

The Effects of Positive and Negative Contact on Intergroup Relations

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Date: 2019-08-25T00:00:00+00:00

Abstract

Abstract: The “positive bias” in intergroup contact research hinders a comprehensive understanding of intergroup contact; therefore, negative contact has been included in research in recent years. Current research on positive and negative contact primarily uses questionnaire methods, and additionally involves content analysis, social network analysis, and experimental methods. Positive and negative contact respectively improve and deteriorate intergroup relations, with intergroup emotions and intergroup trust mediating these effects, and authoritarianism and intimacy serving as moderators. Regarding the relationship between positive and negative contact effects, there are two research approaches: asymmetry testing and interaction testing, both of which have received support from empirical research evidence. Future research needs to further examine contact of different valences, especially the generalization effects of negative contact, expand the scope of effects of positive and negative contact, refine the mechanisms of positive and negative contact, and further explore the factors influencing the asymmetrical effects of positive and negative contact.

Full Text

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Abstract

The “positive bias” in intergroup contact research has hindered a comprehensive understanding of intergroup contact, prompting researchers to incorporate

negative contact into their investigations in recent years. Current research on positive and negative contact primarily employs questionnaire methods, supplemented by content analysis, social network analysis, and experimental approaches. Positive contact enhances intergroup relations while negative contact deteriorates them, with intergroup emotions and trust serving as mediators, and authoritarianism and intimacy functioning as moderators. Regarding the relationship between positive and negative contact effects, two research approaches—*asymmetry tests* and *interaction tests*—have both received empirical support. Future research should further examine the generalization effects of different valenced contacts, particularly negative contact, expand the scope of positive and negative contact effects, refine their underlying mechanisms, and explore factors influencing the asymmetric effects of positive and negative contact.

Keywords: positive contact; negative contact; positive bias; asymmetric effect; interaction effect

Intergroup contact theory stands as one of the most influential theories in social psychology over the past seven decades. Extensive research grounded in this framework demonstrates that direct or indirect contact between different social groups can effectively improve intergroup relations, showing consistency across groups and cultures (Lemmer & Wanger, 2015; Miles & Crisp, 2014; Pettigrew & Tropp, 2006; Zhou, Page-Gould, Aron, Moyer, & Hewstone, 2018; Li Sensen, Long Changquan, Chen Qingfei, & Li Hong, 2010). However, some studies find that increased intergroup contact does not significantly reduce prejudice, which may even remain stable or increase (Barlow et al., 2012). This occurs not because intergroup contact fails to improve relations, but because real life involves both positive and negative contact (Paolini, Harwood, & Rubin, 2010). Negative contact adversely affects intergroup relations and undermines positive contact effects (Abersson, 2015; Techakesari et al., 2015). Nevertheless, previous intergroup contact research has focused primarily on positive contact's impact and its mediating and moderating mechanisms while neglecting negative contact (Pettigrew & Tropp, 2011). This "positive bias" limits comprehensive understanding of intergroup contact. Moreover, accelerated regional and international migration increases opportunities for contact with outgroup members (e.g., migrants defined by household registration, international students in China), raising frequencies of both positive and negative contact (Koopmans & Veit, 2014; Pettigrew, 2008). Therefore, focusing solely on positive contact's effects misrepresents reality. Consequently, Pettigrew (2008) called for strengthened research on negative contact. Over the past decade, foreign researchers have conducted numerous empirical studies on how positive and negative contact affect intergroup relations, while domestic research remains scarce. This paper reviews existing literature, first summarizing research methods for positive and negative contact, then elaborating on their effects and particularly the mediating and moderating mechanisms of negative contact effects. Subsequently, it reviews research on asymmetric and interactive effects based on "additive" and "interactive" models. Finally, it outlines future research directions to inform related studies.

1.1 Questionnaire Method

Current research on positive and negative contact primarily employs questionnaire methods with four distinct measurement approaches. First, the adjective rating method asks participants to evaluate their feelings when interacting with outgroup members, serving as an indicator of positive and negative contact experiences. For instance, in Árnadóttir, Lolliot, Brown, and Hewstone (2018), participants estimated how quickly they would feel positive-negative, equal-unequal, cooperative-competitive, or friendly-unfriendly when encountering an outgroup member, thereby quantifying positive and negative contact experiences.

