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Intergroup Contact as an Agent of Cognitive Liberalization

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Abstract

Intergroup contact is widely recognized as one of the most validated methods of improving attitudes toward outgroups. Yet what is intergroup contact “good for” beyond this function? To answer this question we take a panoramic view of the literature, beginning with the recognition that contact is multifaceted in both form (e.g., face-to-face, indirect, simulated) and outcome (e.g., attitudes, cognition, behavior). Taking this highly inclusive view of what contact “is” and what contact “does” suggests that it plays a fundamental role in the shaping of human cognition. An increasingly diverse body of research demonstrates that contact exerts a generalizing reaction across target outgroups, making respondents less inward looking and more open to experiences, it shapes ideology regarding how the world ought to operate (i.e., ideologies about social hierarchy or regulation), and over time can promote new ways of problem-solving, enhance cognitive flexibility, and foster creativity. For these reasons we believe that contact is a key liberalizing agent that shapes human cognition and experience; as such, contact theory should now share the stage with other prominent theories (e.g., cognitive dissonance) that speak to a broader understanding of human nature.

Keywords: contact, liberalization, prejudice, cognition

Intergroup Contact as an Agent of Cognitive Liberalization

Inspired by early observations of the benefits of desegregation on racial attitudes in natural settings (e.g. Allport & Kramer, 1946; Brophy, 1945; Deutsch & Collins, 1951; Williams, 1947), Allport (1954) argued that that encouraging interactions between members of different groups can reduce prejudice and improve social harmony. Reflecting its intuitive appeal and applied potential, the so-called “contact hypothesis” has become one of the most extensively tested ideas in psychology (Dovidio, Glick, & Rudman, 2005; Oskamp & Jones, 2000). Over 65 years of empirical research and considerable scholarship (e.g., Brown & Hewstone, 2005; Hodson & Hewstone, 2013a; Pettigrew, 1998; Pettigrew & Tropp, 2011) have led to the widely-shared recognition that contact “works” in reducing prejudice, confirmed by multiple meta-analytic integrations (Beelman & Heinemann, 2014; Davies, Tropp, Aron, Pettigrew, & Wright (2011); Miles & Crisp, 2014; Lemmer & Wagner, 2015; Pettigrew & Tropp, 2006). That is, across different implementations, participant populations, and bases for group membership, more contact is generally associated with less prejudicial attitudes (Pettigrew & Tropp, 2006; average $r = -.21$). Meta-analyses also highlight important nuances and qualifications: Effects are better established for affective than cognitive outcomes (Tropp & Pettigrew, 2005a), stronger for majority than minority groups (Tropp & Pettigrew, 2005b), and robust even in conflict-ridden field contexts (Lemmer & Wagner, 2015). Although the contact-prejudice association may be partially explained by the tendency for prejudiced people to avoid intergroup contact, several studies using diverse methods reveal that the path from contact-to-prejudice is typically stronger than the reverse path (e.g. Brown, Eller, Leeds, & Stace, 2007; Pettigrew, Christ, Wagner, & Stellmacher, 2007; Swart, Hewstone, Christ, & Voci, 2011; cf. Dhont, Van Hiel, & Hewstone, 2014). The key principles are now distilled into *intergroup contact theory* (Brown & Hewstone,

2005; Pettigrew, 1998), a sophisticated theoretical account of how, when, and why intergroup interactions can contribute to the improvement of intergroup relations.

But critics have urged the field to think beyond attitudes (Dixon, Durrheim, & Tredoux, 2005; Dixon & Levine, 2012; Wright & Lubensky, 2009). Their central premise is that contact can exert deleterious effects outside of the attitude domain, for example in failing to change policy positions relevant to redistributing power or social value. That is, contact makes minorities like the dominant group more, seemingly making the disadvantaged group less motivated to instigate change. (Although more recent research using multi-level designs has discovered an interesting qualification: In regions where the majority group has more positive contact experiences, minorities are more, not less, likely to be vocal about their rights; Kauff, Green, Schmid, Hewstone, & Christ, 2016). As a collective, such studies beg the bigger question: “What is contact *good for*?” We embrace the beyond-prejudice critique and adopt an admittedly broader approach, pushing the implications even outside of the intergroup domain. We propose that contact, like liberal education, is “good for” cognitive expansion, not only improving intergroup attitudes and relations but promoting deprovincialized thinking, challenging worldviews, and improving problem solving, flexible thinking, and creativity. Contact, despite being multifaceted in both manifestation and effect, has been under- (not over-) recognized for its role in broadening the mind. Thinking about the accumulated evidence for contact theory through this lens, intergroup contact emerges as a liberalizing agent for human cognition, with potential far-reaching benefits beyond intergroup relations.

Intergroup Contact as Cognitive Liberalization

Our thinking about cognitive liberalization is informed, in part, by how formal university education in the West is commonly regarded as a *liberalizing* force. A liberal education is one

“concerned with broadening a person’s general knowledge and experience, rather than with technical or professional training” (OED, n.d.). Although curriculum content is deemed important, considerable value and emphasis is placed on training the mind to think and “expanding its powers” (Zakaria, 2015, p. 51), resulting in enhanced abilities to “read critically, analyze data, and formulate ideas” (p. 61). With regard to its the implications, the Association of American Colleges and Universities considers liberal education a strategy to empower people, providing them with the tools and resources to “deal with complexity, diversity, and change”, emphasizing that these skills translate across situations and challenges faced (AACU, n.d.). Intergroup contact, we argue, serves a parallel function, albeit with markedly less structure and purpose-built intent, more along the lines of “street knowledge.” Like education, contact can serve as a cognitive liberalizing agent, relevant not only to shaping the content or valence of intergroup attitudes but how people think about, approach, and deal with the world¹. Like liberal education, contact is cognitively challenging and mentally draining (Richeson & Shelton, 2003), in part due self-regulation demands (Richeson & Trawalter, 2005). This renders contact a mental exercise that, in keeping with other repeated or rehearsed exercises, should become less stressful and demanding over time (see also MacInnis & Page-Gould, 2015). With repeated exposure and “practice”, contact can generate positive consequences, including the potential to challenge worldviews and develop cognitive growth, flexibility, and creativity.

The theoretical framework we propose argues that contact has a liberalizing effect on not only intergroup attitudes but on cognitive functioning more broadly. Over 70 years of research on intergroup contact has shown how it works to improve intergroup attitudes, emotions and intergroup behavior. Yet we observe that contact is inherently multi-faceted in both its *manifestation* (e.g., personal contact, friendship, imagined contact, media/computer-mediated

contact) and *outcomes* (i.e., attitudes, ideology, worldviews, perspective-taking and empathy, problem solving, creativity, etc.). The breadth of ways in which the basic concept of contact can be harnessed, for instance, through cognitive exercise, and in the breadth of outcomes that reach beyond the intergroup domain, makes it ripe for consideration as a liberalizing agent. The findings we review below demonstrate how contact is not a single-purpose phenomenon, but has important implications for culturally shared values and ideology. Indeed, rather than the benefits of contact being overstated (see Dixon et al., 2005), we argue that its implications for personal and societal growth have been under-recognized, in particular in its relevance for a whole range of domains beyond intergroup relations. In highlighting the multifaceted manifestations, and in turn, multifaceted outcomes, our aim is to bring to the fore a whole new lens through which to see intergroup contact. This lens will show contact to be not simply another IV-DV relationship - contact as it relates to prejudice -- but instrumental in shaping much of what we think and do.

In support of our proposition, in what follows we review evidence of the liberalizing effects of contact, gleaned from a diverse range of perspectives on psychological science – educational, acculturation, group processes, and political psychology literatures. These literatures have not typically been regarded as relevant for contact theory, but we argue that they represent a rich seam of evidence (and inspiration) for research testing the proposed liberalizing effects. In evaluating the potential for contact in this regard, we encourage the reader to think beyond the basic contact literature. For instance, research on diversity is very pertinent to our discussion given that contact, by its nature, involves exposure to new norms, behaviors, and ideas (i.e., “diversity”). As a foreshadowing of our basic point, one can consider evidence that intergroup contact can improve group performance and productivity in groups. Consider that, compared to culturally homogenous groups, heterogeneous groups tend to reject simple, immediately apparent

solutions in favor of novel resolutions that incorporate multiple perspectives, enabling them to reach higher quality decisions (Antonio et al., 2004; McLeod, Lobel & Cox, 1996; Sommers, 1996). Cross-cultural research has reported evidence of high levels of creativity among bicultural individuals (Benet-Matinez, Lee, & Leu, 2006; Gutierrez & Sameroff, 1990; Tadmor, Galinsky, & Maddux, 2012) and long-term sojourners, an effect mediated by the degree to which the individual adapts to the host culture (Maddux & Galinsky, 2009). An extensive body of work within the education literature demonstrates that students' interaction with racially diverse peers (i.e., intergroup contact) involves the resolution of conflicting ideas, thus helping students to develop a range of cognitive skills that include critical thinking skills (Carini, Kuh, & Klein, 2006; Nelson Laird, 2005), problem-solving skills (Hurtado, 2001), and attributional complexity (Hurtado, 2005). Relatedly, research has linked interaction diversity to general academic skills (Denson & Chang, 2009), positive academic self-confidence (Nelson Laird, 2005), and student retention (Chang, 2001). Finally, there is also evidence that the frequency and quality of interactions with racially diverse peers is associated, over and above the mere presence of a racially diverse student body, with greater political interest, greater concern for the public good, leadership skills, and greater participation in political activities, including an increased likelihood of voting in national and state elections (Antonio, 2001; Chang, Astin, & Kim, 2004; Hurtado, 2005; Gurin, Nagda, & Lopez, 2004) as well as choice of candidate (Pettigrew, 2017).

