DO THEY DISLIKE US AS MUCH AS WE THINK? INTERGROUP CONTACT AS A POTENTIAL RECTIFIER OF META-ATTITUDE INACCURACY IN INTERGROUP SETTINGS

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ABSTRACT

DO THEY DISLIKE US AS MUCH AS WE THINK? INTERGROUP CONTACT AS A POTENTIAL RECTIFIER OF META-ATTITUDE INACCURACY IN INTERGROUP SETTINGS

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Keywords: conflict, intergroup contact, meta-attitude accuracy, meta-perceptions, outgroup attitudes

Intergroup meta-attitude inaccuracy—the mismatch between how ingroup members think the outgroup views them and how the outgroup actually does—fuels intergroup hostility. Yet, little is known about what predicts this inaccuracy. In Part I, I examined whether and how intergroup contact predicts meta-attitude (in)accuracy across three conflictual contexts: Black/White British in the UK, Turks/Kurds in Turkey, and Catholics/Protestants in Northern Ireland. Across all groups, individuals tended to overestimate negative outgroup evaluations. Positive contact predicted greater meta-attitude accuracy, via enhanced shared reality, which was associated with more positive outgroup attitudes. However, negative contact and affective mediators (e.g., anxiety, fear) showed inconsistent effects depending on group and context. Part II tested strategies to reduce meta-attitude inaccuracy. Studies 5 (N = 555) and 6 (N = 447) examined the effects of mass-mediated contact (positive intergroup interaction videos) compared to informational feedback and control videos in interracial (Black–White Americans) and political (Democrats–Republicans) contexts. Study 7 tested direct contact using the Minimal Group Paradigm among university students (N = 88). Mass-mediated contact successfully reduced inaccuracy across most groups—except Republicans, who developed overly positive misperceptions. These findings highlight that mass-mediated strategies may offer scalable, low-cost tools for reducing intergroup misperceptions.

ÖZET

BİZİ DÜŞÜNDÜĞÜMÜZ KADAR MI SEVMİYORLAR? GRUPLARARASI BAĞLAMLARDA META-TUTUM YANLILIĞININ POTANSİYEL BİR DÜZELTİCİSİ OLARAK GRUPLARARASI TEMAS

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Anahtar Kelimeler: gruplararası temas, meta-tutum yanlılığı, meta-algılar, dış grup tutumları, gruplararası çatışma

Gruplararası meta-tutum yanlılığı gruplararası düşmanlığı beslemektedir. Bu yanlılığın nedenleri hâlâ yeterince araştırılmamıştır. Tezimin Birinci bölümünde, gruplararası temasın meta-tutum yanlılığını ne ölçüde ve nasıl etkilediğini üç çatışmalı bağlamda inceledim: Birleşik Krallık'ta Siyah/Beyaz Britanyalılar, Türkiye'de Türkler/Kürtler ve Kuzey İrlanda'da Katolikler/Protestanlar. Tüm bağlamlarda ve statü farklarından bağımsız olarak gruplar karşı grubun kendilerini olduğundan daha olumsuz değerlendirdiğine inandığı gözlemlendi. Olumlu temas, paylaşılan gerçeklik hissi aracılığıyla daha az meta-tutum yanlılığı ve buna bağlı olarak daha olumlu karşı grup tutumlarıyla ilişkilendirildi. Olumsuz temas ve duygusal değişkenlerin (ör. kaygı, korku) etkileri ise bağlama ve gruba göre farklılık gösterdi. İkinci Bölümde, meta-tutum yanlılığını azaltmaya yönelik iki temas temelli stratejiyi test ettim. Çalışma 5 (N = 555, Siyah-Beyaz Amerikalılar) ve Çalışma 6 (N = 447, Demokratlar-Cumhuriyetçiler), olumlu temas içeren videolarla yapılan kitle iletişim temelli temas stratejisini, bilgilendirici geri bildirim ve kontrol (seyahat videosu) koşullarıyla karşılaştırdı. Çalışma 7, görece düşük çatışmalı bir bağlamda (N = 88), doğrudan temas stratejisini test etti. Kitle iletişimi yoluyla temas, Cumhuriyetçiler hariç tüm gruplarda meta-tutum yanlılığını azalttı; Cumhuriyetçilerde ise yanlılığın aşırı olumlu yönde olduğu gözlemlendi. Sonuçlar, kitle iletişim stratejilerin yaygın, uygulanabilir ve düşük maliyetli çözümler sunduğunu göstermektedir.