Second, researchers measure positive and negative contact by asking participants to report the frequency of positive interactions (being helped by outgroup members) or negative interactions (being disturbed by outgroup members) (Meleady & Vermue, 2019; Pettigrew, 2008; Reimer et al., 2017). For example, Reimer et al. (2017) measured positive contact using five items (“support,” “help,” “appreciation,” “friendly assistance,” “welcome”) and negative contact using five items (“insult,” “intimidation,” “threat,” “ridicule,” “unwanted”), with participants reporting how frequently they experienced these interactions with outgroup members.

Third, Hayward, Tropp, Hornsey, and Barlow (2017) integrated these two approaches by adapting measurement items from Stephan, Stephan, Demitrikis, Yamada, and Clason (2000) and incorporating optimal contact conditions. They developed 69 items (37 for positive, 32 for negative contact experiences). Participants first reported whether they had these experiences; if so, they further evaluated the quantity and valence of these contacts. The product of quantity and valence means yielded positive and negative contact scores. Results demonstrated good validity, though the limitation lies in not providing reliability information (Hayward et al., 2017).

Fourth, Barlow et al. (2012) questioned using specific contact events to measure contact valence, arguing that contact experiences are multifaceted phenomena that cannot be represented by single events. Instead, participants should provide overall evaluations of contact valence. Barlow et al. (2012) used two items to measure positive contact experience (“On average, how frequently is your contact with outgroup members positive?”) and negative contact experience (“On average, how frequently is your contact with outgroup members negative?”). Subsequent studies have adopted this approach (Bagci & Gungor, 2019; Laurence, Schmid, & Hewstone, 2018; Meleady, Seger, & Vermue, 2017; Techakesari et al., 2015). Although some researchers question using single items due to potential measurement error (Techakesari et al., 2015), studies show these two items have good predictive validity (Barlow et al., 2012; Techakesari et al., 2015), suggesting they are reliable (Bergkvist & Rossiter, 2007).

1.2 Content Analysis

Self-report methods inevitably suffer from participant characteristics and social desirability biases when directly reporting perceived positive or negative contact. Content analysis compensates for this limitation by having participants recall and describe contact experiences based on specific questions without directly evaluating contact valence (Graf, Paolini, & Rubin, 2014). In practice, participants first answer three questions to recall and describe their contact experiences: “Can you recall any experiences of contact with outgroup members?” “How did this outgroup member behave in that situation?” and “How did you behave?” Independent raters then analyze these contact experiences using a coding manual, categorizing them as positive, negative, or neutral contact (Graf, Paolini, & Rubin, 2019). Researchers can further analyze how described contact situations or partners influence intergroup attitudes (Graf et al., 2014).

1.3 Social Network Analysis

The aforementioned methods have limitations. For instance, intergroup contact is essentially a bidirectional interactive process, yet these methods only measure unidirectional positive contact—that is, they only capture one party’s perceived positive contact without knowing whether the other party perceives it similarly. More importantly, measurement items highlight group identity (including outgroup member identities such as Black people, immigrants), which may trigger negative reactions toward outgroups (Wölfer et al., 2017). Social network analysis can address these shortcomings by providing bidirectional friendship relationships between ingroup and outgroup members while minimizing negative reactions triggered by measurement items, as it does not emphasize group membership (which is already collected in demographic information) (Wölfer et al., 2017). Consequently, social network analysis has been increasingly applied to intergroup contact research (Wölfer, Faber, & Hewstone, 2015). For example, in Wölfer et al. (2017), researchers first constructed social networks using peer nominations, asking each student to list their best friends (up to 10), forming a friendship network. Since student background information had been collected, ingroup and outgroup identities were known, with the number of friendships between ingroup and outgroup members representing positive contact. For negative contact, peer nomination was similarly used, asking each student to name 5 or 10 classmates they “least wanted to be with” (Study 1) or who were “sometimes least friendly” or “sometimes worst” to them (Studies 2 and 3), with the total number of negative relationships with outgroup members representing negative contact.

1.4 Experimental Method

Besides these three methods, experimental manipulation of contact valence is also possible. However, since few studies have used experimental methods to examine the intergroup effects of positive and negative contact, stable research paradigms have not yet emerged (imagined contact being an exception).