In such ways, contact reveals itself as a *liberalizing agent* that shapes human cognition and experience. Our discussion is structured around the multifaceted manifestations of contact and its multifaceted outcomes, as outlined in Figure 1. We emphasize the many manifestations of contact to stress that the nature of "contact" is not constricted or narrow but rather covers a wide range of human interaction, ranging from personal and face-to-face, to perceived and normative

in others, to completely simulated in one's mind. Put simply, contact has diverse effects in part because it takes so many forms and has so many expressions, incorporating a range of mental processes. This position explicitly recognizes that "contact is at its core a psychological process, the symbolic assembly and union of representatives from different social groups", and moreover that "being inherently psychological, positive contact experiences... carry the promise of *generalizing* outcomes to the group-level" (Hodson & Hewstone, 2013b, p.4). The human brain conceptualizes contact widely, and as we subsequently explore in our discussion of multifaceted outcomes, channels its effects widely as well. We conclude with a discussion of how these liberalizing effects may help re-frame discussions about the value of intergroup contact, not only a means for improving intergroup relations, but as a way of achieving long-term individual, collective, and societal capabilities. We provide recommendations for future research, specifying how, based upon findings from the diverse domains reviewed, contact interventions can be designed in order to achieve these broader benefits.

Multifaceted Manifestations

Basic contact as group member/representative. In operational terms, intergroup contact represents the actual or symbolic interaction between representatives of different social groups. The central premise underlying contact theory is that contact with an outgroup member, as a representative of one's own group, has the potential (over time) to reduce prejudice toward the outgroup as a whole (Allport, 1954; Hewstone, 2009; Pettigrew & Tropp, 2011; Williams, 1947). According to Allport (1954), this potential was better realized when the group members were considered relatively equal in status, working toward common goals, cooperating (*vs.* competing), and supported by institutional norms and rules. Moreover, Allport argued that contact functions best when relatively more intimate. Superficial or artificial contact, in contrast,

is too shallow to be psychologically impactful. Indeed, such contact can backfire and worsen relations, given the tendency to look for confirmatory stereotypes and the continuation of thinking about outgroups on what he called an “autistic level” (Allport, 1954, p.264).

In his influential *Annual Review* paper, Pettigrew (1998) emphasized cognitive factors, suggesting that representations of contact should initially be decategorized (i.e., interacting as individuals), followed by salient categorization (i.e., as members of different groups), followed by recategorization (i.e., highlighting common and overlapping group memberships). The degree to which people are represented as individuals or group members (outgroup or shared group) matters critically to the potency of contact. In their reformulation, Brown and Hewstone (2005) emphasized the importance of categorization *as group members*. Without thinking of the outgroup partner as a representative of the outgroup, and a prototypical one at that, the experience fails to be intergroup in nature. As a consequence, the potential to generalize across situations, to the outgroup, or to other outgroups, is lost.

Despite intergroup interactions being highly emotional events (MacInnis & Page-Gould, 2015), it is also important to highlight the cognitive nature of the contact experience, with *categorization* of oneself (as an ingroup member) and the other (as an outgroup member) playing a central role. Without categorization, the interaction is merely between two people and essentially irrelevant to intergroup relations, regardless of any emotional impact. Following social categorization, the interaction between group members then plays out symbolically between social groups *in the mind*. In the absence of categorization, contact with a member cannot generalize to the group as a whole (see Brown & Hewstone, 2005) presumably because it was not mentally represented and encoded as *intergroup* contact. Therefore, although the effects of contact operate more *through* affective (*vs.* cognitive) processes (Pettigrew & Tropp, 2008),

cognitive processes such as categorization are critical in characterizing the contact as intergroup in nature.

There is by now little doubt that basic contact improves intergroup attitudes, and we refer the interested reader to the many reviews and meta-analyses detailing this point (e.g., Brown & Hewstone, 2005; Beelman & Heinemann, 2014; Davies et al., 2011; Hodson & Hewstone, 2013a; Lemmer & Wagner, 2015; Pettigrew & Tropp, 2006, 2011; Vezzali, Hewstone, Capozza, Giovannini, & Wölfer, 2014). Instead, we focus in later sections (on multifaceted outcomes) on the potential for contact to change the way people think about the world and solve problems more generally.

Cross-group friendship. Pettigrew (1998) is widely credited with first clearly articulating the potential of cross-group friendships. He argued that positive emotions (e.g., empathy) are fostered through friendship. As such, friendships across group lines are theoretically strong vehicles for improving attitudes toward the outgroup as a whole. Thus, cross-group friendship represents the “ultimate” or “ideal” potential for contact. In a test of a model with over 3800 respondents from across Europe, Pettigrew confirmed the proposed relation: those with more cross-group friends held significantly less prejudicial attitudes toward that friend’s group. Cross-group friends are now deemed critical to contact-based prejudice reduction, either as a fifth condition (facilitator) of contact (Pettigrew, 1998), or even as the only *essential* condition (e.g., Davies, Wright, Aron, & Comeau, 2013).

Cross-group friendships have indeed proven effective. In a compelling study, Levin, van Laar, and Sidanius (2003) tracked approximately 2000 students through university, monitoring their prejudices and friendship formations. Those with more friends from one particular outgroup (e.g., Blacks) also reported more cross-group friends in the other outgroup categories (e.g.,

Asians, Latinos). To us this suggests that cross-group friendships exert a liberalizing effect, opening one up to the potential for friendships and intimate relations more broadly. As one might expect, those initially more biased in favour of their ingroups, or those higher in intergroup anxiety, ended up with fewer outgroup friends. However, those with more outgroup friends halfway through their degrees ended up exhibiting less ingroup bias at graduation. This held even after controlling for pre-university friendships, conservatism, gender, and religion.

Theorists have speculated about the special advantages of cross-group friendships over basic contact. For instance, Aron and colleagues (2004) propose that “inclusion of other in the self” concept plays an important role in explaining why contact (and especially friendship) reduces outgroup prejudice (see also Davies et al., 2013). Cross-group friendships also foster self-disclosure and builds intimacy, which not only deepens bonds (Davies et al., 2013) but affords insights into the inner lives of outgroup members (de-centralizing one’s ingroup focus). Consistent with our central premise, contact and friendship make one more open to, and react positively toward, diversity and novel experiences.

Overall, cross-group friendships have proven consistent and reliable predictors of lower prejudice. Davies and colleagues (2011) reported a meta-analytic effect size comparable to basic contact with effects stronger for affective (*vs.* cognitive) measures (see Tropp & Pettigrew, 2005a). Moreover, the effects of cross-group friendship are stronger when more time is spent with the friend, and when self-disclosure is involved (Davies et al., 2011). As argued by Davis and colleagues, time spent and disclosure are evidence of “actual engagement” with the other. To us, this suggests that the deeper and more psychologically involving the contact experience, the greater the payoff and potential for personal change and growth. And as discussed in a later

section, cross-group friendships indeed promote creativity and innovation in the workplace (Lu et al., 2017), consistent with our liberalization premise.

Indirect contact. Although intimate forms of contact (e.g., friendship) are highly effective at reducing prejudice, they only work when social groups are afforded the opportunity to engage in contact. Unfortunately, many societies remain highly segregated, and it difficult to bring groups together when they live, work, and attend school separately. Even in mixed social environments, interracial communication is often fleeting or superficial (e.g., Dixon & Durrheim, 2003; Taylor & Moghaddam, 1994). To enhance the applicability of intergroup contact, recent developments have focused on how contact may be implemented *indirectly* when opportunities for direct face-to-face contact are scarce.

Wright, Aron, McLaughlin-Volpe, and Ropp's (1997) *extended contact hypothesis* argues that the knowledge of intergroup friendships between others may "indirectly" reduce bias towards the outgroup. Initial experimental studies using artificially created groups confirmed that individuals who learned about a positive experience between an ingroup and an outgroup member subsequently developed more positive outgroup attitudes (Wright et al., 1997, Studies 3-4). Subsequent cross-sectional research demonstrates that individuals who know ingroup members with outgroup friends tend to hold more positive outgroup attitudes. This conclusion is supported across a range of intergroup contexts, including between Catholics and Protestants in Northern Ireland (Paolini, Hewstone, Cairns, & Voci, 2004), Whites and South Asians in England (Turner, Hewstone, & Voci, 2007; Turner, Hewstone, Voci, & Vonofakou, 2008), and between Whites and African Americans in the US (e.g. Schofield, Hausmann, & Woods, 2010). These associations hold when controlling for direct contact experience, meaning that cognitive knowledge plays an independent and critical role.

Research has identified several mediators of extended contact effects (for review see Vezzali et al., 2014). One particularly important mechanism underlying extended contact effects is perceived norms. Knowing that the ingroup member is engaged in a friendship with an outgroup member spreads the perception that there are positive ingroup norms regarding the outgroup (a liberalizing effect). Similarly, learning of positive cross-group interactions may also provide information about outgroup norms, conveying outgroup interest in positive intergroup relations. Positive ingroup and outgroup contact norms, in turn, exert positive influence on perceiver's own outgroup attitudes and desire for future contact (e.g., Pettigrew, Tropp, Wagner, & Christ, 2011; Turner et al., 2008; Vezzali, Stathi, Giovannini, Capozza, & Visintin, 2015).