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Throughout my PhD studies, I made a lot of mistakes (but I am committed to improving myself too), her supervision ensured a quality check on my errors. I am aware that I was lucky given her tremendous ability to attend to details, and I am grateful for that too. Though my flaws were laid bare, which may make someone feel quite unpleasant, making mistakes was not an uncomfortable experience with her thanks to her great personality. I have learned a lot from her, from day one till now and overcoming problems with her is an easy job. Though my own experience is limited to a couple of other researchers, I think the latter matter might be rare, yet very valuable.

One thing I was not quite aware of back then was I did not know how much my PhD journey would change me. I did it with love, but I am aware that this highly depended on my relationship with my supervisor. Being a good researcher is important and very useful too, but being a good supervisor includes a distinct set of abilities and qualities, and she as a person had it all. On this long and rocky road, I consider myself incredibly lucky to have had her walking beside me as my

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Prof. Gül Günaydın and Assoc. Prof. Arzu Karakulak

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For those who dedicate their time to understanding and reflecting on the complexity of human interaction, and for those who benefit from its implications

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LIST OF ABBREVIATONS

M Mean

SE Standard Error

ANCOVA Analysis of Covariance

ANOVA Analysis of Variance

H Hypothesis

N Sample Size / Number of Participants

SD Standard Deviation

SDO Social Dominance Orientation

SM Supplementary Materials

UK United Kingdom

US United States

1. OVERVIEW

This dissertation examines the link between intergroup contact and meta-attitude accuracy using multiple methodologies including correlational and experimental designs (Diener 2022) and is written in two parts. In Part I, the relationship between intergroup contact and meta-attitude accuracy was examined in four correlational studies and in three different contexts: among Black – White British, Turkish – Kurdish interethnic context and among Catholics and Protestants in Northern Ireland. The first two studies simply questioned whether there is a relationship between intergroup contact and meta-attitude accuracy. And then, the following two studies tested how intergroup contact predicts meta-attitude accuracy (Study 3 and 4). Using Structural Equation Modeling, suggested mediator variables such as anger, fear and perspective-taking were tested through two routes: cognitive and affective routes. The first part of this thesis project has been published in the Group Process & Intergroup Relations (Guvensoy et al. 2025); the author version is used in this dissertation.

Part II of this dissertation project included experimental studies in which the effectiveness of intergroup contact on meta-attitude accuracy was examined in three experiments and in three different contexts: Black and White Americans, Democrats and Republicans in the US and in a relatively less conflictual context formed by Minimal Group Paradigm (Tajfel 1970). The first two experiments test the effectiveness of the mass-mediated intergroup contact on meta-attitude accuracy among two different contexts in the US and compare contact's effectiveness to Informational Feedback Intervention (Landry et al. 2023). Finally, the final experiment tested what happens to the link between intergroup contact and meta-attitude accuracy when the level of conflict shifts using the Minimal Group Paradigm (Tajfel 1970). The final experiment includes face to face (direct) contact manipulation and is a lab-based experiment.

2. PART I

2.1 Introduction to the 1st Part

Our behaviors, feelings, and thoughts in social encounters, whether with an acquaintance or a close relationship partner, are shaped, in part, by how we think these other individuals view us. These meta-perceptions often guide how we interact with people, because we tend to treat our interaction partners with behaviors that correspond to these meta-perceptions (Carlson 2016; Human et al. 2020; Hirschi et al. 2022; Kteily et al. 2016). In other words, we engage in positive behaviors (e.g. greater expectations of enjoyment for a forthcoming interaction, Vezzali 2017; greater relationship quality, Carlson 2016) when we believe our interaction partner has a positive view of us. In contrast, when we believe that our interaction partner holds negative attitudes towards us, it leads to increased hostility and intergroup prejudice (e.g. Moore-Berg et al. 2020) because we tend to reciprocate this evaluation and respond back negatively (e.g., Owuamalam et al. 2013).

