

# The generalization of intergroup contact effects: Emerging research, policy relevance, and future directions

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## Abstract

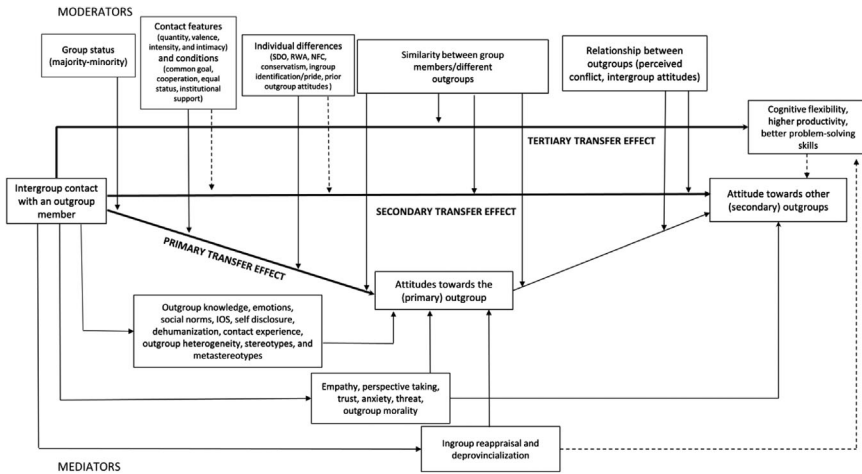
Intergroup contact is one of the most promising and effective strategies for reducing prejudice. Importantly, intergroup contact not only improves attitudes towards an encountered outgroup member but also to the outgroup as a whole (i.e., primary transfer effects), to other outgroups (i.e., secondary transfer effects), and even enhances cognitive functioning beyond intergroup relations (i.e., tertiary transfer effect). In this article, we first review the recent developments on primary, secondary, and tertiary contact generalization. We then summarize mechanisms that underlie and condition each of these generalizations. Third, we highlight key critiques against the contact literature identifying avenues for future research on generalization processes. Lastly, we underline the policy value of research on generalization effects.

## KEYWORDS

Generalization, Intergroup contact, Primary transfer effects, Secondary transfer effects, Tertiary transfer effects

## INTRODUCTION

Opportunities for encounters between people from different groups have grown exponentially with societies becoming increasingly multicultural and diverse. Managing this increased diversity



**FIGURE 1** Mediating and Moderating Processes of Primary, Secondary, and Tertiary Transfer Effects.

Note. Since negative contact has been researched only recently, not all the processes listed in the figure refer to the generalization of negative intergroup contact. All processes displayed in the figure have been researched in case of generalization of positive intergroup contact. IOS = inclusion of the other in the self. SDO = social dominance orientation. RWA = right-wing authoritarianism. NFC = need for closure. Dashed arrows denote possible relationships that could be studied in future research

represents a major challenge to the creation of functional societies with harmonious intergroup relations. Responding to this challenge, intergroup contact theory has proposed that encounters between people belonging to different groups can improve intergroup attitudes (Allport, 1954; Pettigrew & Tropp, 2006).

For intergroup contact to foster positive intergroup relations, it is necessary that an encounter with a specific outgroup member improves not only attitudes toward that individual but that those attitudes generalize to the whole outgroup. This generalization is called the *primary transfer effect* of intergroup contact (Pettigrew & Tropp, 2011). Recent evidence has shown that intergroup contact effects also generalize beyond the encountered outgroup to other outgroups, the so-called *secondary transfer effect* of intergroup contact (Pettigrew, 1997, 2009). Finally, contact with diverse others is also linked to higher productivity, better problem-solving skills, and greater cognitive flexibility. This potential of intergroup contact to influence more general cognitive processes beyond intergroup relations has been coined the *tertiary transfer effect* of intergroup contact (Meleady et al., 2019).

In this paper, we first review the latest findings on contact generalization. Second, we present factors explaining *why* (i.e., mediators) and *when* (i.e., moderators) primary, secondary, and tertiary transfer effects occur (see Figure 1). Third, we consider prominent critiques of intergroup contact research, illustrate how the latest studies addressed these critiques, and identify directions for future research. Lastly, we discuss the policy value of research on generalization effects and explore how interventions harnessing primary, secondary, and tertiary transfer effects may be implemented in everyday settings.

## Generalization of intergroup contact effects

### Primary transfer effects

Positive intergroup contact improves attitudes towards the encountered outgroup member and its effects can generalize to the outgroup as a whole. For example, contact between Catholics and Protestants in Northern Ireland has been linked to improved Catholic's attitudes towards Protestants in general (Tausch et al., 2007; Turner et al., 2013). There is compelling evidence for the primary transfer effects of positive direct (face-to-face contact) and indirect intergroup contact (contact that is not face-to-face, such as knowing that an ingroup member has contact with an outgroup member or being exposed to information about outgroup members through mass media). The research on primary transfer effects has been undertaken across a wide range of samples and contexts, using both correlational and experimental designs, and considering various attitudinal and behavioral outcomes (for meta-analyses on direct contact, see Paluck et al., 2019; Pettigrew & Tropp, 2006; for a review on different types of indirect contact see, Harwood, 2017; Miles & Crisp, 2014; Zhou et al., 2019). Yet, contact with outgroup members is not always positive. Recent studies showed that both direct and indirect negative contact with an outgroup member deteriorates attitudes towards that outgroup as a whole (Barlow et al., 2012; Birtel & Crisp, 2012; Graf et al., 2014; Paolini et al., 2010; Visintin, Voci, et al., 2017; for a detailed discussion on negative contact see, Schäfer et al., 2021).