Whereas extended contact involves the *knowledge* that an ingroup member has cross-group friendships, vicarious contact involves the *observation* of an ingroup member interacting with an outgroup member (Dovidio, Eller, & Hewstone, 2011; Vezzali et al., 2014). Despite an extensive literature on the effect of media exposure of outgroup member depictions on audience's attitudes (see Mastro, 2009; Mutz & Goldman, 2010), the implications for intergroup contact theory are under-recognized. Yet Schiappa, Gregg, and Hewes (2005) proposed the *Parasocial Contact Hypothesis*: if people acquire information about outgroup members by viewing televised characters, this parasocial contact impacts attitudes towards these social groups. In support, those reporting greater consumption of TV with a prominent gay (Schiappa, Gregg, & Hewes, 2006) or trans (Hoffarth & Hodson, under review) character also report less prejudice toward that character's group, findings corroborated in experiments (Schiappa et al., 2005). In a recent experiment Mazziotta, Mummendey, and Wright (2011) showed that viewing successful video-based intergroup contact improved outgroup attitudes, increased willingness to engage in direct intergroup contact through the acquisition of behavioral knowledge, and

enhanced efficacy beliefs in one's ability to navigate an envisaged future contact situation.

Researchers have even begun to explore whether watching intergroup-relevant TV coverage in the presence of an outgroup co-viewer can reduce outgroup stereotypes and prejudice, and preliminary results look promising (see Tal-Or & Tsfati, 2016). Finally, a year-long extensive field test Paluck (2009; see also Paluck & Green, 2009) examined the effect of a radio soap opera on Rwandan citizens. The program featured a fictitious story of two Rwandan communities struggling to overcome prejudice and violence, including stories of positive intergroup relations and cooperation. The radio program exerted an impact on social beliefs, empathy and behaviors with respect to intermarriage, dissent and cooperation, and trauma healing.

Simulated contact. Whereas extended and vicarious contact involve the knowledge or observation of other ingroup members interacting with outgroup members, simulated contact involves the self more directly. *Imagined contact* involves the mental simulation of one's own social interaction with a member or members of an outgroup (Crisp & Turner, 2009, 2012). The broader literature on mental simulation demonstrates that imagery can elicit emotional, motivational and neurological responses similar to real experiences (for review see Crisp, Birtel, & Meleady, 2011). Thus, when individuals imagine themselves engaging in a social interaction with a member of another group, they should engage in conscious processes that parallel those involved in actual contact. This should result in more positive perceptions of outgroups, similar to the effects of face-to-face contact, albeit in a more safe, secure, and less-stressful situation.

This proposition has now received considerable empirical support (for meta-analysis of over 70 studies see Miles & Crisp, 2014). Early enquiries demonstrated that imagined contact improves intergroup attitudes (Turner, Crisp, & Lambert, 2007), increases perceptions of outgroup variability (Stathi & Crisp, 2008), and enhances the projection of positive traits to the

outgroup (Stathi & Crisp, 2008). Subsequent studies demonstrated that imagined contact can also reduce outgroup dehumanization (Vezzali, Capozza, Stathi, & Giovannini, 2012), negative stereotypes (Brambilla, Ravenna, & Hewstone, 2012; Cameron, Rutland, Turner, Holman-Nicolas, & Powell, 2011; Stathi, Tsantila, & Crisp, 2012), as well as stereotype threat (Abrams et al., 2008; Crisp & Abrams, 2008). There is also evidence that, beyond self-reported outcomes, imagined contact improves verbal and non-verbal behavior towards outgroup members (Birtel & Crisp, 2012a; Meleady & Seger, 2017; Turner & West, 2012).

Importantly, the primary benefit of imagined contact may be as a way of psychologically *preparing* (or orienting) people for future contact (Crisp & Turner, 2009), much in the same way that a liberal education prepares students for future challenges generally. Imagined contact may make people more likely to seek out and seize opportunities for contact. It may also improve the quality of direct contact by preparing them to engage in these interactions with a positive and open mind. Evidence is provided by Husnu and colleagues in the context of prolonged conflicts in Cyprus (Crisp, Husnu, Meleady, Stathi, & Turner, 2010; Husnu & Crisp, 2010). Turkish Cypriot and Greek Cypriot participants who imagined outgroup contact subsequently expressed greater intentions to engage positively with outgroup members in the future. Subsequent research replicates this effect of imagined contact on intentions to engage in future intergroup contact (e.g. Asbrock, Gutenbrunner, & Wagner, 2013; Birtel & Crisp, 2012b; Stathi, Crisp, & Hogg, 2011; Vezzali et al., 2012), and provides evidence that these intentions translate into actual contact-seeking behavior (Vezzali, Crisp, Stathi, & Giovannanini, 2015). Consistent with our overall contact-liberalization premise, imagined contact increases contact self-efficacy in interacting with outgroups. Across three studies, Stathi and colleagues (2011) demonstrated that

after imagining positive contact with a single outgroup member, participants felt more confident in their ability to interact effectively with the outgroup in general.

Theoretical models suggest there are two main routes – cognitive and affective – through which imagined contact exerts a positive effect on contact-related attitudes and intentions (Crisp et al., 2010). Imagined contact, like direct contact, reduces intergroup anxiety, which in turn predicts more positive intergroup attitudes (e.g. Turner et al., 2007; West, Holmes, & Hewstone, 2011). The second route is via the formation of a contact script -- when imagining a scenario, a behavioral script will be formed and stored in memory. This script subsequently provides a cognitively available source of diagnostic information that is used to make judgements about one's expectations and intentions (Crisp & Husnu, 2011; Husnu & Crisp, 2010, 2011).

Much of the theorizing and work on imagined contact transfers well to the use of *immersive media* to create opportunities for virtual outgroup contact. Whereas playing a violent game against outgroup characters (Arabs) increases prejudice towards that group (Saleem & Anderson, 2013), playing a video game *cooperatively* with an outgroup member, where players form a team and engage in contact to work on a common goal, can improve outgroup attitudes (Adachi, Hodson, & Hoffarth, 2015; Adachi, Hodson, Willoughby, & Zannette, 2015; Velez, Mahood, Ewoldsen, & Moyer-Gusé, 2014). Recently, Adachi, Hodson, Willoughby, Blank, and Ha (2016) demonstrated that these immersive media-based intergroup cooperative contact effects could be explained through cognitive recategorization (changing the intergroup mental representation from “us and them” to a more inclusive and flexible “us”), consistent with a liberalization effect of contact. Other research demonstrates that becoming immersed in fiction, as when reading a book, serves an important mental simulation role. For instance, narratives about gay or Black outgroup members, particularly if such membership is disclosed later, can

induce greater “experience-taking”, and also reduce stereotypes and prejudice (Kaufman & Libby, 2012)². In many ways, this “letting go of the self” mirrors the deprovincialization outcomes of contact (see forthcoming section), where less inward focus broadens the mind.

Multifaceted Outcomes

As reflected above, the field recognizes the multifaceted forms of contact. Equally important, yet less well recognized, is that contact is also multifaceted in terms of its effects or outcomes. It is here that the contact literature has devoted less of its energy (in terms of theoretical integration), yet for this reason, this represents the most rich ground for further theory development. The outcomes, after all, speak to what contact is “good for.” Below we outline a diverse array of outcomes, as represented in the right half of Figure 1.

Target focused. By “target-focused” we refer to those effects directly relevant to the contact group in question. That is, does contact with Group X lead to measurable outcomes (e.g., lower prejudice, greater trust) with regard to Group X? This research, summarized in our introduction, comprises the vast majority of contact research, and we direct the interested reader elsewhere for detailed reviews and integration (Hodson & Hewstone, 2013a; Pettigrew & Tropp, 2006, 2011). Aside from these oft-discussed effects on attitudes or evaluations, however, there is evidence, consistent with the idea of contact as liberalizing agent, that increased frequency of contact predicts greater perceived uniqueness (or heterogeneity) among outgroup members (Islam & Hewstone, 1993; Voci & Hewstone, 2003, Study 1). Contact, therefore, does not simply influence liking of the outgroup, but the manner in which the other group is cognitively represented (as homogeneous or more heterogeneous). This reflects a cognitive liberalization effect of contact.

Less clear are the effects of contact on implicit attitudes, or the more subtle, often unconscious evaluations and/or associations linked to outgroups. There is, to the best of our knowledge, no meta-analytic integration for this question. Yet there is evidence that contact shapes implicit attitudes. For instance, among university students, more positive quality of contact with the elderly has been associated with more positive explicit attitudes toward the aged, whereas greater quantity of contact with the elderly predicted more positive implicit attitudes (Tam, Hewstone, Harwood, Voci, & Kenworthy, 2006). However, among White university students, contact quantity and quality have been negatively associated with explicit (but not implicit) anti-Black attitudes (Aberson & Haag, 2007). Particularly illustrative are the meta-analytic results from studies on imagined contact (Miles & Crisp, 2014) and cross-group friendships (Davies et al., 2011), both of which report significant benefits of contact on implicit attitudes. Although there is a clear need for meta-analytic integration of basic contact effects on implicit attitudes, the available evidence suggests something rather compelling and central to our main tenet -- intergroup contact shapes the way the human brain forms associations between (out)groups and evaluations/associations. That this occurs at a less conscious, more implicit level suggests that contact effects reach deep to change the way we mentally represent the social world.

Secondary transfer. To this point we have primarily emphasized how contact with a member of Group X generalizes to that outgroup as a whole. Consistent with our liberalizing premise, however, is the notion that contact with Group X member(s) can translate into more favorable attitudes toward other groups (i.e., Groups Y and Z) not involved in the contact experience. Pettigrew (1997) initially discussed these as “generalized intergroup contact effects”, now more widely referred to as *secondary transfer* effects (Pettigrew, 2009). This process

concerns the “spread” of positive group evaluations and a reduction in xenophobia. Using nationally representative data from four European countries, Pettigrew (1997) found that more immigrant contact (and especially friendship) predicted not only improved attitudes toward immigrants but also support for more lenient immigration policies, and more favorable attitudes toward other groups generally not present in the host society (and hence not a contact-relevant group). In two nationally representative German datasets Pettigrew (2009) subsequently observed that contact with foreigners predicts positive attitudes toward foreigners, which in turn predicts positive attitudes toward gay and homeless people. These effects held when controlling for initial attitudes, collected a year previously, toward these non-contact groups. Supporting the notion of secondary transfer, therefore, contact with Group X is associated with positivity toward Group X, that itself predicts more positive attitudes toward Group Y. Other studies have corroborated such findings cross-sectionally (e.g., Schmid, Hewstone, Kupper, Zick, & Wagner, 2012) and longitudinally (e.g., Eller & Abrams, 2004), including a test confirming the attitude generalization effect (Tausch et al., 2010). Research has also confirmed the occurrence of secondary transfer even when statistically controlling for prejudice-prone ideologies such as authoritarianism (e.g., Hodson, Costello, & MacInnis, 2013; Hoffarth & Hodson, under review). Such findings bolster the idea that positive benefits of contact activate change in the mind, and not merely among those initially more open to contact. Rather, even those otherwise resistant to engaging in contact can show benefits in terms of secondary transfer (for an exception, see Schmid et al., 2012).