In direct contact experiments, two main manipulations are currently used. First, researchers manipulate task type by arranging cooperative versus competitive learning between participants and outgroup members to elicit positive or negative contact (Desforges et al., 1991). Second, they manipulate confederates' (fake participants') nonverbal behaviors. For example, in Paolini et al. (2010), confederates' nonverbal behaviors were manipulated to make participants feel warm and relaxed (positive contact), distant and tense (negative contact), or neither (neutral contact). To ensure these nonverbal behaviors elicited corresponding contact experiences, confederates were trained using nonverbal behavior standards identified by Witt and Wheelless (2001). Additionally, to prevent confederates from displaying stereotypes associated with their group, they followed predetermined verbal scripts when interacting with participants, controlling for extraneous variables.

Beyond manipulating direct positive and negative contact, some studies manipulate indirect contact. Among various forms of contact experiments, the imagined contact paradigm has shown relative stabilization. Imagined contact scenarios include positive and negative imagined contact groups with different instructions. The positive imagined contact instruction states: "Please take one minute to imagine meeting an outgroup member for the first time. Imagine your interaction is positive, relaxed, and comfortable." The negative contact instruction states: "Please take one minute to imagine meeting an outgroup member for the first time. Imagine your interaction is negative, tense, and uncomfortable." To enhance the experimental effect, some studies ask participants to write down their imagined content after the one-minute task (Birtel & Crisp, 2012; Paolini et al., 2014), while others require participants to answer open-ended questions after the imagination task, such as "What does this person look like?" and "What happened between you that made the contact positive (or negative)?" (Paolini et al., 2014). Vicarious contact is another indirect contact form where participants are exposed to valenced intergroup interaction information through media to elicit corresponding contact experiences. In Joyce and Harwood (2014), participants watched documentaries showing positive or negative intergroup contact to induce corresponding experiences. Similarly, a recent study had participants watch videos of different groups interacting positively or negatively to elicit contact experiences (Andrews, Yogeeswaran, Walker, & Hewstone, 2018).

In summary, research methods for positive and negative contact have diversified, moving from sole reliance on questionnaires to multiple methods. Using multiple methods in the same research area not only increases convergent validity but also compensates for methodological limitations. For example, content analysis can measure both the frequency of positive and negative contact and capture emotional experiences of ingroup and outgroup members in real intergroup contact situations, better revealing emotional mechanisms. In contrast, questionnaire measures of intergroup emotions typically ask participants to respond in hypothetical intergroup contact situations (Stephan & Stephan, 1985), which differs from emotional experiences in actual intergroup contact.

2.1.1 Intergroup Emotions

(1) Negative Emotions

Research has found that negative emotions such as intergroup anxiety, intergroup anger, and perceived threat mediate positive and negative contact effects. Intergroup anxiety is a typical emotional response during intergroup interactions. Numerous studies show that positive contact reduces intergroup anxiety, thereby producing positive intergroup attitudes and behaviors (Pettigrew & Tropp, 2008). Conversely, does negative contact reduce intergroup relations quality by increasing intergroup anxiety (Barlow et al., 2012)? Techakesari et al. (2015) confirmed through a series of studies that across three intergroup contexts (White Americans vs. Black Americans, Hong Kong residents vs. Mainland Chinese, Buddhists vs. Muslims), intergroup anxiety mediates both positive and negative contact effects. Besides intergroup anxiety, intergroup anger also mediates the relationship between intergroup contact and intergroup relations. Seger, Banerji, Park, Smith, and Mackie (2016) found that more positive contact leads to lower intergroup anger and more positive intergroup attitudes. Recent research shows that intergroup anger mediates not only the effects of positive and negative contact on intergroup attitudes and evaluations but also on intergroup avoidance behavior (Hayward et al., 2017).

Additionally, perceived threat mediates positive and negative contact effects consistently across groups and situations (Aberson, 2015; Kanas, Scheepers, & Sterkens, 2017; Rupar & Graf, 2018). For example, Aberson (2015) found among White American college students that positive and negative contact indirectly affect intergroup prejudice by decreasing or increasing perceived threat, respectively, with the mediating effect of perceived threat being stronger between negative contact and prejudice than between positive contact and prejudice. These studies examine perceived threat as a higher-order variable (including symbolic and realistic threats) and separately test the mediating roles of symbolic and realistic threats in positive and negative contact effects. Furthermore, the mediating role of intergroup threat is influenced by group status (Al Ramiah & Hewstone, 2013). A longitudinal study found that intergroup contact improved minority group members' evaluations of majority groups by reducing symbolic threat, but symbolic threat did not mediate the relationship between intergroup contact and majority group members' evaluations of minority groups (Ramiah, Hewstone, Little, & Lang, 2014). Therefore, future research should examine whether the roles of these two types of intergroup threats in positive and negative contact effects are moderated by factors such as group status across multiple intergroup contexts to enhance consistency in findings.