### Secondary transfer effects

Positive contact with an outgroup member does not only promote more positive attitudes towards this (primary) outgroup, but it also generalizes to other (secondary) outgroups not involved in the contact situation (Pettigrew, 2009). A study conducted in eight European countries, for example, showed that positive contact with immigrants did not only improve attitudes towards immigrants, but it also improved attitudes towards gay and Jewish people (Schmid et al., 2012). Secondary transfer effects of positive direct contact have mostly been demonstrated in cross-sectional research (Pettigrew, 2009) with only a few studies using longitudinal (Eller & Abrams, 2004; Mähönen & Jasinskaja-Lahti, 2016; Tausch et al., 2010; Van Laar et al., 2005) or experimental designs (e.g., Shook et al., 2016; Spiegler et al., 2021). Secondary transfer effects have also been found for other types of intergroup contact—extended (e.g., Joyce & Harwood, 2014), mass-mediated (e.g., Rupar et al., 2021a), or imagined contact (e.g., de Carvalho-Freitas & Stathi, 2017; Harwood et al., 2011; Visintin, Birtel, et al., 2017), and for a variety of outcome measures including behavioral intentions (Meleady & Forder, 2019) and actual behavior (Zingora & Graf, 2019). In addition, secondary transfer effects have been found among children and adolescents (e.g., Vezzali et al., 2018; Vezzali & Giovannini, 2012), student samples (e.g., Shook et al., 2016), and adults (e.g., Tausch et al., 2010), and they have been documented not only for ethnic majority but also minority groups (e.g., Bowman & Griffin, 2012; Marrow et al., 2019, for a recent review on secondary transfer effects see Vezzali et al., 2021). Together, research on the secondary transfer effect demonstrates that positive intergroup contact can reduce prejudice beyond the groups involved in intergroup encounters, thus extending its effects more widely.

Like positive contact, the effects of negative intergroup contact can also generalize to other outgroups (e.g., Brylka et al., 2016; Meleady & Forder, 2019; Zingora & Graf, 2019). However,

empirical research that has examined secondary transfer effects of negative contact is still scarce and inconclusive. A cross-sectional study showed that negative contact with the Roma predicted not only negative attitudes towards the Roma but also anti-gay discrimination in the form of voting in a public referendum aimed at restriction of gay rights (Zingora & Graf, 2019). Likewise, British majority group members' negative contact with Muslim immigrants in the UK was linked to reduced contact intentions to engage with other immigrant groups (Meleady & Forder, 2019). However, other studies found no evidence for secondary transfer effects of negative contact (e.g., Harwood et al., 2011; Lissitsa & Kushnirovich, 2018; Mähönen & Jasinskaja-Lahti, 2016). All in all, secondary transfer effects of positive intergroup contact are well established, but more evidence on secondary transfer effects of negative contact is needed.

### Tertiary transfer effects

Primary and secondary transfer effects of intergroup contact describe generalizations onto outcomes relating to groups. Recently, Meleady et al. (2019) suggested a higher-order generalization effect of intergroup contact on cognitive processes that transcends the realm of intergroup relations, the so-called tertiary transfer effect of intergroup contact. The tertiary transfer effect refers to a process whereby interactions with outgroup members result in greater cognitive flexibility, coined *cognitive liberalization* (Hodson et al., 2018). Cognitive liberalization following intergroup exchanges manifests as increased productivity, better problem-solving skills, and higher creativity (Gurin et al., 2002; Hurtado, 2001; Lu et al., 2017; Maddux & Galinsky, 2009; McLeod et al., 1996; Sommers, 2006). The exposure and engagement with cultural and ethnic diversity makes people aware of different worldviews that may trigger more systematic and complex thinking "outside the box" (Bowman, 2010; for similar results relating to the relationship between biculturalism and cognitive flexibility see, Spiegler & Leyendecker, 2017). Moreover, many studies on cross-group friendships have shown that its beneficial effect can go beyond intergroup relations, fostering cultural openness, social competence, moral reasoning, self-esteem, and greater leadership potential (Abbott & Cameron, 2014; Kawabata & Crick, 2008; Lease & Blake, 2005; Verkuyten et al., 2010). Together, these studies offer supportive evidence for tertiary transfer effects of positive intergroup contact. To the best of our knowledge there is no evidence for tertiary transfer effects of negative intergroup contact.

### Mediators of intergroup contact generalization effects

Mediators of intergroup contact effects represent underlying mechanisms that explain these generalizations. The mediators, depicted in the lower part of Figure 1, include a variety of affective and cognitive mechanisms such as empathy, perspective taking, trust, outgroup morality, intergroup anxiety, and threat, all of which explain primary transfer effects (e.g., Brown & Hewstone, 2005; Kenworthy et al., 2016; Stephan & Stephan, 2000; Vezzali et al., 2019) and possibly also secondary transfer effects (Lolliot et al., 2013). Other processes responsible for both primary and secondary transfer effects are ingroup reappraisal (a reevaluation of the ingroup) and deprovincialization (a less ingroup-centric world view). And yet other processes explain only one type of contact generalization (e.g., outgroup knowledge for primary transfer effects, Pettigrew & Tropp, 2008; attitude generalization for secondary transfer effects, Lolliot et al., 2013). Finally, no research has explored processes underlying tertiary transfer effects, which is an avenue for future research. In the section

below we present each of the mechanisms explaining primary and/or secondary transfer effects and speculate as to whether some of them may also be responsible for tertiary transfer effects.