Past research has overwhelmingly focused on interpersonal-level meta-perceptions (e.g., see Elsaadawy and Carlson 2021) including personality judgements (Vazire 2010) and liking (e.g., Boothby et al. 2018). Recently, however, scholars have started to examine meta-perceptions from an intergroup perspective (e.g., Bruneau et al. 2021; Frey and Tropp 2006; Lees and Cikara 2020; Moore-Berg et al. 2020; Stathi, Di Bernardo et al. 2020). Understanding meta-perceptions from an intergroup perspective is important because, particularly in intergroup contexts where group identities become salient, individuals' judgements of what the outgroup thinks about the ingroup (i.e., group-level meta-perceptions) become a critical driver of intergroup behaviors (Lees and Cikara 2020; Moore-Berg et al. 2020; Shelton and Richeson 2006). Confirming this, previous research demonstrates that meta-perceptions at the group level elicit various attitudinal and behavioral responses towards outgroup members (Pavetich and Stathi 2021a, b; Vorauer et al. 2000), including policy support (O'Brien et al. 2018, Mernyk et al. 2022) and reciprocal dehumanization

(Kteily et al. 2016). While previous research has examined different types of meta-perceptions in the literature such as meta-dehumanization (Kteily et al. 2016), meta-beliefs (e.g., Adra et al. 2020) and misperceived polarization (Lees and Cikara 2021; also known as false polarization, Fernbach and Van Boven 2022), I specifically focused on meta-attitudes in the current research given that these include a broader range of perceptions and evaluations regarding the outgroup.

Critically, meta-attitudes may not always accurately represent what the other group thinks and feels about the ingroup in reality. They often include biased and overly negative assumptions (Frey and Tropp 2006; Stathi, Pavetich et al. 2020b) and may be false, exaggerated, or overestimated (Landry et al. 2023; Moore-Berg et al. 2020; Ruggeri et al. 2021). This potential discrepancy between the actual attitudes of the outgroup and what people tend to believe about those attitudes, i.e., meta-attitude inaccuracy, is likely to have serious implications for the justification of hostile outgroup behaviors, triggering corresponding negative responses from ingroup members (e.g., Owuamalam et al. 2013; Moore-Berg et al. 2020; Pauketat et al. 2020; Pavetich and Stathi 2021a). This is especially relevant for conflict contexts, where biased memories and narratives, as well as beliefs about the "violent and evil opponent", constitute central elements of the conflict cycle (e.g., Bar-Tal et al. 2009; Noor et al. 2017). The current research investigates the potential precursors of these inaccurate judgments by specifically testing whether and how (positive and negative) intergroup contact experiences predict meta-attitude (in)accuracy in three different intergroup contexts (Whites/Blacks in the United Kingdom, Turks/Kurds in Turkey, and Catholics/Protestants in Northern Ireland).

2.2 Intergroup Meta-attitude (In)Accuracy

Past research examining individuals' group-based meta-perceptions has typically examined what type of attitudinal and behavioral responses they produce in various intergroup contexts. For example, negative meta-attitudes are associated with greater prejudice and hostility towards the outgroup (Moore-Berg et al. 2020; Putra 2014; Putra and Wagner 2017; Vorauer et al. 1998; 2000) and support for aggressive policies (Kteily et al. 2016). Negative meta-emotions and meta-stereotypes have also been shown to elicit responses of anger, which in turn have been linked to less favorable outgroup evaluations and confrontational behavioral tendencies towards the outgroup, respectively (Owuamalam et al. 2013; Pauketat et al. 2020). On the other hand, positive meta-attitudes or stereotypes have been shown to improve

intergroup relations through more positive intergroup contact expectations (Vezzali 2017).

Despite increasing interest in meta-attitudes, research specifically examining intergroup meta-attitude (in)accuracy, the extent to which our perceptions of what the other group thinks diverges from what they actually think, and its precursors, is relatively rare. For example, Lees and Cikara (2020) demonstrated that in contexts of political party affiliation and gender, people tend to have highly inaccurate and negatively biased evaluations of what outgroup members think of them, which consequently results in more negative attributions to the outgroup. Similarly, Moore-Berg et al. (2020) showed that both Democrats and Republicans in the US overestimate the extent to which they perceive negative attitudes and dehumanization from the outgroup, and these exaggerated negativities independently predict intergroup hostility. Findings demonstrating the ubiquity of meta-attitude inaccuracy in the context of political polarization and its implications on further polarizing beliefs have been replicated in a large-scale study including 26 countries (Ruggeri et al. 2021). Yet, we know much less about the social psychological processes that fuel or hinder meta-attitude accuracy in contexts characterized by conflict. Given that meta-attitudinal inaccuracy predicts increased hostility in highly polarized intergroup contexts, it is critical to understand factors that explain how these (overly negative) perceptions form in the first place. Recent research, in the context of interpersonal relationships, suggests that three potential sources —perceivers, meta-perceivers, and the dyads —explain the accuracy of judgements (Elsaadawy et al. 2021). Hence, direct intergroup contact involving face-to-face communication and interaction is likely to include the aforementioned elements. This suggests that an intergroup contact setting, where perceivers and meta-perceivers engage in interaction and form attitudes about each other's groups, is likely to be critical for the understanding of meta-attitude accuracy.