(2) Positive Emotions

Research indicates that positive emotions such as empathy, happiness, and admiration mediate positive and negative contact effects. Empathy is a crucial emotional mechanism through which positive contact reduces intergroup prejudice (Pettigrew & Tropp, 2008), with positive contact between different groups increasing empathy and subsequently reducing prejudice. Can we therefore in-

fer that negative contact between groups deteriorates intergroup relations by reducing empathy? This hypothesis has received preliminary empirical support (e.g., Pagotto & Voci, 2013). For instance, Visintin, Voci, Pagotto, and Hewstone (2017) found among majority group members that negative contact increases intergroup prejudice by reducing empathy, and Hayward et al. (2017) validated empathy's mediating role in negative contact effects among minority group samples. Additionally, recent research shows that happiness also mediates the effects of positive and negative contact on intergroup relations, with positive contact improving intergroup relations by increasing happiness during intergroup contact, while negative contact deteriorates relations by reducing happiness (Hayward, 2014; Kauff et al., 2017).

Beyond empathy and happiness, admiration is another positive emotion experienced in intergroup contact. Seger et al. (2016) found across two intergroup contexts (White Americans-Black Americans, heterosexual-homosexual) that more positive contact leads to higher admiration for outgroups and lower prejudice, while more negative contact leads to lower admiration and higher prejudice, indicating that admiration mediates the effects of positive and negative contact on intergroup prejudice.

2.1.2 Intergroup Trust

Besides intergroup emotions, positive and negative contact also affect intergroup prejudice by increasing or decreasing intergroup trust. Intergroup trust, a topic of multidisciplinary interest, refers to ingroup members' positive expectations of outgroup members (Lewicki, McAllister, & Bies, 1998), reflecting confidence and certainty about outgroup members' behaviors and intentions. Intergroup trust is influenced by intergroup contact, with positive contact increasing trust and negative contact decreasing it (Koopmans & Veit, 2014). Pagotto and Voci (2013) examined intergroup trust's mediating role in positive and negative contact effects. Results showed that positive contact between Italians and immigrant groups indirectly improved intergroup attitudes, reduced prejudice, and decreased crime rate estimates by increasing intergroup trust, whereas negative contact deteriorated attitudes, increased prejudice, and raised crime rate estimates by decreasing trust. Additionally, intergroup trust mediated not only negative direct contact's effects on intergroup relations but also negative indirect contact (vicarious contact) effects. However, some studies find that intergroup trust only mediates positive indirect contact (extended contact) effects on prejudice, not negative indirect contact (extended contact) effects (Visintin et al., 2017). This suggests that intergroup trust's mediating role in negative indirect contact effects requires more empirical evidence and may vary by indirect contact type. Therefore, when examining intergroup trust's mediating role in indirect contact effects, especially negative indirect contact, researchers should clearly define different indirect contact types and measure or manipulate them accordingly.

Research on mediating mechanisms of positive and negative contact effects not

only clarifies these pathways but also provides alternative approaches for improving intergroup relations. For example, consciously guiding and teaching emotion regulation strategies and enhancing emotion regulation abilities across group members could weaken the bridging role of negative emotions between contact and intergroup relations.