Further evidence of secondary transfer effects comes from experiments where contact is manipulated, with participants randomly exposed to contact conditions. For instance, a large field experiment, involving almost 2000 university students at UCLA (White, Black, Asian,

Latino) tracked students annually across 5 waves (Van Laar, Levin, Sinclair, & Sidanius, 2005).

The researchers were able to compare students who selected their roommate versus those who were randomly assigned. Roommate racial heterogeneity was associated with more favorable attitudes toward the majority of outgroups. Furthermore, having a roommate from one outgroup (e.g., Black) was associated with more positive attitudes toward others (e.g., Latino, Asian)³.

These patterns were found among students randomly assigned roommates and those who self-selected, and held after controlling for a range of background variables and ideologies, and tested longitudinally (over spaces of a year or two). Shook, Hopkins, and Koech (2016) also examined university students, who were randomly assigned same- versus different- race roommates, over their first term. The researchers found that having an interracial roommate (e.g., Black for White participants) predicted more positive attitudes toward a non-contact group (e.g., Muslims). Here, rather than examining attitude generalization (e.g., whether more positive attitudes toward Blacks predicted more positive attitudes toward Muslims), the authors tested whether lower levels of social dominance orientation (i.e., the endorsement of intergroup hierarchies and inequality) mediated or explained the effect. Results confirmed such proposed mediation, with cross-racial roommate assignment predicting lower social dominance orientation later, which spread into more favorable attitudes toward non-contact groups. Contact, therefore, fostered a less hierarchical and more egalitarian ideology or worldview.

Secondary transfer effects, therefore, reveal that contact works at a deep level to change how people view the social world. As noted above, this is evident in more positive attitudes toward other groups, and toward policies (not just evaluations) toward the contact group. And recent evidence lends further support to the liberalization hypothesis. Vezzali and Giovannini (2012) examined contact with immigrants among Italian teens in a school context. Greater

contact was associated with lower social distance from immigrants, which generalized to lower social distance toward the disabled and toward gay people. Compellingly, these relations were mediated or explained by a transfer of perspective taking (cognitive) and lower intergroup anxiety (affective). Here instead of attitudes generalizing across groups, the tendency to put yourself mentally into the shoes of an outgroup, and the tendency to feel less awkward and anxious around an outgroup, generalized to a non-contact group. This again speaks to the liberalizing power of contact, and sheds light on the spread of inclusivity across groups. We refer the interested reader to more indepth reviews of individual-to-group generalization (see McIntyre, Paolini, & Hewstone, 2016) and group-to-group (i.e., secondary) generalization or transfer (see Lolliot et al., 2013).

Deprovincialization. Arguably one of the more promising, yet least studied, aspects of contact involves what Pettigrew (1997, 1998) refers to as *deprovincialization*. He argues that contact can help us to learn that “ingroup norms and customs turn out not to be the only ways to manage the social world”, which “can reshape your view of your ingroup and *lead to a less provincial view of outgroups in general*” (Pettigrew, 1998, p. 72, italics added). This process humanizes the outgroup and puts psychological distance between oneself and the ingroup (Pettigrew, 1997). Put simply, contact shakes up one’s perspective and encourages novel ways of thinking about how the world works. Indeed, Brewer (2008) conceptualizes deprovincialization as the propensity to perceive and appreciate the *complexity* of social life and intergroup relations. This operationalization is consistent with the notion of cognitive liberalization.

There is empirical support for contact being relevant to deprovincialization. In the most widely discussed study, Verkuyten, Thijs, and Bekhuis (2010) examined contact among Dutch participants in three samples, including pre-adolescents (Study 1) and teens (Studies 2-3)

regarding their contact with Turks, Moroccans, or Muslims. The results of Study 1 indicated that more opportunity for contact predicted less ingroup positivity and especially lower ingroup identification, through an endorsement of multiculturalism (i.e., deprovincialization). Study 2 found similar results but with regard to self-reported contact (not opportunity for contact) with the outgroup. Outgroup contact, therefore, boosts endorsement of equality and multiculturalism and lowers the sense of ingroup centrality and importance. This represents what Pettigrew (1998) referred to as a “reappraisal” of the ingroup. Others have also observed that increased contact is associated with lower ingroup identification (e.g., Cakal, Hewstone, Schwärm & Heath, 2011; Hodson, Harry, & Mitchell, 2009), although in cross-sectional datasets the direction of causality is open for question. Nonetheless, there exists an association between greater contact and more distance from the ingroup.

Others have treated contact as a covariate or nuisance variable when examining the effects of deprovincialization (e.g. Mepham & Martinovic, in press; Verkuyten, Martinovic, Smeekest, & Krost, 2016). This suggests an implicit recognition among researchers that contact is a deprovincializing (and hence liberalizing) agent that would need to be statistically controlled when interested in other effects. And indeed, there is some evidence, at least for minorities, that those with more contact hold more deprovincialized views (Verkuyten et al., 2016, Footnote 7). Although the notion of deprovincialization following contact is intriguing some have characterized the research evidence as “mixed” (Lolliot et al., 2013). Indeed, in their investigation of secondary transfer effects (described above), Tausch and colleagues (2010) found that deprovincialization mediated (or explained) contact effects in some of their studies but not in others. And a brief-interval (2 week) longitudinal examination of Americans studying in Mexico found no impact on ingroup reappraisals (Eller & Abrams, 2003).

We believe that the potential power of deprovincialization is remarkably under-studied and under-appreciated, particularly when considering related constructs, such as Openness to Experience. For instance, among heterosexuals, contact with gay men is associated with greater Openness (Barron, Struckman-Johnson, Quevillon, & Banka, 2008). Moreover, in a re-analysis of Jackson and Poulsen (2005), greater Openness predicted lower anti-Black and anti-Asian prejudice through more positive quality contact with the group in question, even after controlling for the amount of contact (Hodson, Turner, & Choma, 2017). Whereas researchers have concentrated theoretically on Openness predicting greater contact, there is reason to believe that the path would be reciprocal (i.e., that contact would also facilitate greater Openness), consistent with the notion of “deprovincialization.” In a sample of almost 800 Dutch adults (Mepham & Martinovic, in press), self-reported cognitive flexibility (i.e., being open and creative when approaching general problems) and deprovincialization were substantially correlated ($r = .51$). Such findings highlight the value of intergroup contact in broadening and liberalizing the mind, not only in terms of social issues, but to problems generally. In the words of Mepham and Martinovic (in press), “deprovincialization implies relativizing one’s culture”, that is, seeing it within a greater context, where one’s group is recognized as only one of many. Implicit with such thinking is the notion that other groups may have equally valid (if not more valid) ways of thinking about the world. Coming into contact with these other groups is arguably a central way to foster such thinking and thereby broaden the mind.

Indeed, some recent experimental evidence is encouraging in this regard. In their initial correlational study among American undergraduates, Sparkman, Eidelman, and Blanchard (2016) found that those reporting more multicultural experiences (e.g., travel, contact with foreigners) expressed less ethnic prejudice, with the effect partially explained by greater Openness to

Experience. In an experimental follow up, participants were randomly exposed to a multicultural experience where they learned about the geopolitics of the group, eating practices, and social norms. In the control condition they learned of the outgroup but in direct comparison to the ingroup (i.e., heightening perceptual differences). The multicultural experience led to lower levels of prejudice toward the outgroup, an effect partially explained by enhanced Openness to Experience. Finally, in an impressive and exceptionally rare experimental study, Dhont, Roets, and Van Hiel (2011) were able to track the attitudes of Belgian high school students, some of which had been randomly assigned to partake in a one-week trip to Morocco and others who were not sent on the trip. The authors found that contact with Moroccans most improved attitudes toward Moroccans among those relatively higher (*vs.* lower) in need for cognitive closure. That is, contact was more effective at opening up (and “liberalizing”) students among those initially most closed-minded and predisposed to preferring simple answers and cognitive structure. It is not clear whether such contact itself lowers one’s need for closure itself, but it is clear that contact makes those with epistemic needs for simple structure more receptive to a foreign outgroup.

Ideology and worldview beliefs. Of course, contact with other groups has relevance for our ideologies and worldviews. Ideologies link moral and political attitudes, organize our values and beliefs systems, and guide political behavior (Jost, 2006). In this way, ideologies serve psychological functions, offering “a sense of certainty, predictability, and control; a sense of safety, security, and reassurance; and a sense of identity, belongingness, and shared reality” (Jost, 2017, p.168) reflecting epistemic, existential, and relational motivations respectively. It is easy to appreciate, therefore, how contact with other groups can draw into question one’s own set of beliefs and provide impetus for mental change and the integration of new ideas.

