader of the Centre for Inequalities at the University of Greenwich. Her research focuses on intergroup relations, with emphasis on exploring majority and minority group perspectives.

**Dora Capozza** is Emeritus Professor at the University of Padova (School of Psychology). She edited two books on social identity processes (with Rupert Brown). She is fellow of the American Psychological Society (APS). Her research concerns outgroup dehumanization, prejudice and dehumanization reduction, racial and ethnical disparities in medical contexts.

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