## Mediators of primary and secondary transfer effects

In this section, we will first review the most studied affective mediating processes before proceeding to cognitive mechanisms. *Empathy and perspective-taking* are two of the most extensively studied mediating mechanisms in the intergroup contact literature (Brown & Hewstone, 2005; Pettigrew & Tropp, 2008). They capture the ability to feel with and understand other people. A great number of cross-sectional, longitudinal, and experimental studies showed that both direct and indirect positive contact experiences with outgroup members encourage taking the viewpoint of outgroup members and understanding their feelings and needs, thus improving attitudes towards the outgroup as a whole (Fuochi et al., 2020a; Harwood et al., 2005; Husnu & Crisp, 2015; Pagotto & Voci, 2013; Pagotto et al., 2010; Swart et al., 2010, 2011; Vezzali et al., 2017). Empathy and perspective-taking also generalize to other outgroups not or much less involved in the contact situation (Swart et al., 2019). Contact with immigrants, for example, was linked to greater perspective taking towards immigrants, which, in turn, was associated with greater perspective taking towards people with disability and gay people and thus more positive attitudes towards these groups (Vezzali & Giovannini, 2012).

Similarly, positive contact with members of different groups can help build outgroup *trust*. Trust is particularly relevant in intergroup relations because it implies positive expectations about intentions and others' behavior (Kenworthy et al., 2016) and fosters cooperation between members of different groups (e.g., Ferrin et al., 2008). Numerous studies supported the mediating role of intergroup trust in the relationship between both direct (Çakal et al., 2019; Yucel & Psaltis, 2019) and indirect forms of contact (Dhont & Van Hiel, 2011; Pagotto et al., 2013; Vezzali et al., 2012), and attitudinal (Pagotto et al., 2013; Paterson et al., 2019) and behavioral intergroup outcomes (Kenworthy et al., 2016; McKeown & Psaltis, 2017; Turner et al., 2013). Relatedly, greater *outgroup morality* (perceiving the outgroup as honest, trustworthy, and sincere) also explains the effect of positive intergroup contact on outgroup attitudes (Brambilla et al., 2013; Vezzali et al., 2019). Finally, there is evidence that trust and outgroup morality generalize to other secondary outgroups consequently improving attitudes towards them (e.g., trust: Rugar et al., 2021a; Žeželj et al., 2020; outgroup morality: Vezzali et al., 2019).

Intergroup contact also reduces intergroup *anxiety* (discomfort when interacting with members of different social groups) and intergroup *threat* (perceiving the outgroup as detrimental to the ingroup), each of which are important predictors of prejudice (Stephan & Stephan, 2000). Research has supported the mediating role of anxiety and threat in primary transfer effects using cross-sectional (e.g., Hutchison & Rosenthal, 2011; Salvati et al., 2019), longitudinal (e.g., Binder et al., 2009; Swart et al., 2011; Wölfer et al., 2016), and experimental designs (e.g., Turner et al., 2013); including different samples such as religious (e.g., Hutchison & Rosenthal, 2011; Tausch et al., 2007) or ethnic groups (e.g., Rugar & Graf, 2019), minority-majority samples (e.g., Hayward et al., 2017); and considering different types of direct and indirect contact (for meta-analyses see, Aberson, 2019; Pettigrew & Tropp, 2008). There is also evidence that lower anxiety felt towards one outgroup because of intergroup contact can generalize to another outgroup, consequently improving attitudes towards that secondary outgroup (Vezzali & Giovannini, 2012; Swart et al., 2019). Positive (vs. negative) contact with the Roma, for example, was associated with a lower (vs. higher) probability to discriminate against gay people through the generalization of threats

perceived from the Roma to threats perceived from gay people (Zingora & Graf, 2019). Finally, we suggest that intergroup anxiety and threat may have implications for tertiary transfer effects as higher levels of threat and stress can impair cognitive performance (Mrazek et al., 2011; Richeson & Shelton, 2012).

Apart from affective processes, significant attention in the contact literature has been further devoted to cognitive mechanisms such as *ingroup reappraisal* and, specifically, *deprovincialization* as mediators of contact generalization effects. Pettigrew (1997) proposed that intergroup contact leads people to reappraise their ingroup's norms, customs, and traditions, which then foster more positive attitudes towards primary and secondary outgroups. Intergroup contact thus promotes a less provincial, ethnocentric worldview (i.e., deprovincialization). In support of the deprovincialization hypothesis, Pettigrew (1997) found that positive contact with foreigners was associated with less national pride among ethnic majority group members which, in turn, predicted not only more positive attitudes towards immigrants and support for immigration policies, but also more positive attitudes and policy support in relation to multiple other outgroups (e.g., South Europeans, South Asians). However, follow-up research has yielded mixed results with some studies supporting deprovincialization as an underlying mechanism of primary and secondary transfer effects (e.g., Schmid et al., 2014; Vezzali et al., 2018) and other studies providing inconsistent results (e.g., Eller & Abrams, 2004; Sparkman, 2020; Tausch et al., 2010). One of the reasons for the discrepant findings may be the inconsistent operationalization of the construct deprovincialization (e.g., as a change in ingroup identification: Eller & Abrams, 2004; Tausch et al., 2010; as increased social identity complexity: Schmid et al., 2014; as lower social dominance orientation: Vezzali et al., 2018; or as support for multiculturalism: Lolliot et al., 2013; Verkuyten et al., 2010). Recently, and in line with Pettigrew's original conceptualization (1997, 2011), Boin et al. (2020) proposed a new measure of deprovincialization (the Cultural Deprovincialization Scale) that defines deprovincialization as a growing acceptance of other people and cultures. In a longitudinal study, the authors found that positive and negative contact were associated with cultural deprovincialization, which, in turn, predicted outgroup attitudes and prejudice towards immigrants (Boin et al., 2020, Study 2). Finally, deprovincialization may not only be beneficial in case of primary and secondary transfer effects, but also tertiary transfer effects. Since ingroup reappraisal process is based on updating and revising ingroup beliefs, we suggest that it could also contribute to cognitive liberalization argued to be the outcome of tertiary transfer effects.