2.2.1 Authoritarianism

Social dominance orientation (SDO) and right-wing authoritarianism (RWA) are two dimensions that comprehensively describe authoritarian personality (Altemeyer, 1981; cited in Li Qiong & Guo Yongyu, 2007) and are closely related to intergroup prejudice. SDO reflects the extent to which individuals desire their ingroup to be superior to or dominate outgroups. Individuals with different SDO levels hold different attitudes toward outgroups, with high-SDO individuals holding more negative intergroup attitudes than low-SDO individuals (Dhont, Hodson, Costello, & Macinnis, 2014; Kteily, Ho, & Sidanius, 2012). Researchers have therefore examined SDO's moderating role in positive contact effects. Studies show that positive contact more effectively reduces prejudice among high-SDO individuals than low-SDO individuals (Kauff, Schmid, Lolliot, Al Ramiah, & Hewstone, 2016; Kteily, Hodson, Dhont, & Ho, 2017). Dhont and Van Hiel (2009) investigated SDO's moderating role in both positive and negative contact effects. Results showed that low-SDO individuals exhibited lower prejudice after positive contact than high-SDO individuals, while high-SDO individuals showed higher prejudice after negative contact than low-SDO individuals. Additionally, a recent domestic study with Uyghur and Han groups confirmed that SDO moderates the effects of positive and negative contact on intergroup contact intentions (Wang, Huang, Sofia, & Vezzali, 2019). Specifically, among Han participants, positive contact significantly predicted positive behavioral tendencies among high-SDO Han individuals, while negative contact significantly predicted negative behavioral tendencies among high-SDO Han individuals. Among Uyghur participants, SDO did not significantly moderate positive contact effects but significantly moderated negative contact effects, with negative contact predicting negative behavioral tendencies among high-SDO Uyghur individuals.

Besides SDO, RWA is another hallmark of authoritarian personality, comprising authoritarian submission, conventionalism, and authoritarian aggression (Li Qiong & Guo Yongyu, 2007). Individuals with different RWA levels hold different levels of prejudice, with high-RWA individuals showing higher prejudice toward outgroups than low-RWA individuals (Weise, Arciszewski, Verhaci, Pyszczynski, & Greenberg, 2012). Research shows that RWA moderates positive and negative contact effects. For instance, Dhont and Van Hiel (2009) found that positive contact significantly negatively predicted racial prejudice among high-RWA individuals but not among low-RWA individuals, while negative contact significantly positively predicted racial prejudice among high-RWA individuals but not among low-RWA individuals.

Building on existing research, future studies should further explore why SDO and RWA moderate positive and negative contact effects through mediated moderation analysis. Theoretically, this would deepen understanding of mediating and moderating mechanisms, while practically, it could provide intermediate pathways for reducing intergroup prejudice.

2.2.2 Intimacy

Previous research shows that intimacy in relationships between ingroup and outgroup members moderates positive contact's effects on intergroup relations. For example, Wright, Aron, Mclaughlinvolpe, and Ropp (1997) used the minimal group paradigm among American college students to find that positive contact more effectively improved outgroup stereotypes when relationship intimacy was high rather than low. Subsequent research using intergroup attitudes as the dependent variable confirmed this result (Wright, Aron, & Brody, 2008). Furthermore, numerous studies show that cross-group friendships (high intimacy) produce larger positive intergroup effects than general positive contact (Davies, Tropp, Aron, Pettigrew, & Wright, 2011), providing additional evidence for intimacy's moderating role in positive contact effects. Recent research indicates that intimacy also influences negative contact effects (Fuochi et al., 2019; Graf et al., 2019). For example, Graf et al. (2019) conducted a study with 1,276 university students across five European countries and found that intimacy buffered negative contact's detrimental effects on intergroup attitudes. Individuals who experienced negative contact but had high intimacy with outgroup members held more positive outgroup attitudes than those with low intimacy. These findings suggest practical implications: since negative contact is inevitable in daily life, besides increasing positive contact frequency, enhancing intimacy between group members to weaken negative contact's detrimental effects is also feasible, such as through organizing dinners or group trips.

Based on this review, current research on mediating and moderating mechanisms of negative contact effects directly borrows from positive contact research. While this approach helps reveal negative contact mechanisms and advances negative contact research, it lacks theoretical contribution and innovation, essentially replicating positive contact research in the opposite direction. This approach typically assumes that positive and negative contact represent opposite ends of a continuum, which lacks empirical support. Studies measuring both positive and negative contact simultaneously find they are weakly correlated, indicating they are relatively independent dimensions rather than opposite poles (e.g., Reimer, 2017; Wölfer et al., 2017). Additionally, scholars suggest that positive and negative contact may influence intergroup relations through different pathways (Paolini, Harwood, Hewstone, & Neumann, 2018). Therefore, research on negative contact mechanisms should not entirely depend on borrowing from positive contact research but should focus on identifying unique mediating and moderating mechanisms of negative contact to better clarify the relationship and differences between positive and negative contact.