Of most concern to contact researchers have been ideologies represented by right-wing authoritarianism (RWA; Altemeyer, 1996) and social dominance orientation (SDO; Sidanius & Pratto, 1999). The former characterizes individuals with a propensity to conform to traditions, submit to authorities, and aggress against norm violators. The latter represents the belief that, in general, groups should be hierarchically arranged and that inequality is relatively inevitable and acceptable. The most important differences explaining the ideological space differentiating people revolve around *resisting social change* and *supporting or accepting inequality* (Jost, 2006); the former is well-captured by RWA, and the latter by SDO. And, in keeping with the Dual Process Model, evidence supports the contention that RWA (and hence resistance to change) is associated with the cultural worldview that the world is dangerous, whereas SDO (and acceptance of inequality) is associated with the worldview that the world is competitive (Duckitt & Sibley, 2009)⁴.

Notably, the contact field initially ignored or downplayed the importance of individual differences and ideology (for a review see Hodson et al., 2013). But there is now considerable evidence that, all else being equal, those with more right-leaning ideologies such as RWA and SDO are more avoidant of contact (e.g., Dhont & Van Hiel., 2009; Hodson, 2008; Hodson et al., 2009; Pettigrew, 2017; Pettigrew & Tropp, 2011, pp. 208-213)⁵. But most contact research on individual differences has focused on the degree to which contact reduces prejudice *as a function of ideology* (that is, with ideology as a moderator). Given that those higher in constructs such as RWA and SDO dislike outgroups, and generally avoid contact with outgroups, one can appreciate pessimism about successful contact among such people. But contact generally works well, and sometimes better, among those relatively high in these ideologies (see Dhont & Van Hiel, 2009; Dhont et al., 2011; Hodson, 2008; Hodson et al., 2009, 2013, 2017), especially for

RWA (Asbrock, Christ, Duckitt, & Sibley, 2012). In perhaps the most comprehensive test of the ideological-contact question, in a reasonably large sample with full measures of constructs, greater contact quality was associated with less racism for White Americans higher in SDO, RWA, need for closure, or ethnic identification (Kteily, Hodson, Dhont, & Ho, in press). Thus contact “works”, even among those predisposed to prejudice (for reviews, see Hodson, 2011; Hodson et al., 2013, 2017). Moreover, there is evidence that, among those higher on these right-leaning ideologies, contact predicts lower prejudice through greater empathy (Hodson, 2008), greater inclusion-of-other in the self, and lowered perceived threat (Hodson et al., 2009). These are liberalizing processes that operate even among those on the right (those endorsing ideologies concerned with resisting change and/or accepting inequality). Such findings corroborate the liberalizing effect of contact. Although those higher in right-leaning ideologies might dislike racial or sexual minority outgroups, the more contact experienced with these groups, the more tolerant and open-minded the group attitudes.

But might contact not only improve attitudes among those with right-leaning ideologies, but actually influence ideology itself? Some researchers (e.g., Hodson et al., 2013) were understandably cautious for this potential (or even as a goal of contact). Contact, for instance, might not change ideas about “how the world should operate” (i.e., ideologies). But evidence now suggests that contact can impact worldviews, particularly in cases where researchers study meaningful contact that unfolds over time. For instance, in their longitudinal study of American university students over the course of their degrees, Van Laar and colleagues (2005) found that having an interracial roommate exerted little or no impact on SDO levels at the end of their first year. But when measured several years later, factors such as roommate heterogeneity (i.e., proportion of outgroup roommates) predicted significantly lower SDO in subsequent years, even

after controlling for initial group attitudes⁶. Dhont and colleagues (2014, Study 2) similarly employed a longitudinal design in a sample of Belgian adults ($n = 363$) over the span of three months. In addition to revealing considerable stability in immigrant contact and SDO across time, contact at Time 1 nonetheless predicted lower levels of SDO at Time 2 (whereas SDO at Time 1 did not predict contact at Time 2). This study demonstrates that links between contact and (lower) SDO, an ideology supporting group hierarchies and inequality, operate in the direction at the heart of our central premise: contact serves as a liberalizing agent over time⁷.

Experimental evidence, and studies where contact experiences are not self-selected, further support these ideas. For instance, Dhont and colleagues (2014, Study 1) followed a group of high school students in Belgium as they travelled to Morocco on a 1-week trip, where they interacted with Moroccan students in learning and athletic activities. The teachers had chosen participation in the trip, removing concerns about self-selection. In a pre-test-post-test design, not only was prejudice reduced following the contact experience, but so were levels of SDO. Following intimate cross-group contact, therefore, students were more rejecting of ideologies promoting intergroup dominance and hierarchy. Recall also the study by Shook and colleagues (2016) discussed earlier, whereby first-year university students at an American university were randomly assigned a roommate of another race (*vs.* own race). Not only were secondary outgroup attitudes more positive after the first term (see above), but those with cross-race roommates showed a significant decrease in SDO⁸. In keeping with our proposition that contact can serve a liberalizing effect independent of formal education, this finding was not solely attributable to the “liberalizing” effects of being at university *per se* given that university students assigned to the same-race roommate condition exhibited no such pattern. Collectively, these studies on the effects of contact on ideological variables such as SDO are challenging

former sceptics (e.g., Hodson et al., 2013). Having meaningful contact with an outgroup, it appears, encourages the adaptation of a more liberalized and tolerant mindset. As in the Shook and colleagues' study, having an inter-racial roommate led to more positive attitudes toward other groups (i.e., not just the roommates' group) but also made participants less accepting of dominance and hierarchy as a general outlook on life.

Problem-solving. Pushing the contact-liberalization idea even further, research suggests that intergroup contact may not only influence *what* individuals' think (their attitudes, beliefs and ideologies) but also *how* they think (their cognitive skills and tendencies). Because diversity experiences require individuals to look beyond existing knowledge and perspectives, such experiences should not only countervail the cognitive processes that promote prejudice but should more generally reduce reliance on simplistic, heuristic thinking. This reasoning is rooted in recent models of diversity-driven social cognition (Crisp & Meleady, 2012; Crisp & Turner, 2011). We know that although people tend to use category-based information as a default to form impressions of others, and experiences that challenge existing stereotypes force perceivers to cognitively "shift gear" from a heuristic to a more individuated and systematic mode of information processing (e.g. Fiske & Neuberg, 1990; see also Crisp, Hewstone, & Rubin, 2001). This change in information processing is characterized by a reduced tendency to assign traits to individuals based upon their group membership, and a greater focus on using new, emergent attributes in impression formation (Hutter & Crisp, 2006). We also know that just as with physical exercise, repeatedly "working out" the brain improves its processing power (Jaeggi, Buschkuhl, Jonides, & Shah, 2011; Muraven, Baumeister, & Tice, 1999). It follows that contexts characterized by diversity and intergroup contact should train a more active and complex cognitive style through the repeated experience of switching from a heuristic

(stereotype-based) mode of thinking to a more flexible, multicultural construal of outgroups (Crisp & Turner, 2011).

If this is the case, intercultural contact experiences, and the mindset they trigger, should carry over to other decision domains that are not obviously related to stereotyping and impression formation. Evidence stems from research on the outcomes of counter-stereotypic exposure. Although this literature is not typically deemed directly relevant for contact theory, we argue that it represents a rich stream of evidence for integration given that intergroup contact – in which people must engage with the different perspectives espoused by different cultures – necessarily involves a challenging of stereotypic preconceptions. Prati, Vasiljevic, Crisp, and Rubini (2015), for instance, asked participants to consider a gender counter-stereotypic combination (e.g. female mechanic; male midwife) compared to control, and to list all the words that came to mind to describe this target. Participants were subsequently given 10 reasoning problems drawing upon measures used by Tversky and Kahneman (1974), and instructed to solve as many of the problems as they could within a timeframe of ten minutes. An example was: “A bat and a ball cost £1.10 in total. The bat costs £1 more than the ball. How much does the ball cost?” The correct answer is 5 pence, but usually people tend to say 10 pence. Results demonstrated that participants who formed an impression of a counter-stereotypic target subsequently answered more of Tversky and Kahneman’s conundrums correctly, indicating they had switched out of a heuristic way of thinking and utilised a more systematic approach to problem solving.

Research has also considered whether individuals who are chronically exposed to counter-stereotypical experiences by virtue of being counter-stereotypical in the environments in which they find themselves may also demonstrate a lesser reliance on heuristic thinking. For

their experiment, Di Bella and Crisp (2016) recruited a sample of female undergraduates studying STEM subjects (science, technology, engineering and math). This group is persistently confronted with gender stereotypes, which can actually impair performance (known as the “stereotype threat” effect; Steele & Aronson, 1995). After imagining or recollecting their experience of being a woman in a male-dominated field, women from STEM fields performed better on a test of quantitative judgment skills compared to women from non-STEM fields. In a similar vein, Crisp, Bache, and Maitner (2009) showed that although female psychology majors showed a typical stereotype threat effect (lower performance on a math test when informed of the comparison with men), female engineers - a group with experience successfully negotiated counter-stereotypical domains - showed no performance detriment when exposed to the same comparison. The implications for contact are clear – increased contact exposes one to more instances of counter-stereotypes. Such exposure, therefore, should enhance problem-solving abilities among intergroup interactants.

Flexible thinking. Further evidence consistent with this heuristic-switching hypothesis is provided by Vasiljevic and Crisp (2013). Participants were asked to generate five counter-stereotypic (e.g. ‘female mechanic’) or five stereotypic (‘female nurse’) social category combinations. Those in the counter-stereotypic condition subsequently performed better in a test of lateral thinking assessing their ability to consider a problem from multiple perspectives and discard traditional modes of thinking. For instance, they were more likely to correctly answer the question “A police officer saw a truck driver clearly going the wrong way down a one-way street, but did not try to stop him. Why not?” (Answer: Because the truck driver was walking). In another experiment, participants in the counter-stereotype condition also performed better on a Stroop task which similarly requires increased executive control and the inhibition of dominant

responses. Using a similar paradigm, research has shown that contesting gender stereotypes can counter an established bias in favour of “safe” organizational leaders, who are closer to established group norm, and encourage people to embrace new, innovative leaders (Leicht, Randsley de Moura, & Crisp, 2014).