## Mediators of specifically primary transfer effects

Multiple other mechanisms explaining specifically primary (but not secondary) transfer effects of positive contact have been identified. These comprise affective variables such as different intergroup *emotions* (e.g., anger: Barlow et al., 2019; disgust and admiration: Cernat, 2011; fear: Kauff et al., 2017; Seger et al., 2017) and numerous *cognitive processes* (e.g., knowledge about the outgroup: Brown & Hewstone, 2005); social norms (perceptions of how ingroup members think and act: Christ et al., 2014; Paterson et al., 2019; Turner et al., 2008; Wang et al., 2019); inclusion of the other in the self (perceived closeness between the self and outgroup: Page-Gould et al., 2010; Turner et al., 2008); self-disclosure (disclosure of personal information about self to other: Frølund Thomsen, 2012; Turner, et al., 2007); dehumanization or inhumanization (denying elements of humanness to outgroups: Prati & Loughnan, 2018; Stathi et al., 2017); perceived importance of and satisfaction with contact (Frias-Navarro et al. 2020; van Dick et al., 2004); perceived outgroup heterogeneity (perception of similarity between outgroup members: Čehajić et al., 2008); stereotypes

of outgroup warmth and competence (Kotzur et al., 2019; Zingora et al., 2020); and metastereotypes (beliefs about the stereotypes that outgroup members hold about their group: Mazziotta et al., 2011). It is plausible to expect many of these processes (e.g., emotions, social norms, outgroup evaluations) to generalize from primary to secondary outgroups and thus underlie not only the primary but also secondary transfer effects.

Finally, research has not only focused on mechanisms that can explain primary transfer effects of positive but also negative intergroup contact. Negative contact relates, for example, to unfavorable outgroup evaluations through lower levels of empathy (e.g., Hayward et al., 2017; Pagotto & Voci, 2013) and trust (e.g., Pagotto & Voci, 2013), as well as higher levels of intergroup anxiety (e.g., Techakesari et al., 2015; Wang et al., 2019) and threat (e.g., Lutterbach & Beelmann, 2020; Rupar & Graf, 2019; Zingora & Graf, 2019). Yet, research on negative contact is still in its infancy, and more research considering mechanisms of primary transfer effects of positive and negative contact simultaneously is needed.

## Mediators of specifically secondary transfer effects

Some processes are only specific to secondary transfer effects. *Attitude generalization*, for example, is a process whereby contact-induced attitudes towards a primary outgroup are generalized towards other secondary outgroups (Lolliot et al., 2013; Pettigrew, 1997). Contact with immigrants, for example, was linked to more positive attitudes towards immigrants which, in turn, were related to more positive attitudes towards gay, Jewish, and homeless people (Pettigrew, 2009; Schmid et al., 2012). Consistent and strong support for attitude generalization was further presented by Tausch et al. (2010) across four studies (including longitudinal evidence) comprising more than 4,000 participants from various national contexts (i.e., Cyprus, Northern Ireland, and the United States). Finally, secondary transfer effects of negative contact are also explained by attitude generalization (Brylka et al., 2016; Jasinkaja-Lahti et al., 2020). Together, these studies make a strong case for attitude generalization as an underlying mechanism of secondary transfer effects.

## Moderators of intergroup contact generalization effects

Moderators refer to conditions that strengthen or weaken intergroup contact generalization effects. We have summarized the most important moderators in the upper part of Figure 1. Allport (1954) suggested that intergroup contact reduces prejudice towards the entire outgroup only when common goals, cooperation, equal status, and institutional support are present. Pettigrew and Tropp's (2006) meta-analysis showed that these optimal conditions are not necessary for contact to reduce prejudice but when present, they lead to greater prejudice reduction. Research has identified numerous other conditions that may foster or hinder the generalization of contact effects from an outgroup member to the outgroup as a whole as well as to other outgroups. First, we discuss factors that promote all three types of generalization. Second, we review factors that apply to primary or secondary transfer effects specifically and suggest whether some of them may also condition tertiary transfer effects.

## Moderators of primary, secondary, and tertiary transfer effects

Meleady et al. (2019) argue that all three types of transfer effects are contingent on *semantic distance* (the degree of relatedness or similarity) between a target (e.g., contacted individual) and a frame (e.g., group prototype) in semantic networks. For primary transfer effects to occur, the contact partner must be recognized as representing the given outgroup (Hewstone, 1994), implying high similarity or a low semantic distance between the outgroup member and the outgroup prototype. Indeed, Brown and Hewstone (2005) argued that if the outgroup members are perceived as prototypical, similar, and representative of their group, group membership becomes salient and more accessible, and attitudes towards the individual group member are more likely to generalize to the entire outgroup. Results from cross-sectional (e.g., Harwood et al., 2005; Pagotto et al., 2010), experimental (e.g., Ensari & Miller, 2002; Stathi et al., 2011), and longitudinal (e.g., Brown et al., 2007) studies confirmed that some level of group representativeness must be maintained for attitudes to generalize to the whole group. For example, individuals engaging in cooperative contact with a person who was typical and representative of the outgroup “Muslims” (e.g., reading an Islamic newspaper, wearing a headscarf), reported more favorable attitudes towards other Muslims than individuals engaging with an atypical outgroup member (Ensari & Miller, 2002). Moreover, primary transfer effects are stronger when the outgroup is perceived to be coherent and unified (i.e., entitative; Neji et al., 2021) further confirming the importance of similarity in primary transfer effects (but see Pettigrew, 1998, for a discussion on the potential negative impact of *too much* group representativeness *too early* in the initial stages of intergroup encounters).