3 Asymmetric and Interactive Effects of Positive and Negative Contact

Beyond examining mediating and moderating mechanisms, researchers have begun investigating relationships between positive and negative contact effects, employing two approaches: comparing the magnitude of their effects on intergroup relations—*asymmetric effects*—and testing their interactive effects. These are discussed below.

3.1 Asymmetric Effects of Positive and Negative Contact

Research demonstrates that “bad is stronger than good” —that negative stimuli or information affect individuals more strongly and enduringly than positive stimuli, showing a positive-negative asymmetry (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). Chinese scholar Li Aimei and colleagues also found that negative stimuli affect people more strongly than positive stimuli (Li Aimei, Gao Jieyi, Peng Yuan, Xia Ying, & Chen Xiaoxi, 2015). Can this asymmetric effect be extended to how positive and negative contact influence intergroup relations? That is, beyond opposite directions, do positive and negative contact differ in effect magnitude?

Paolini et al. (2010) first addressed this question using experimental and longitudinal methods. The experiment randomly assigned participants to positive, negative, or neutral contact groups, manipulating confederates’ nonverbal behaviors to create positive or negative contact. Results showed that negative contact group participants reported significantly higher group identity salience than positive contact group participants, confirmed in subsequent longitudinal research. While this study revealed “positive-negative contact asymmetry” in group identity salience, group identity salience is a condition for generalizing contact effects from interpersonal to intergroup levels, not a direct outcome variable measuring intergroup relations. Therefore, Barlow et al. (2012) investigated this using intergroup prejudice as the dependent variable. Both substudies found that negative contact’ s impact on prejudice was stronger than positive contact’ s impact, demonstrating that the “positive-negative asymmetry” also exists in how differently valenced contact affects intergroup prejudice. Subsequent research across cultural contexts validated this finding (Alperin, Hornsey, Hayward, Diedrichs, & Barlow, 2014; Cernat, 2017; Dhont & Van Hiel, 2009; Graf et al., 2014; Hayward et al., 2017; Techakesari et al., 2015). Studies show that in both Western and Eastern cultural contexts, positive contact significantly predicts intergroup prejudice when negative contact is not considered, but this prediction weakens when negative contact is controlled for (Techakesari et al., 2015), revealing cross-cultural consistency in the “positive-negative contact asymmetry.” Moreover, while previous research often examined this asymmetry among majority groups, Hayward et al. (2017) demonstrated among minority groups that negative contact was stronger than positive contact in predicting attitudes and behaviors toward majority groups.

Self-categorization theory and the perceived fit principle can explain the “positive-negative contact asymmetry.” According to self-categorization theory, changing attitudes toward the entire outgroup through contact with outgroup members requires that group member’s group identity to be salient (Brown & Hewstone, 2005). In other words, for contact effects to generalize from interpersonal to intergroup levels, individuals must perceive that the contacted outgroup member belongs to their group (high group identity salience). Multiple studies confirm that negative contact generates higher group identity salience than positive contact (Paolini et al., 2010; Paolini et al., 2014). Furthermore, according to the perceived fit principle, people generally hold negative perceptions of outgroup members, and negative contact with outgroup members aligns with these prior negative perceptions (Reynolds, Turner, & Haslam, 2000), triggering higher group identity salience. Higher group identity salience facilitates generalization from interpersonal to intergroup levels, producing larger effects, thus negative contact’s impact on outgroup prejudice is stronger than positive contact’s.

In summary, negative contact effects are stronger than positive contact effects, supported by both theoretical and empirical evidence. Based on this, Barlow et al. (2012) proposed that intergroup contact research should simultaneously consider both positive and negative contact effects. However, although negative contact effects are stronger, this does not mean positive contact cannot improve intergroup relations. Research finds that while negative contact effects are stronger in influencing intergroup relations, positive contact occurs far more frequently than negative contact in daily life (Graf et al., 2014)—an asymmetry in frequency that allows positive contact to partially counteract negative contact effects and improve intergroup relations.