Evidence of the benefits of interactions with racially-diverse others for cognitive development is also provided by research within the educational literature. Developmental theorists emphasize that cognitive growth is fostered by discontinuity and discrepancy (Erikson, 1946, 1959; Piaget, 1971). Ethnic diversity represents a source of multiple and different perspectives and thus may be expected to improve academic achievement by triggering more active and complex thinking. Although it is well-established that cross-racial interactions during college are associated with improvements in intergroup outcomes (e.g. Levin et al., 2003; Shook et al., 2016; Sidanius, Levin, Van Laar, & Sears, 2008; Van Laar et al., 2005), research also demonstrates that cross-racial interactions are associated with a range of cognitive skills and tendencies including improved attributional complexity (Hurtado, 2005), analytic and problem-solving skills (Hurtado, 2001) and critical thinking (Nelson Laird, 2005; Pascarella, Palmer, Moye, & Pierson, 2001). Accordingly, interactions with racial diverse peers have been associated with higher graduation rates (Chang, 1999), higher levels of educational engagement (e.g., drive to achieve, postgraduate aspirations, Gurin, Dey, & Hurtado, 2002), and more positive academic self-concepts (Chang, 1999). In their study of White students from less diverse contexts subsequently studying at the relatively diverse University of Hawaii, Pauker and colleagues (in press) found that greater time spent in the diverse setting was associated with significantly higher cognitive flexibility on an ability task. The researchers also found that over time these students

reported less essentialized thinking about racial outgroups, which mediated the effect of time on cognitive flexibility.

Importantly, meta-analytic evidence (Bowman, 2010) demonstrates that intergroup interactions are stronger predictors of cognitive development than are mere measures of structural diversity (i.e. the percentage of minority students within student body). It is argued that the human element of face-to-face interaction is most likely to trigger cognitive disequilibrium and effortful thinking, and thus, while structural diversity may increase the probability that students will encounter diverse others, its value depends upon whether or not it leads to intergroup interaction. Further evidence for the notion that contact can stimulate cognitive growth comes from research on mixed ethnicity, cooperative learning groups. Cooperative learning groups were designed as a technique to improve intergroup attitudes in elementary schools by fulfilling Allport's conditions of optimal intergroup contact (Aronson, Blaney, Stephan, Sikes, & Snapp, 1978). Evidence suggests that such techniques can result in improvements not only in intergroup outcomes (e.g., see Aronson & Patnoe, 2011), but also in student achievement (Carroll, 1986; Crone & Portillo, 2013; Perkins & Saris, 2001; Walker & Crogan, 1998).

Creativity. Creative performance is also strongly tied to flexible thinking (De Dreu, Baas, & Nijstad, 2008; Galinsky, Magee, Gruenfeld, Whitson, & Liljenquist, 2008; Maddux, Adam, & Galinsky, 2010; Maddux & Galinsky, 2009). Flexible thinking entails a capacity to “break set” and go beyond established and mentally accessible ways of thinking and think differently from what is habitual. This type of information processing has been repeatedly shown to increase performance on various tests of creativity (De Dreu et al., 2008; Nijstad & Kaps, 2008; Sligte, de Dreu, & Nijstad, 2011). The notion that diversity experiences can activate a

cognitively flexible mindset is therefore consistent with research finding that diversity experiences can boost creative performance. In one experiment participants were asked to form impressions of an individual whose group membership was consistent/inconsistent with stereotypic expectations (e.g. a male/female mechanic). On a second, unrelated task, participants were asked to produce original names for a new brand of pasta, and were given existing pasta names as an example. Results showed that participants asked to form impressions of a counter-stereotype were more flexible: they relied less on schematic knowledge embedded in the task instruction (Gocłowska, Crisp, & Labuschagne, 2013, Experiment 1). In a second experiment, the task of generating various counter-stereotypes led participants to develop more creative ideas for theme night at the university nightclub (Gocłowska et al., 2013, Experiment 2). Again, these findings have direct relevance to contact, given that contact increases exposure to counter-stereotypes and the need to process and deal with such information.

Research suggests that diversity is most likely to increase creativity when individuals feel comfortable abandoning stereotypic thinking. Gocłowska and Crisp (2014) demonstrated that thinking of diverse individuals (e.g. gender counter-stereotypes) lead to higher performance on a divergent creativity task only for individuals low in personal need for structure (PNS; Neuberg & Newsom, 1993). Participants were asked to think of multiple uses for a plastic bottle. When thinking about a counter-stereotypic individual participants generated a higher number of ideas, and their ideas were rated by a third party as more novel and original. Similarly, Gocłowska, Baas, Crisp, and De Dreu (2014) found that thinking about counter-stereotypes increased creative performance when PNS was low, but decreased performance when PNS was high. Most recently, Vezzali, Gocłowska, Crisp, and Stathi (2016) found evidence of the diversity-creativity

link within children, but this effect was only present when a communal but not a divisional mindset (emphasising group distinctions) was active.

Research also demonstrates that living in diverse social environments can heighten creative cognition. For instance, Maddux and Galinsky (2009) examined the performance of long-term sojourners on a range of creativity tasks. In two correlational studies, degree of experience living abroad (but not experience of merely traveling abroad) predicted enhanced performance on two different creativity tasks. Further experimental studies found that priming cultural diversity temporarily increased creativity amongst participants who had previously spent time abroad, consistent with the idea that outgroup contact creates new ways of thinking, ways that can be re-instigated in the face of a contact-relevant cue. The relationships between amount of time lived abroad and creativity was mediated by adaptation to the foreign culture:

Participants who had lived longer abroad tended to adapt more to the new culture, incorporating new modes of thinking and behaving, and it is this adaptation that predicted increased creativity. Longitudinal work has also demonstrated that across time, adapting to and learning about new cultures increases integrative complexity, which in turn is predictive of greater career success (Maddux, Bivolaru, Hafenbrack, Tadmor, & Galinsky, 2014). It appears that this type of immersive intergroup contact makes individuals chronically aware of multiple perspectives, thus increasing the ability to “think outside the box.” Similar findings have been observed on close cross-group friendships and romantic relationships. Lu and colleagues (2017) employed many methods and samples to test these ideas in laboratory and applied work settings. Dating across cultural lines predicted, over time, more creativity on divergent and convergent tasks, suggesting flexibility along with creativity. As with Maddux and Galinsky (2009), making past cross-group intimacy mentally salient experimentally boosted creativity among those with such past histories,

consistent with the idea that contact changes how people think in deep ways that can be reactivated after contact.

In sum, this impressive body of work suggests that when we engage with someone from a different background or culture, when we make that mental leap beyond our comfort zone, it triggers some powerful psychological processes. These processes involve taking other groups' perspectives, seeing things from different cultural standpoints, making compromises and putting aside one's existing stereotypes and prejudices. Importantly, these leaps literally give the mind a "work out." The consequence is, just like an athlete training her or his legs to run faster, the mind will subsequently work better, faster and more efficiently. And when we use any muscle over and over again, it gets stronger, fitter, and more efficient. The studies outlined above support just this proposition: Creativity, flexibility, and problem-solving skills are enhanced after contact experiences. Contact liberalizes cognition, and with this brings flexibility, fresh perspectives and the propensity to see things differently.

General Discussion

Our theoretical framework draws upon research that demonstrates how positive intergroup contact experiences prompt individuals to inhibit existing, rigid thought patterns in favor of more flexible, generative ("open-minded") ways of thinking. We argue that contact effectively trains a disposition towards, and preference for, liberalized, less structured, and less dogmatic thinking. The accumulated evidence shows that contact takes many forms, shapes not only attitudes toward the contact group but toward other groups, promotes more deprovincialized ingroup orientations and openness, reduces ideological views about hierarchy, and facilitates deeper and more flexible and deeper cognitive processing. Intergroup contact clearly has implications across psychology, informing developmental processes, educational strategies, and

civic engagement. Critically, the field has called for contact researchers to think “beyond prejudice” or group attitudes; our response is that contact theory is up to the challenge. The body of evidence now shows that intergroup contact is an effective *liberalizing agent*, promoting multiculturalism and an openness toward different others, ideas, and ways of thinking.

Our inspiration for conceptualizing contact as a liberalizing agent sprung from the nature of contact itself (see Figure 1). We have demonstrated how contact is multifaceted in form, involving basic person-to-person contact as group representatives, or the formation of intimate cross-group friendships characterized by deep bonds and self-other overlap (and thus relevant to how we conceive of ourselves as well as the “other”). But recent innovations have pushed the implications further. Contact need not be direct, but rather can be indirect, as when recognizing that ingroup members have positive contact and friendships with the outgroup. Much of this influence involves the development of more liberal norms about intergroup relations. And contact need not be “real” in the traditional sense, but can involve simulated contact, such as that brought about through mental imagery, media-based contact, video games etc. Like a formal liberal education, therefore, contact is multipronged as an instrument and can exert influence through multiple means. For each, form and content are less relevant than process and mental engagement.

Likewise, we are inspired at the multifaceted outcomes of contact, with the degree of breadth that one might expect from a liberal education. In addition to improving attitudes toward the contact group (much of the focus in the field), contact effects generalize (i.e. spread their influence). Secondary transfer effects, for instance, demonstrate that contact benefits are not specific to the group in question, but reshape how people think about outgroups generally. This generalization itself reveals that contact is about learning, in ways that are not rigid nor specific

to the experience but rather reflect a more liberalized mindset. As our review suggests, contact “deprovincializes” the mind, removing the self and ingroup as the sole focus of judgment and anchoring, rendering participants more open to experience. Accompanying this process can be a shift in ideology and worldview, that is, beliefs about how the world not only operates but ought to operate (see Erikson & Tedin, 2003). Furthermore, given that contact challenges assumptions and stereotypes, contact with diverse others can generate more powerful problem-solving, more flexibility in approaching problems, and greater creativity. Throughout, the comparison to a formal liberal education is more than a convenient metaphor.