2.3 Intergroup Contact and Meta-attitude (In)Accuracy

Intergroup contact has long been proposed as an irreplaceable prejudice-reduction strategy across various intergroup contexts (Allport 1954; Pettigrew and Tropp 2006). Contact can change and inform existing stereotypes (e.g., Brambilla et al. 2012; Zingora et al. 2021) and result in the revision of ethnocentric belief systems (Hodson et al. 2018). Previous research has also drawn a link between positive, high-quality contact and reduced negative meta-perceptions (Techakesari et

al. 2015) and meta-dehumanization (Bruneau et al. 2021). Furthermore, Stathi, Di Bernardo, et al. (2020) showed that people form contact meta-perceptions related to the outgroup's willingness to engage in intergroup contact, which are associated with one's own willingness to engage in contact. Although the link between contact and meta-accuracy may be bidirectional, extending these initial studies, I argue that beyond predicting meta-perceptions per se, intergroup contact may function as a critical agent that prompts meta-attitude accuracy in intergroup contexts. As such, previous theoretical research suggested contact interventions to be an effective tool to correct erroneous meta-perceptions (Moore-Berg and Hameiri 2024). Contact has the potential to act as a medium through which important cues enable both interaction partners to form (more accurate) meta-perceptions and reveal how the interaction partner feels towards them and their ingroup (Kenny and DePaulo 1993; Letzring et al. 2020). Indeed, research has suggested that people actively attempt to learn more about what others think of them (Mallett et al. 2008; Vorauer et al. 1998) through both verbal and nonverbal feedback (Kenny and DePaulo 1993). This feedback mechanism may include explicit information regarding the actual attitude or implicit cues, which can be processed by the meta-perceiver during contact. Recently, Bar-Tal and Hameiri (2020) indicated that intergroup contact has the potential to provide changes in the "long-lasting frozen attitudes" in conflict settings by transforming individuals' overly negative meta-perceptions. Therefore, I posit that intergroup contact provides individuals with an opportunity to form more accurate judgments of what the outgroup thinks about them and their ingroup.

It is important to note, however, that not all types of intergroup interactions are positive; some contact experiences involve substantial negativity, which may confirm and/or exacerbate biases in meta-attitudes. Previous research has shown negative contact to more strongly predict prejudice than positive contact, due to greater category salience (e.g., Barlow et al. 2012); therefore, recent studies have increasingly considered negative intergroup contact when studying contact effects (for a recent review, see Schäfer et al. 2021). Negative contact experiences often result in generalized outgroup avoidance tendencies, decreasing one's willingness to seek further contact experiences (Meleady and Forder 2019). While Techakesari et al. (2015) showed that negative contact was associated with more negative meta-perceptions, whether and how such contact experiences predict meta-attitude accuracy has not been investigated.

In the current research, I am also interested in the potential mediating mechanisms that explain the relationship between intergroup contact and meta-attitude accuracy, since these psychological processes may underline alternative ways whereby contact contributes to the correction of inaccurate meta-perceptions. I suggested

two potential routes—cognitive and affective—following previous theoretical and empirical studies that suggested contact effects on outgroup attitudes are mediated by these two different pathways (e.g., Dovidio et al. 2004; Pettigrew and Tropp 2008; Zhou et al. 2013; Visintin et al. 2016). Moreover, meta-attitude inaccuracy is likely to be driven by both cognitive and affective factors and differentiating these mediating mechanisms in the light of intergroup contact may contribute to the design of contact interventions that are the most effective in rectifying inaccurate meta-perceptions.