3.2 Interactive Effects of Positive and Negative Contact

Current findings on asymmetric effects remain inconsistent. While some studies support stronger negative contact effects, others find no significant difference between positive and negative contact effects on prejudice (Mazziotta, Rohmann, Wright, De Tezanos-Pinto, & Lutterbach, 2015; Stark, Flache, & Veenstra, 2013), or even stronger positive contact effects (Pettigrew, Tropp, Wagner, & Christ, 2011). This suggests that positive and negative contact effects on intergroup relations may not be simply additive but interactive. Paolini et al. (2014) systematically tested this across three experiments in conflict and non-conflict situations, finding that prior positive contact moderated current negative contact effects. However, Paolini et al. (2014) only found a “buffering” effect of positive contact on negative contact, whereas the interactive influence is more complex, with buffering being just one type of interaction. For example, Birtel (2012) experimentally found that negative contact followed by positive contact changed outgroup attitudes more than positive contact alone, suggesting other interaction types beyond buffering. Recently, scholars have decomposed interactions between differently valenced contacts, proposing four effect patterns: (1)

buffering—positive contact reduces negative contact effects; (2) facilitation—negative contact enhances positive contact effects; (3) poisoning—negative contact reduces positive contact effects; and (4) exacerbation—positive contact enhances negative contact effects (Fell, 2015). In short, positive contact influences negative contact through buffering and exacerbation effects, while negative contact influences positive contact through facilitation and poisoning effects.

Fell (2015) validated these four patterns through a series of studies. Correlational results showed that positive contact weakened negative contact's impact on reconciliation intentions with outgroups (buffering effect), while negative contact enhanced positive contact's impact on reconciliation intentions (facilitation effect). However, given that correlational research cannot adequately decompose buffering and facilitation effects or establish causality, Fell (2015) further used longitudinal research to verify these results, finding that Time 1 positive contact weakened Time 2 negative contact effects (buffering effect), while Time 1 negative contact enhanced Time 2 positive contact effects (facilitation effect). Recent research has additionally verified poisoning and exacerbation effects. Árnadóttir et al. (2018) examined positive and negative contact effects on intergroup trust, tendencies, crime rate estimates, and perceived cultural differences among 357 Icelanders (majority group) and 101 Polish immigrants (minority group) in Iceland. Among the majority group, positive and negative contact showed significant interactive effects on all variables except perceived cultural differences. Further decomposition revealed buffering and facilitation effects. Among the minority group, participants reporting more positive contact perceived more cultural differences after negative contact than those reporting less positive contact. Since perceived cultural differences are considered a manifestation of intergroup prejudice (Pettigrew & Meertens, 1995), this suggests that positive contact has an exacerbation effect on negative contact among minority groups. Additionally, when negative contact was low, participants' reported positive contact negatively correlated with perceived cultural differences, but this correlation became non-significant when negative contact was high, indicating a poisoning effect of negative contact on positive contact (Árnadóttir et al., 2018).

In conclusion, research has preliminarily confirmed interactive effects between positive and negative contact, though interpretation requires caution. For instance, Fell (2015) showed that interactive effects lack cross-group consistency. Additionally, group size influences these interactions. For majority groups, buffering and facilitation effects are more commonly validated. However, for minority groups, negative contact may poison positive contact effects, and positive contact may exacerbate negative contact effects. Future research should validate interactive effects across more groups and broader contact situations.

Based on this review, while asymmetric effect research helps clarify differences between positive and negative contact effects and advances the field alongside interactive effect research, enriching intergroup contact theory, interactive effect research has more prominent and necessary practical significance. As previously

noted, both positive and negative contact exist in real life, respectively promoting and hindering intergroup relations, and these differently valenced effects are interconnected. For policymakers, the concern is how to improve intergroup relations through interventions, and interactive effect research can facilitate this goal. For example, buffering effect research suggests that building harmonious intergroup relations can be achieved by increasing positive contact experiences to enhance positive contact effects and inhibit negative contact's detrimental impact. While asymmetric effect research has limited practical significance, it can theoretically explain interactive effects. For instance, one reason negative contact can reduce positive contact effects may be that negative contact has greater impact on intergroup relations in specific contexts. From this perspective, these two approaches are connected rather than absolutely independent or opposing, and both can be considered simultaneously in empirical research.

4 Limitations and Future Directions

Recent research on positive and negative contact has accumulated findings that deepen understanding of intergroup contact and advance intergroup contact theory. Future research can expand in four areas.