Cognitive Focus in the Liberalization Process

Although we have openly acknowledged the importance of affect in contact, and indeed that affective factors are more predictive of outgroup attitudes than are cognitive factors (see meta-analyses by Pettigrew & Tropp, 2008; Tropp & Pettigrew, 2005a), much of our focus has concerned the cognitive aspects for several reasons. First, as per our conceptualization, we view the potential for contact much in the way that we view the potential for liberal education in formal settings (e.g., universities). This focus primarily concerns mental expansion and growth. After all, intergroup contact is nothing special without the central processes of social categorization (see Brown & Hewstone, 2005; Dovidio, Gaertner, & Kawakami, 2003). Put simply, contact experiences that do not involve thinking about interactants as members of different groups at best reflects interpersonal or intragroup concerns.

As such, cognitive factors are critical in order for social interactions in the real world to play out in the mind, in a symbolic manner that generates attitude change and liberalized thinking. Admittedly the field has considered knowledge of the outgroup as a cognitive factor (see Pettigrew & Tropp, 2008), but this focus places a premium on *content*, such as knowledge

about the outgroup (including stereotypic content). In contrast, we recommend more focus on *process*, and particularly the capacity for expansion akin to that evidenced through liberalized education. With the contact literature focusing heavily on predicting attitudes, this might explain the attention afforded to affect, which is often considered most relevant to evaluations (Zajonc, 1980). But if we are to take seriously the call to move beyond attitudes (e.g., Dixon et al., 2005; Dixon & Levine, 2012; Wright & Lubensky, 2009), then researchers will presumably re-emphasize the cognitive factors at play. On this note, our review highlights an interesting implication: outgroup contact increases exposure to counter-stereotypic content in ways that can shape cognitive processes, but some of these may not be readily tapped using traditional measures of stereotyping, particularly those focusing on content (e.g., stereotypes or beliefs; see Tropp & Pettigrew, 2005a). That is, contact may play a greater role influencing *how* we think (about other groups) relative to *what* we think (about other groups). Analyses that reveal contact's greater impact on affect than cognition (e.g., Pettigrew & Tropp, 2008; Tropp & Pettigrew, 2005a) may therefore underestimate the role of cognition in contact settings. Our review, we hope, will encourage research and theorizing along these lines.

Of note, we do not consider affective or cognitive emphases to represent competing or exclusive goals. The process of liberalization, that is opening the mind and the increasing of flexibility and creativity, theoretically plays a key role in reducing negative affect. Although the relation is presumably bidirectional, liberalized thinking is theoretically expected to play a key role in reducing feelings of threat, anxiety, and disgust that frequently characterize negative intergroup relations. Much in the way that higher levels of education, particularly of the liberal variety, are generally associated with reductions in prejudice and authoritarianism (e.g., Hodson & Busseri, 2012; Wagner & Schönbach, 1984), the liberalizing effects of intergroup contact play

out over time, reshaping the ways in which we process information about the world, judge risk, and mentally construe others. It is possible, therefore, that the contact literature has to some degree overemphasized the affective aspects at the cost of considering longer-term cognitive process changes. Our notion of contact as a liberalizing agent seeks to redress this imbalance, placing cognitive process and growth as a central feature of the contact experience, in a way that can itself shape and direct affective experiences.

Linking to Models Emphasizing Cognitive Adaptation and Self Expansion

Our theoretical approach has direct relevance to existing theories. Although not a theory about contact *per se*, the Categorization-Processing-Adaptation-Generalization (CPAG; Crisp & Turner, 2011) model outlines the conditions under which diversity should exert broader benefits for cognition (e.g., flexibility), of the sort relevant to the present discussion. First, according to this model the individual's experience needs to challenge existing stereotypes; in our context, outgroup contact generally necessitates such a rethinking of the ways we conceptualize outgroups (even if just from negative to positive), and indeed may be the prime vehicle for doing so. Second, the individual must be reasonably motivated to think about the target; again contact meets this bar much of the time, requiring interactants to attend to the outgroup. Contact with an outgroup is rarely, for instance, not relevant to the self or high in importance. Third, such benefits are best realized under the CPAG model when people have the ability to process information. As noted above, outgroup contact is "hard work", stressful, and draining of mental resources (Page-Gould, Mendoza-Denton, & Tropp, 2008; Richeson & Shelton, 2003). Much of the contact process therefore engages cognitive "work." This can include many of the processes commonly studied in the field, such as recategorization of outgroup members into ingroup members, integrating conflicting information, rethinking the attributions for the actions of others.

Some of this can be relatively active, for instance, in terms of “cognitive unfreezing” (Kruglanski & Webster, 1996). Yet some of this can presumably operate at a lower level without requiring deliberative attention or purposeful intent. This cognitive work can indeed be conceptualized as a mediating process between the multifaceted manifestations of contact and the multifaceted outcomes in Figure 1. As such, although intergroup contact participants might not initially possess this ability, this improves over time, particularly at the “contact threshold” where contact starts to derive more positive outcomes than negative (see MacInnis & Page-Gould, 2015). Our contact-as-liberalizing-agent framework builds on such work and highlights contact as a prime vehicle for implementing and enacting the properties that maximize the potential for generalized learning, more outward focus, and boosts to cognitive function in problem solving, flexibility, and creativity.

Another literature that fits with the overall goals of the present approach concerns the self expansion model (Aron & Aron, 1986). Here, the emphasis concerns how people possess a very basic motivation to expand or grow their sense of self, often realized through positive outreach to others. One of the key benefits is an elevation in perceived self-efficacy navigating the (social) world. To these authors, self expansion often operates as a predictor of other outcomes (in a motivational sense). And all else being equal, priority of one’s contact choice is directed toward dissimilar (*vs.* similar) others. In the context of the present discussion, outgroups represent one of the optimal forms of “other”, particularly if the goal is to expand and grow. Encouragingly, researchers have become interested in directly applying this approach to the domain of intergroup contact (e.g., Dys-Steenbergen, Wright, & Aron, 2016; Paolini, Wright, Dys-Steenbergen, & Favara, 2016). Correlational and experimental evidence confirms that those motivated and invested in self-expansion not only seek out more outgroup contact but experience

more positive outcomes from contact. Our approach is related but diverges somewhat in its emphasis and conclusions. We argue and demonstrate that contact can *result in* forms of growth and expansion, that is, contact → expansion (in addition to expansion → contact). Moreover, we argue that contact has this potential even in the absence of motivations for growth or even positive orientations toward the other. Consider, for instance, that greater contact is associated with reductions in perceived value-threat and prejudice, and increases in empathy and perceived overlap with the other, even among those higher (*vs.* lower) in prejudice-prone proclivities such as authoritarianism and social dominance orientation (see Hodson, 2008, 2011; Hodson et al., 2009). One need not, therefore, possess a positive predisposition toward outgroups or see the value in the outgroup's potential to expand the sense of self to derive expansion-related benefits from contact. We see considerable value in the self expansion model for helping to push further our ideas about contact serving as a liberalization agent, and encourage researchers to consider not only how expansion can promote contact but how contact can promote expansion.

Liberalization Effects at Various Levels

One of the implications of our approach is that the liberalization effects of contact can be generated at the level of the individual but also the collective and social levels. Much of the emphasis in the past literature, at least among psychologists, has concerned outcomes within the individual (e.g. attitudes, emotions, stereotypes, cognitive factors). But there are clear social implications at the outcome level. That is, the bulk of processes described in this paper can be considered iterative in nature: As contact influences individuals, these individuals influence each other, and collectively a climate of liberalization takes root. Intergroup contact, therefore, can build a culture of enlightenment akin to that of liberal education. In each case, the emphasis need not be on the content but rather the general philosophy or orientation toward openness, valuing

diversity, pushing challenge and growth. As observed above, research indicates that such self expansion itself fuels the desire for additional contact, so the process becomes iterative. We conceptualize these cognitive liberalization effects of contact operating in tandem with those of liberal education, with the “street knowledge” (contact) informing more formal educational climates and vice versa.

Future Directions

This approach to conceptualizing the power of contact will involve pushing the field to rethink intergroup dynamics. Consider the body of research on minority influence, where messages from groups in the numerical minority, particularly when consistent, result in an increase in the systematic processing of information, divergent thinking, and actual attitude change as opposed to superficial influence (see Nemeth, 1986; Wood, Lundgren, Ouellette, Busceme, & Blackstone, 1994). In such models the minority message is considered to operate via informational influence as opposed to normative influence. This makes sense given that the minority, by definition, is not normative. The implications derived from our theoretical framework are as follows: for members of majority groups (e.g., Whites in Western cultures; heterosexuals) contact with minorities can lead to substantial shifts in liberalized thinking. For minorities, on the other hand, contact involves being exposed to the majority, which generally leads to opposing processes (e.g., convergent thinking, less effortful thinking)⁹. Consistent with this point, meta-analyses regarding contact effects on attitudes reveal that majority (vs. minority) groups benefit more from contact (Tropp & Pettigrew, 2005b). The extent to which this difference reflects differences in cognitive liberalization are unknown and represents fertile soil for generating future research. In keeping with our proposition that contact serves as a liberalizing agent, we argue that the liberalizing process might unfold differently depending on

the numerical status (minority *vs.* majority). We should note that the implications of being in a minority position in terms of power and influence (rather than group size), such as being a woman, are less well understood at this point and thus are also ripe for future research activity.