2.4 Cognitive Route to Meta-attitude Accuracy

I suggest that specific cognitive processes are pertinent to explaining how intergroup contact predicts meta-attitude accuracy. One such mechanism is outgroup knowledge. It is well established that intergroup contact leads to greater knowledge about the outgroup (Pettigrew et al. 2011). Through increased outgroup knowledge, contact may reveal more realistic accounts of how the ingroup is perceived and thereby update meta-perceivers' judgements about how the outgroup perceives them in reality (Letzring et al. 2006). In fact, in the context of interpersonal relationships, the extent to which the partner is well known predicts meta-perceptions' accuracy (Elsaadawy and Carlson 2022). While positive forms of intergroup contact may lead to a more accurate perception about what the outgroup thinks, by increasing information and cues from the outgroup's perspective, negative intergroup experiences on the other hand (e.g., involving discrimination and conflict) are likely to verify and/or increase existing negative beliefs and emotions during contact, which may impair individuals' motivation to actively learn about the outgroup (e.g., Paolini et al. 2018; Techakesari et al. 2015).

Perspective-taking may further function as a mediator in the association between contact and meta-attitude accuracy. Frey and Tropp (2006) argued that perspective-taking is a potential route to the formation of meta-perceptions. At the same time, perspective-taking and empathy are robust mediators of the contact–attitudes path (Pettigrew and Tropp 2008). While positive contact encourages perspective-taking towards outgroup members, negative contact is likely to hinder it (e.g., Bagci and Gungor 2019). In turn, taking the perspective of the outgroup may help individuals correct their inaccurate judgements about how outgroup members evaluate them, by providing a better understanding of the other group. Through perspective-taking, individuals understand the outgroup's mental state more, which may create a more

realistic perception of what they think. In contrast, negative contact is likely to constrain perspective-taking and thereby inhibit accessing relevant cues for forming or correcting metaperceptions, hence resulting in less meta-attitude accuracy.

Shared reality, how much individuals perceive the world in the same way as outgroup members do (Conley et al. 2016), is another potential mechanism that links contact to meta-attitude accuracy. By interacting with each other, people often verify and validate their perceptions and ultimately establish a shared reality. Creating a shared reality usually involves a meaningful conversation between group members—paying attention and being attuned to each other, turn-taking and tuning—as well as a shared understanding of the environment that constitutes a common ground for communication (Koudenburg 2018). Contact experiences are likely to involve shared reality elements between different group members and can promote more mutual and aligned understandings of each other. Indeed, research has found that while positive intergroup contact is associated with increased shared reality, negative contact relates to decreases in this variable (Lutterbach and Beelmann 2020). Shared reality, in turn, predicts lower intergroup conflict and better intergroup relationships (Conley et al. 2016). Hence, it is possible that contact experiences are linked to meta-attitude accuracy through shared reality perceptions.

2.5 Affective Route to Meta-attitude Accuracy

Affective factors may also play a role in how contact shapes meta-attitude accuracy. Intergroup anxiety has been consistently found to decrease or increase as a function of positive and negative contact, respectively, in empirical research (e.g., Page-Gould et al. 2008; Pettigrew and Tropp 2008; Techakesari et al. 2015). In turn, intergroup anxiety can lead to biased intergroup perceptions (Stephan 2014) and is associated with negative meta-perceptions (Techakesari et al. 2015). More specifically, intergroup anxiety can enhance incorrect assumptions of others' judgements by diminishing individuals' cognitive capacity to process relevant cues and thereby may cause a cognitive blockage of the processing of relevant cues for making correct judgements about how the ingroup is seen (Frey and Tropp 2006).

I suggest that two other intergroup emotions are also relevant—outgroup anger and fear. As with intergroup anxiety, both positive and negative contact have been found to relate to less or more, outgroup fear and anger, respectively (e.g., Hayward et al. 2017; Miller et al. 2004). Moreover, these group-based emotions are consequential for intergroup relations, as they are associated with motivational aggression towards

the outgroup (Spanovic et al. 2010). Unlike intergroup anxiety, which is followed by avoidant responses, both fear and anger may trigger anticipatory defensive reactions (e.g., Bagci, Verkuyten et al. 2023) or offensive action tendencies (Mackie et al. 2000). Nevertheless, both anger and fear may shape biased information processing and result in selective, biased, and distorted beliefs, perpetuating intergroup conflicts (e.g., Brown et al. 2008; Halperin 2008). Therefore, I posit that positive contact experiences would be associated with less anxiety, fear, and anger, which would be associated with greater meta-attitude accuracy. On the other hand, negative contact experiences are likely to be associated with greater anxiety, fear, and anger, and in turn relate to lower meta-attitude accuracy.