Correspondingly, secondary transfer effects are also enhanced by perceived similarity or low semantic distance between outgroups (Pettigrew, 2009; Tausch et al., 2010). Researchers have argued, for example, that a similar status in society (Bowman & Griffin, 2012; Marrow et al., 2019; Van Laar et al., 2005), but also linguistic (Eller & Abrams, 2004) and religious similarity (Bratt, 2002) between outgroups strengthen secondary transfer effects. Recently, similar group characteristics (e.g., collective pessimism or optimism) were shown to strengthen secondary transfer effects (Lolliot et al., 2021, Study 2; Boin et al., 2021). However, similarity might also be unspecific. Harwood et al. (2011) showed, for example, that imagined contact with an illegal immigrant was linked to more positive attitudes towards outgroups independently rated as overall similar to illegal immigrants (e.g., Mexican-Americans) but not towards outgroups rated as more dissimilar (e.g., Republicans; see also Visintin, Green et al., 2017). Relatedly, Lolliot et al. (2021, Study 5), manipulated similarity by presenting participants with information about a bogus study indicating that two outgroups were either very similar or very different. The results showed that secondary transfer effects were almost twice as large in the similarity condition compared to the difference condition. Together, these studies provide consistent support for the role of similarity in strengthening secondary transfer effects, independently of its measurement.

While primary and secondary transfer effects profit from high similarity or low semantic distance between the target and the frame, tertiary transfer effects thrive under low similarity or high semantic distance. Meeting a person who does not correspond to existing schemata, for example, inhibits category-based responding (the tendency to form impressions according to categories where targets were placed) in favor of more systematic information processing (attempts to thoroughly understand any available information through careful attention; Fiske & Neuberg, 1990). Systematic information processing, in turn, can carry over to other decision domains where people would otherwise rely on immediately and habitually accessible knowledge (Crisp & Turner, 2011). Contact with an atypical outgroup member may therefore be less effective in improving



outgroup attitudes but it can promote more individuated and systematic information processing, the so-called cognitive liberalization (but see Tadmor & Tetlock, 2006). Consequently, contact with an atypical outgroup member can result in enhanced cognitions which eventually may improve intergroup attitudes (Dhont & Hodson, 2014).

All in all, higher perception of outgroup members' similarity can be employed to challenge prejudice against one or multiple outgroups, and lower perceptions of similarity as a motivation for a more complex way of thinking and consideration of alternative viewpoints, ultimately yielding benefits in terms of people's cognitive growth which eventually feeds back to intergroup domain. One way of facilitating all three types of generalization via similarity at once could be by finding an *optimal semantic distance*. In reality, outgroup members may be somewhat typical and groups somewhat similar rather than highly or lowly prototypical/similar, which could instigate weaker but simultaneous processes combining primary, secondary, and tertiary effects of intergroup contact. Alternatively, none of the transfer effects might occur if thresholds for similarity/prototypicality are not met. However, we expect that categorization of people into groups happens most of the time due to the pervasive human tendency to classify objects into categories (Tajfel, 1979), which should guarantee the beneficial effects of the primary, secondary, and tertiary transfer effects of positive intergroup contact.

## Moderators of specifically primary transfer effects

Multiple factors that facilitate or hinder primary transfer effects of positive and negative contact have been identified. Some of them relate to *past contact experiences*, however, the evidence is mixed. Some studies concluded that the effects of contact are strongest among those with lots of prior contact (Voci et al., 2017) whereas other studies suggested that the effects of contact are strongest among those with little prior contact. For example, in the context of Bosnia Herzegovina, positive post-war contact was associated with higher outgroup trust and lower social distance when individuals already had lots of positive outgroup contact before the war (Voci et al., 2017). Extensive and positive contact in the past can further buffer the detrimental effects of negative contact in the present (Paolini et al., 2014; for similar results see Árnadóttir et al., 2018; Fuochi et al., 2020b). However, positive contact has also been found to be particularly beneficial for those who have had little outgroup contact. For example, the prejudice-reducing effect of outgroup friendships at University in Northern Ireland was stronger for those for whom contact was a novel experience (Al Ramiah et al., 2013). Similarly, the effects of positive contact were particularly strong in people with past negative contact experience (e.g., Árnadóttir et al., 2018; Fuochi et al., 2020b). Past contact experiences offer an intriguing avenue for future research on secondary transfer effects. It is possible that the generalization of contact effects to secondary outgroups could be weaker (stronger) when individuals already know and dislike (like) the secondary outgroup.

Other factors that condition the contact effects include contact features such as *intensity* (the extent to which contact is perceived as positive or negative) and *intimacy* (perceiving contact as close rather than superficial). Positive contact, for example, was associated with improved outgroup attitudes when contact intensity was high but the intensity of negative contact had no effect on outgroup attitudes (Schäfer et al., 2020). Furthermore, intimate intergroup contact (e.g., cross-group friendship, romantic relationships) has been recognized as the most powerful form of contact (Davies et al., 2011; Marinucci et al., 2020). For instance, Graf, Paolini, et al. (2020) demonstrated that intimacy counteracted the detrimental effect of negative intergroup

experiences as those who reported negative contact and intimate intergroup relationships were more in favor of the outgroup than those who reported negative contact but lacked intimate intergroup relationships. Similarly, Fuochi et al. (2020c) found that negative contact was a better predictor of prejudice than positive contact when contact was superficial but positive contact was a better predictor of prejudice than negative contact when contact was intimate. As attitude generalization is the main mechanism underlying secondary transfer effects, it is conceivable that intensity and intimacy of contact also promote secondary transfer effects, a possibility that has not yet been investigated.