Again drawing on our understanding of the contact literature, one might also anticipate that the liberalization effects of contact might work well, and at times even better, among those relatively higher (*vs.* lower) in dispositions predisposing one to prejudicial attitudes. Despite original pessimism in the power of contact to work among such individuals (for a review see Hodson et al., 2013), studies from across multiple countries support the notion that contact works well among highly prejudiced persons (e.g., Dhont & Van Hiel, 2009, 2011; Hodson, 2008, Hodson et al., 2009, 2013; Kteily, Hodson, Dhont, & Ho, in press; for reviews see Hodson, 2011; Hodson et al., 2017; Pettigrew & Tropp, 2011). Encouragingly, contact exerts these effects not only through affective variables such as empathy (e.g., Hodson, 2008), but also via including the other in the self-concept and viewing the other as less threatening (Hodson et al., 2009). This is consistent with our assertion that contact serves as a liberalizing process, even among those predisposed to otherwise show illiberal ways of viewing the world. This is especially likely among those higher in constructs such as right-wing authoritarianism (which is more aligned with social conservatism, need for cognitive closure etc.), but also among those higher in social dominance orientation (where the focus is ordinarily on viewing the world in anti-egalitarian terms). These ideas certainly require further investigation in the field. For instance, we have discussed how counter-stereotypic thinking can increase divergent creativity, primarily among those low in need for structure (Gołowska & Crisp, 2014; Gołowska et al., 2014), but also how contact can reduce prejudicial attitudes especially among those higher in need for structure (Dhont et al., 2011). To some degree these findings appear at odds, although it is worth keeping

in mind that in the former case the outcome is irrelevant to the group in question whereas in the latter case attitudes are directly related to the contact group. Nonetheless, it is clear that the consideration of individual differences, long neglected by the contact literature (see Hodson et al., 2013), will be critical to understanding the potentially liberalizing effects of contact.

We acknowledge that some of the evidence synthesized here is not drawn directly from the contact literature. But we consider this a strength, if not essential, if we are to seriously consider the broader question of what contact is good for. Next steps include more directly testing contact in its many forms and its effects on the multifaceted outcomes presented in the right side of Figure 1. In doing so, we anticipate drawing on the many strengths of an affective focus of contact, integrating these ideas as discussed above. (For instance, considering how contact impacts deprovincialization or problem-solving in ways that lower threat reactions and/or boost empathy). Ideally future research will incorporate experimental designs to clarify causality, and also longitudinal designs given that many of the effects flowing from our framework are expected to be of the long-term variety that evolve over time.

Like most of psychology, much of the literature we have drawn from examines WEIRD (Western, Educated, Industrial, Rich, Democratic) populations (Henrich, Heine, & Norenzayan, 2010). Having said that, relative to other literatures, contact research arguably fares better in the face of this criticism given the wide range of cultures and types of groups considered (Hodson & Hewstone, 2013a; Pettigrew & Tropp, 2006, 2011). Nonetheless, intergroup research needs to be sensitive to the nature of its test populations given that (a) the effects may generalize across groups/contexts and (b) group attitudes may take a different expression across populations (see Henry, 2008). Our broader focus on the multifaceted outcomes speaks also to a need to examine a diverse range of populations. Indeed, given cultural differences in cognitive orientation and

expression (e.g., Nisbett, Peng, Choi, & Norenzayan, 2001), failure to engage in direct cross-cultural comparisons will undermine the attempt to examine cognitive growth and expansion within intergroup contexts. One particularly tantalizing question will concern the potential interplay between liberal education and contact. We have assumed, for good reason, that they can operate in tandem and at times separately (e.g., Pauker et al., in press), but there is also the possibility that they can work in a compensatory manner. If an individual is deficient on one will the other become more predominant in shaping cognition? Alternatively, might these forces interact? In addition to the main effects we have considered, the influence of one (e.g. liberal education) might be strengthened to the degree that the other (e.g. contact) is salient and in operation. These exciting venues for research will undoubtedly prove generative, not only for the field of contact, but for related fields such as education and policymaking.

Relatedly, examining these implications from a developmental perspective will be particularly exciting and promising. To the extent that contact is an agent of liberalization, this process can be studied across the lifespan and educational policies implemented with this in mind. Recall that school trips to other cultures have proven beneficial in terms of shaping ideologies and liberalizing thinking (Dhont et al., 2011; see also Clément, Gardner, & Smythe, 1977). Rather than considering these privileges of advantaged students, trips to other cultures have the potential to become part of an inclusive educational curriculum. Such contact, we argue, will have “academic” payoffs in terms of fostering cognitive development, not simply improve intergroup relations, providing additional reasons to justify such expenses in schoolboard budgets. In doing so we should be mindful to attend also to the reviewed research on much more affordable simulated and parasocial contact, making use of new technologies (e.g., immersive videogames or books/film) to “bring the world to us” and “us to them” (e.g., Adachi et al., 2016;

Kaufman & Libby, 2012). Any consideration of developmental processes would also be advised to consider the physiological and neural aspects of development. As noted above, simulated contact engages very similar biological reactions to actual contact (Crisp et al., 2011). The possibilities for an enhanced role of neuroscience in intergroup relations is beginning to gain traction (see Cikara & Van Bavel, 2014). The implications of our contact-as-cognitive liberalization framework is that although contact may be difficult and stressful (Page-Gould et al., 2008), not to mention cognitively draining (Richeson & Shelton, 2003), practice and effort can forge new neural pathways in the brain. This should not only increase the accessibility of outgroup representations paired with positive evaluations, but should grow and strengthen neural connections in the same manner as liberalized education. Emerging technologies (e.g., fMRI), particularly as used in longitudinal analyses, will help realize this potential. Advancements in our understanding that contact involves physiological and hormonal aspects (e.g., Page-Gould et al., 2008; MacInnis & Page-Gould, 2015; West & Turner, 2014) can become integrated with our present focus on multifaceted outcomes relevant to learning, generalization, shaping worldviews, and generally altering how people think and solve problems.

So What is Contact “Good For”?

In the present synthesis we sought to explore the question *what contact is good for* beyond simply changing group attitudes. We recognize the challenges faced in terms of changing policy (e.g., Jackman & Crane, 1986; Dixon & Levine, 2012), and we embrace the call to move beyond attitudes. Taking a broader perspective we conclude that contact is indeed good for much more than is commonly recognized. Put simply, contact theory is up to the task of serving as a central theory of human psychology. To be clear, we echo the caveats voiced elsewhere (Hewstone, 2009; Hodson & Hewstone, 2013b) that contact is no panacea for the world’s ills.

But neither is a liberal education. This new way of approaching contact theory suggests that contact should be as prominent in the field's textbooks and pedagogy as cognitive dissonance theory (Festinger, 1957), which has proven itself of wide value not only in explaining attitudes but in providing insights into how people think about and handle inconsistency more generally (Gawronski, 2012). That is, it has become a theory about thinking. Contact has this same potential.

At academic conferences we have started to hear researchers lament that contact as a research topic is "stale" and bereft of new ideas. But as our synthesis suggests, contact's prominence and utility is far from over -- rather, its potential is only just being realized. Ironically, contact theory has been a victim of its own success, becoming one of the best and most reliable means to reduce prejudice (Beelman & Heinemann, 2014; Pettigrew & Tropp, 2006) at the same time that many of its advocates have not been vocal about its fuller potential outside of the intergroup domain. The bulk of evidence accumulated since the 1940s demonstrates that contact is "good for" not only reducing prejudice but for expanding minds and liberalizing thinking about the world.

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Footnotes

¹ Although this liberalization effect can result in more left-leaning or “liberal” thinking, we use the term (cognitive) *liberalization* to capture the broader sense of expanded process, openness, and divergent thinking, not necessarily the belief in specific political policies (e.g., about taxation or abortion).

² As an interesting difference, contact seems to generate more positive outgroup attitudes when forming friendships with an outgroup member earlier as opposed to later in the relationship (see Dane, Masser, MacDonald, & Duck, 2015; MacInnis & Hodson, 2015).

³ In one exception, Asian roommates led to greater prejudices toward other outgroups, particularly among White participants.

⁴ Although RWA and SDO overlap, and their shared variance (i.e., generalized authoritarianism) is valuable to consider (Hodson, MacInnis, & Busseri, 2017), contact researchers largely consider their unique effects.

⁵ There are some exceptions. For instance, a longitudinal test found that SDO at Time 1 did not predict less contact at Time 2 (Dhont et al., 2014, Study 2). Others have found that although those higher in RWA have less contact with gay people, they do not report significantly fewer gay friendships, direct or indirect (Hodson et al., 2009). These rare exceptions to the general trend suggest that pessimism about the futility of bringing prejudice-prone persons to contact settings is somewhat unwarranted.

⁶ This overall effect was particularly pronounced when having Latino roommates, but was only marginal for Black roommates, and was marginal and reversed for Asian roommates.

⁷ A recent study examined White participants who moved to Hawaii for university and were immersed in a more diverse ethnic environment (Pauker, Carpinella, Meyers, Young, & Sanchez,

in press). Although SDO levels did not decrease over time, longer time in the diverse education environment predicted less essentialized thinking out outgroups, which itself was associated with lower SDO levels.

⁸ In their Footnote 6, Shook and colleagues (2016) learned that the indirect (i.e. mediated) effect of contact on attitudes through SDO was non-significant after controlling for Time 1 SDO. But, central to our point, the experimental effect on SDO at Time 2 remained significant after controlling Time 1 SDO.

⁹ We recognize, however, that those in minority or low status positions can be more motivated to value more diagnostic and individuated information (Fiske & Dépret, 1996). But this is largely about the more powerful outgroup itself, whereas our concern is about broader cognitive functioning more generally. Nonetheless, it would be interesting to pursue these nuances in future research.

Figure 1. Conceptual model representing the multifaceted nature of contact manifestations and effects.