First, further examine generalization effects of differently valenced contact, especially negative contact. Pettigrew (1998) proposed that positive contact produces generalization effects through three pathways: first, effects from a specific situation generalize to other situations; second, effects from contact with a specific outgroup member generalize to their entire group; and third, effects from contact with one outgroup generalize to other outgroups not directly contacted—secondary transfer effects. Subsequent meta-analyses confirmed these generalization pathways (Pettigrew & Tropp, 2006). Does negative contact follow similar patterns? Research has confirmed negative contact's generalization through the second pathway (Drury, Abrams, Swift, Lamont, & Gerocova, 2017; Meleady & Forder, 2018), but findings are inconsistent for the other pathways. Brylka, Jasinskaja-Lahti, and Mähönen (2016) found that negative contact between Estonian immigrants (minority group 1) and Finns (majority group) further reduced attitudes toward Russian immigrants (minority group 2), demonstrating negative contact's secondary transfer effect. However, another study examining negative contact between minority and majority groups' effects on attitudes toward another minority group found no secondary transfer effect (Mähönen & Jasinskaja-Lahti, 2016). Moreover, a recent study found secondary transfer effects in negative contact between majority and minority groups (Meleady & Forder, 2018). These inconsistent findings suggest that future research should examine negative contact's secondary transfer effects across more cultural and intergroup contexts to identify boundary conditions.

Second, expand the scope of positive and negative contact effects. The intergroup contact field suffers from a “prejudice problem” limitation (Dixon, Durrheim, & Tredoux, 2005), as most research examines contact effects on prejudice, though contact also influences other intergroup outcomes. Consequently,

scholars have called for research on intergroup contact effects beyond prejudice (Wright & Baray, 2012). Currently, research has focused more on how differently valenced contact affects collective action. Studies show that positive contact promotes majority group collective action for minority rights but hinders minority group collective action for their own rights, while negative contact reduces majority group collective action for minority rights but increases minority group collective action for their own rights (Hayward, Tropp, Hornsey, & Barlow, 2018; Reimer et al., 2017). However, current research is limited to specific intergroup contexts and should be tested across more contexts. Beyond collective action, future research should also examine how differently valenced contact influences government policies. For example, in multiethnic nations, research could investigate whether differently valenced contact between majority and minority ethnic groups, and between different minority groups, differentially affects government policies.

Third, further explore mediating and moderating mechanisms of positive and negative contact effects. As reviewed, numerous studies have examined these mechanisms, but many questions remain unresolved. Regarding mediating mechanisms, future research could more finely examine emotions' mediating roles. For example, some research distinguishes between episodic emotions and chronic intergroup emotions (Paolini, Hewstone, Voci, Harwood, & Cairns, 2006). Kauff et al. (2017) found that negative contact correlates more strongly with episodic anger and fear than positive contact, and that episodic anger and fear predict outgroup avoidance behaviors through chronic anger and fear. Do episodic and chronic emotions have multiple mediating effects between positive/negative contact and group attitudes, prejudice, and behaviors? This warrants verification. For moderating mechanisms, future research should explore more moderating variables. For instance, typicality—whether contacted outgroup members are typical representatives of their group—has been validated as an important moderator of positive contact effects (Dovidio, Love, Schellhaas, & Hewstone, 2017). Future research should examine typicality' s moderating role in negative contact effects. Furthermore, most studies examine mediating or moderating mechanisms separately, but contact effects are influenced by multiple factors that may involve moderated mediation or mediated moderation. For example, Vedder, Wenink, and van Geel (2017) found that group size moderates the mediating effect of group anxiety in positive and negative contact effects. Thus, future research should comprehensively examine how different variables influence positive and negative contact effects to fully elucidate their mediating and moderating mechanisms.

Fourth, explain inconsistent findings on asymmetric effects. Whether asymmetric effects favor negative or positive contact remains unresolved. Graf et al. (2014) preliminarily found that when participants attributed negative contact to the contact partner rather than the situation, stronger negative effects resulted. Based on this, Graf and Paolini (2017) suggested that asymmetric effects might not stem from differently valenced contact per se but from attribution styles. Therefore, future research should comprehensively and deeply

examine how different attribution styles influence asymmetric effects from an attribution theory perspective. Additionally, outcome variables may influence positive-negative contact asymmetry. Most research using intergroup prejudice as the outcome supports stronger negative contact effects, yet one study using collective action as the outcome found stronger positive contact effects (Hayward et al., 2017). Thus, positive-negative contact asymmetry may vary by outcome variable, such as collective action, intergroup liking, or cross-group friendships, which future research should test.

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