Characteristics of individuals engaged in intergroup contact are also important for the strength of primary transfer effects. Positive contact, for example, is especially beneficial for individuals who are predisposed to prejudice. Specifically, people who endorse group hierarchies (i.e., social dominance orientation, SDO; Sidanius & Pratto, 1999), support conventions and traditions (i.e., right-wing authoritarianism, RWA; Altemeyer, 1996), are resistant to change (i.e., conservatism; Jost et al., 2003), have more rigid cognitive styles (i.e., need for closure, NFC; Webster & Kruglanski, 1994), and believe that diversity is detrimental (Adesokan et al., 2011) benefit most from intergroup contact (for evidence on SDO and RWA: Dhont & Van Hiel, 2009; Hodson, 2011; NFC: Dhont et al., 2011; Kteily et al., 2019; conservatism: Barni et al., 2020; Graf & Sczesny, 2019; for a review on individual differences as moderators of primary transfer effects see Turner et al., 2020). Relatedly, intergroup contact effects are stronger for individuals who identify more strongly with their group (i.e., ingroup identification, Paterson et al., 2019; Voci et al., 2015) or have higher national pride (e.g., Luksyte & Avery, 2010). These individuals usually exhibit more negative intergroup attitudes (e.g., Pettigrew et al., 2007; Verkuyten & Brug, 2004). Likewise, primary transfer effects of positive contact are stronger for those who hold more unfavorable outgroup attitudes (e.g., Munniksmma et al., 2013) or negative outgroup stereotypes (e.g., Zingora et al., 2020, but see Paolini & McIntyre, 2019). Future research could explore the role of such individual differences in secondary transfer effects, investigating how prejudice-related variables can favor/hamper the generalization of positive and negative contact effects to other groups, thus shedding light on the reasons why some individuals demonstrate dislike towards multiple outgroups.

Another moderator of primary transfer effects is group status. Intergroup contact effects were, for example, weaker among minority groups members than among majority group members (e.g., Barlow et al., 2013; Tropp & Pettigrew, 2005). In addition, contact effects were weaker when the ingroup was perceived as having a lower social status than the outgroup (e.g., Tausch et al., 2007). However, primary transfer effects of minorities' positive intergroup contact on attitudes towards majority members may be enhanced for minorities living in areas densely populated with other minority group members (Barlow et al., 2013), with majority group members (Schmid et al., 2017), or for social contexts in which majority members have positive experiences with minority members (Kauff et al., 2016).

## Moderators of specifically secondary transfer effects

Research on the secondary transfer effect showed that relations between outgroups should be considered. Spiegler et al. (2021) used the Balance Theory (Heider, 1958) to propose that *perceived conflict* between outgroups weakens secondary transfer effects and might even promote antagonistic secondary transfer effects, whereby positive contact with a primary outgroup worsens attitudes towards secondary outgroups who are viewed as social opponents or adversaries of the primary outgroup. Positive contact with elderly people, for example, could be linked to more negative

attitudes towards the younger generation when people perceive intergenerational conflicts. The results of two survey studies, three experimental online studies, and one internal meta-analysis showed that outgroup conflict weakens or eliminates secondary transfer effects. However, support for antagonistic secondary transfer effects was limited, suggesting that positive contact is unlikely to have unintended negative consequences for secondary outgroups (Spiegler et al., 2021). Similarly, Zingora et al. (2021) considered intergroup attitudes of two outgroups as an important dimension that conditions secondary transfer effects. Using longitudinal social network analysis, the authors showed that friendships with Turkish peers improved Dutch students' attitudes towards Moroccans only when these Turkish friends had *positive attitudes* towards Moroccans. Overall, the two articles that considered the specifics of outgroup relations represent a novel contribution to the boundary conditions of secondary transfer effects. Future research should continue to investigate the role of relationship between groups in secondary and possibly also primary transfer effects. It is, for example, possible that intergroup contact does not generalize to the group when the contacted outgroup member disregards and devalues its own ingroup.

## Critiques and future research regarding the generalization of contact

The extensive evidence on the generalization of intergroup contact has not been immune to criticism. In recent years, some authors have raised attention to critical aspects that may undermine the beneficial effects of intergroup contact, calling for research advancements in the field. Yet, the most recent studies on primary and secondary transfer effects, outlined above, illustrate the many ways in which researchers have already started addressing these critiques.

Pettigrew and Hewstone (2017) have warned against the tendency of researchers to model the effects of contact around a single factor (be it a single dimension of contact or the impact of contact on a single outgroup), the use of methods that cannot test the temporal predictions made by contact theory, and the neglect of other relevant theories or critical variables. As evident from our literature review, progress has been made in regard to the single factor critique. Studies have, for example, considered multiple mediating and moderating factors (e.g., Fuochi et al., 2020a; Neji et al., 2021). We acknowledge the critique that designs employed to investigate contact generalization limit our understanding of temporal relations as most of the studies relied on cross-sectional, survey data. In fact, to date, experimental research is scarce and longitudinal studies on secondary transfer effects have only used two waves (Mähönen & Jasinskaja-Lahti, 2016; Pettigrew, 2009; Tausch et al., 2010) while, to test the full temporal sequence of a mediation process, at least three waves are necessary (Selig & Preacher, 2009). However, in the reviewed literature, we saw the progress that research on the generalization of contact effects has made in this direction employing, for example, experimental (e.g., Lolliot et al., 2021; Spiegler et al., 2021) and longitudinal designs (Swart et al., 2011) that are more suitable to uncover causal and temporal relations. Recent studies also have considered established theories not previously applied to the study of secondary transfer effects (Spiegler et al., 2021). Moreover, contact generalization effects are now studied across a variety of social contexts (e.g., Lissitsa & Kushnirovich, 2018; McKeown & Psaltis, 2017; Zingora et al., 2021) and research has moved beyond its focus on outgroup evaluation (e.g., attitudes, prejudice) to considering behavioral outcomes (e.g., approach-avoidance behavior: Meleady & Forder, 2019; voting: Zingora & Graf, 2019). We strongly encourage researchers to further explore the effects of contact and its generalization on a range of behavioral outcomes that have high ecological validity, such as intergroup helping behavior, engaging in protests against

segregation or inequality, and actual collective action on the behalf of outgroups (for a detailed discussion on intergroup contact and social change see Hässler et al., 2020).

Another critique was raised by Dixon et al. (2005), who argued that the over-emphasis on pursuing the “optimal contact strategy” by social psychologists has failed to address the types of interactions that take place between groups on a daily basis, where intergroup interactions are often occasional, superficial, and, in fact, negative. This focus on what researchers define as rarefied interactions constitutes a potential threat to the ecological validity of contact research, in which the diversity of contact experiences that occur in everyday life risks to be neglected. However, research on primary transfer effects has previously taken into account the heterogeneity of real-life interactions, assessing not only their quantity, but also dimensions such as contact quality and perceived importance (e.g., Islam & Hewstone, 1993; van Dick et al., 2004). Furthermore, this gap in the contact literature has recently received more attention by addressing the primary and secondary transfer effects of both positive and negative contact experiences (Barlow et al., 2012; Graf & Paolini, 2017; Zingora & Graf, 2019), and by research employing more detailed measures of contact to capture the complexity of intergroup interactions (Hayward et al., 2017), the intensity of contact (Schäfer et al., 2021), the level of closeness of intergroup relationships (Fuochi et al., 2020c; Graf, Paolini, et al., 2020), and subjective definitions of contact and daily fluctuations in intergroup experiences (Keil & Koschate, 2020; Van Acker et al., 2014). Social network analysis is another promising approach that accounts for how relationships are structured between network members placing intergroup relations within a social context (Wölfer & Hewstone, 2017; Zingora et al., 2021). Similarly, repeated measure designs, such as daily diary and experience sampling approaches can be used to study day-to-day intergroup contact experiences (for a discussion on methodological and analytical advances in contact research see O’Donnell et al., 2021). Future research should continue to investigate how individual perceptions of daily outgroup contact—in terms of contact valence, intimacy, and intensity—shape generalization effects of contact.

McKeown and Dixon (2017) highlighted that, despite the evidence on the beneficial effects of positive intergroup contact, in some settings, intergroup interactions are still characterized by persistent segregation, be it racial (e.g., in South Africa: Dixon & Durrheim, 2003), ethnic (e.g., in Kosovo: Rugar et al., 2021a), or religious (e.g., in Northern Ireland: Dixon et al., 2020). Recognizing the limitations of opportunities for direct contact in these contexts, a growing body of research has addressed this critique. One way to overcome the constraints of limited direct contact opportunities is through indirect forms of contact such as extended, mass-mediated, imagined contact, or online contact (Vezzali et al., 2014; White et al., 2020; Žeželj et al., 2017). Another way is through secondary transfer effects. Engaging in contact with more accessible and approachable outgroups, for example, offers an important means for improving attitudes towards other outgroups that are more difficult to reach (e.g., Jacobs & van der Linden, 2018; Lissitsa & Kushnirovich, 2018, 2020; Rugar et al., 2021a; Vezzali et al., 2019). Overall, there is compelling evidence that contact can promote positive intergroup relations in contexts where segregation remains pernicious and direct interaction between groups is limited. However, to better understand how resegregation can be avoided future studies should investigate the long-lasting effects of contact.

Paluck et al. (2019) stated that in order to provide a reliable and solid base for policy decisions, research on intergroup contact should follow more rigorous methodological criteria such as (1) random allocation of persons to (non)intervention conditions, (2) estimation of the post-intervention effectiveness, and potentially (3) working in line with guidelines for open science (e.g., preregistration of hypotheses). Consistent with these criteria, recently, a methodologically sound study conducted in a classroom setting, showed that virtual outgroup contact can enhance tolerant social norms and empathy towards different outgroups (Mousa, 2020a). Similarly,

interactions between young people from different castes in India playing in the same cricket team had positive effects on different prejudice-related outcomes (Lowe, 2020). Moreover, contact between Christians and Muslims in a soccer league in Iraq (Mousa, 2020b) and in ethnically mixed classroom settings in Nigeria (Scacco & Warren, 2018) were successful in changing discriminatory behaviors. Overall, Paluck and colleagues' (2019) call for improved standards in research on intergroup contact has already inspired methodologically more sound studies.

The tertiary transfer effect of intergroup contact has not been criticized yet since it represents a new area of investigation that requires more evidence. For example, the main idea that intergroup contact can improve cognitive flexibility and problem solving, and that it benefits from high semantic distance, should be tested experimentally. Other promising directions for future research include contact valence as a moderator of tertiary transfer effects and other potential outcomes of tertiary transfer effects such as broadening an individual's perspective or cognitive styles and beliefs. Finally, as argued before, future research should investigate whether ingroup reappraisal and deprovincialization can explain tertiary transfer effects and also examine the existence of an optimal semantic distance between a target and a frame and its potential to maximize all three types of generalization effects.

## Implications for social interventions and policy

More than any other social psychological concept, intergroup contact was conceived as an intervention from its early days. Given the generalization effects outlined in the previous sections, intergroup contact has great potential for effective interventions aimed at reducing prejudice against outgroups (i.e., primary and secondary transfer effects) and potentially improving cognitive skills (i.e., tertiary transfer effect). Considering recent advancements in research on the generalization of the effects of direct and indirect forms of intergroup contact, we suggest how this research can inspire interventions in everyday settings. Due to increasing globalization, educational and workplace settings are becoming more culturally diverse. Culturally diversity increases opportunities for intergroup contact, thereby allowing for application of intergroup contact interventions for combating prejudice in both schools (among children and adolescents) and the workplace (among adults).

Prejudiced attitudes become more difficult to change in late adolescence and early adulthood (Byrnes, 1995; Krosnick & Alwin, 1989; Wölfer et al., 2016) which is why we strongly encourage contact interventions to target especially children and younger adolescents. Yet, since children's attitudes are more susceptible to change, attitude change among children could be less long-lasting than it is among adults. Repeated exposure to intergroup contact could be one way to solidify attitude change among children and educational institutions provide an ideal setting to implement such recurrent contact interventions as part of curricula but also other extracurricular activities (e.g., school clubs). Contact in schools does not need to be employed just to combat prejudice against other ethnic groups. Contact with people with disabilities seems to be especially effective in reducing prejudice towards people with disability (Armstrong et al., 2017; Paluck et al., 2019, for meta-analyses) and even other stigmatized minority groups (Graf & Dvorakova, 2021). This provides an important argument for the integration of students with different psychological, physical, and cognitive needs in schools.

In addition to targeted contact interventions, diversity itself can facilitate intergroup contact and thus reduce prejudice (e.g., Cameron & Turner, 2017) and improve cognitive skills (e.g., Abbott & Cameron, 2014; Hurtado, 2005; Laird, 2005). A 5-year panel study in Sweden, for example,

showed that classroom diversity among pre-adolescents increased the likelihood of friendships between those with and without an immigrant background, which in turn was associated with lower levels of anti-immigrant prejudice later on (Bohman & Miklikowska, 2020, see also: Žeželj et al., 2015). Overall, there is substantial evidence that intergroup contact could make a basis for interventions in educational settings. Such interventions, from our point of view, are not an extra add-on but should be core educational tasks in increasingly diverse societies.

Workplace environments also represent a promising context to implement intergroup contact interventions as interactions occurring in organizational settings have been found to be particularly effective in reducing prejudice (Pettigrew & Tropp, 2006). Such interventions may include, for example, working in (ethnically or religiously) diverse teams or taking part in diversity trainings. Contact experiences between coworkers from different groups can also enhance empathy and lower anxiety, thus improving outgroup attitudes. For example, employees without health issues working with colleagues who had psychiatric problems reported more empathy and less anxiety towards them. Moreover, these emotions generalized to people with disabilities in general but only when group membership salience during the encounters was high (Vezzali & Capozza, 2011). Similarly, Pagotto et al. (2010) showed that intergroup contact between Italian hospital workers and immigrant patients was associated with higher empathy and lower anxiety towards immigrant patients at work and immigrants in general which, in turn, predicted more positive attitudes towards immigrants. Furthermore, working in diverse groups has been associated with enhanced creativity and has been found to encourage the search for novel information and perspectives, leading to better decision making and problem-solving (Galinsky et al., 2015; Phillips et al., 2006). These results suggest that a diverse work environment provides not only an opportunity to promote more positive intergroup relations but also an occasion to build innovative teams and organizations. In line with the evidence that group similarity facilitates generalization, direct contact interventions can include cooperative tasks between ingroup and prototypical outgroup members that highlight similarities between the primary outgroup and other secondary outgroups in terms of various dimensions (e.g., disadvantage, stigma, or unfair treatment). This can be applied in both the workplace and educational settings to help achieving the maximum level of generalization of contact effects.

Besides the potential of direct intergroup contact to improve intergroup relations in everyday settings, it is not always possible to bring members of different groups together due to the marginalization of certain groups in the society (e.g., Roma) or segregation that often exists in post-conflict settings (e.g., Kosovo). In such cases, indirect forms of contact such as online contact and exposure to outgroups via books and other media content should be used (e.g., Cameron & Rutland, 2006; Di Bernardo et al., 2017; Graf, Linhartova, et al., 2020; Lissitsa & Kushnirovich, 2018). International companies, for example, provide manifold opportunities for online collaboration and contact between employees from different groups which is likely to promote positive intergroup relations and tolerance (Staples & Zhao, 2006). Books can also improve intergroup relations. Italian elementary school children who read or watched the story of a child with disabilities becoming friends with children without disability showed improved attitudes and more positive behavioral intentions towards children with disabilities (Cocco et al., 2020). Finally, media programs can be used when direct contact is not possible or in addition to direct contact. To make sure that books and media programs are maximally effective at improving attitudes towards an outgroup and beyond, they need to include contact between characters of different groups. Writers and producers can tailor their scripts and storylines, presenting, for example, an outgroup character's point of view in a personalized way, leading the viewer to identify with the outgroup character's life circumstances and events, thereby, facilitating the generalization of empathic

feelings to the character's real-world outgroup (e.g., Paluck, 2009). Specific characteristics of the contact should also be considered. For example, reading or listening to stories about intergroup help improve intergroup relations (Bilewicz & Jaworska, 2013; Čehajić & Bilewicz, 2017; Rupar et al., 2021b). Stories on intergroup helping can enhance empathy, perceptions of outgroup morality, trust, and friendliness, processes that contribute to contact generalization. Moreover, since indirect contact may influence larger society by changing social norms (see White et al., 2020 for a detailed discussion on indirect contact), it could be particularly effective not only in fostering more positive views of the primary outgroup, but also other outgroups not involved in the contact situation (i.e., secondary transfer effects).

## CONCLUSIONS

Through this review, we have elaborated on the substantial evidence on the generalization of intergroup contact effects showing that contact is a powerful strategy to elicit attitudinal and behavioral changes within and beyond the realm of intergroup relations. Moreover, we have discussed relevant mechanisms and conditions that facilitate generalization and help tailoring more specific interventions. Yet, while many, if not most, intergroup contact researchers are motivated to improve troubling intergroup issues in society, their important research outcomes ironically often do not cross the boundaries of academia. Moreover, while many interventions are undertaken, they often lack a scientific basis and proper evaluation. Thus, we urge scientists, who hold important knowledge, and practitioners, who can apply this knowledge, for more collaboration to bring on effective changes benefiting diverse groups in society.

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