2.6 The Current Research

Past research has provided evidence that inaccurate meta-perceptions predict greater hostility towards outgroups (Kteily et al. 2016; Lees and Cikara 2020; Moore-Berg et al. 2020). Therefore, the study of meta-attitude inaccuracy and its precursors may be particularly critical in conflict contexts, where individuals become even more sensitive to biased information processing, which plays an important role in the perpetuation of conflict (Bar-Tal 2011). Conflict contexts often involve long-held frozen beliefs and make individuals less open to processing alternative information, which may result in erroneous meta-perceptions (e.g., Bar-Tal and Hameiri 2020). Particularly, in polarized and competitive intergroup contexts, inaccurate meta-perceptions may fuel political violence and outgroup hostility (see Lees and Cikara 2020; Mernyk et al. 2022), which highlights the need for greater efforts to understand social psychological processes that potentially reduce such inaccurate beliefs. Hence, in the current study, I focused on three different polarized contexts in order to increase the generalizability of our findings across settings. Despite sociocultural, political, and historical differences (e.g., Bagci, Stathi, et al. 2023), these contexts are each characterized by varying degrees of intergroup conflict (for the Catholic–Protestant context, see White et al. 2019; for the Turkish–Kurdish context, see Bagci et al. 2021; for the White– Black British context, see Bagci, Stathi, et al. 2023), where understanding social psychological processes that rectify meta-attitude inaccuracies may have critical implications.

In Studies 1 and 2, I tested a basic model where positive and negative intergroup contact were associated with outgroup attitudes through meta-attitude accuracy among both advantaged and disadvantaged group members in two different contexts

(the UK and Turkey). In Studies 3 (Northern Ireland) and 4 (Turkey), I further tested a serial mediation model where I included cognitive (outgroup knowledge, perspective-taking, and shared reality) and affective (intergroup anxiety, outgroup anger and fear) mediators in the indirect pathway linking intergroup contact to meta-attitude accuracy.

In line with previous research (Lees and Cikara 2020; Ruggeri et al. 2021), across all samples and studies, I expected participants to generally display meta-attitude inaccuracy (more negative assumptions about the other group's judgments of the ingroup compared to the outgroup's actual attitudes towards the ingroup, H1). While group status has not previously been studied in meta-attitude accuracy research, I expected all groups to show some level of inaccuracy, and contact to predict attitudes through meta-attitude accuracy regardless of group status. I base this on the historically conflictual nature of the current intergroup contexts (especially in Türkiye and Northern Ireland) as well as previous research showing that both majority and minority groups display concerns about how they are evaluated in intergroup interactions (Shelton and Richeson 2006; Stathi, Pavetich, et al. 2020).

I also expected positive intergroup contact to be associated with greater meta-attitude accuracy, which would relate to more positive outgroup attitudes (H2a), whereas negative intergroup contact to be associated with lower meta-attitude accuracy, which would relate to more negative outgroup attitudes (H2b).

In Studies 3 and 4, I further hypothesized that the indirect effect of meta-attitude accuracy in the link between contact and outgroup attitudes would be via cognitive (H3a) and affective (H3b) mediators; I expected positive contact to be associated with greater outgroup knowledge, shared reality, and perspective-taking, as well as lower anxiety, anger, and fear, which would then be associated with higher accuracy and, in turn, more positive outgroup attitudes. I hypothesized the opposite relationships for negative contact.

2.7 Study 1

Study 1 was conducted among White and Black British participants in the UK and provides an initial assessment of meta-attitude accuracy across group status and its mediating role between contact and outgroup attitudes. While overt acts of prejudice towards Black people have decreased over the years, evidence shows that this group still suffers from pervasive discrimination and structural disadvantage (e.g., West et al. 2021).

2.7.1 Study 1 Method

2.7.1.1 Participants and procedure

I used data from a published study (Bagci et al. 2023) after getting permission from the authors. Data were collected in the United Kingdom through research credits platform for university students and Prolific Academic participants. The original data were pooled of both samples (N = 351 British participants, 163 White and 188 Black British, 268 Females and 78 Males, M_{age}= 31.47, SD = 10.84). Post-hoc power analyses are indicated in Supplementary Materials.

2.7.1.2 Materials

All study materials are available online at the Open Science Framework repository (OSF). I report all measures that are not used in the current study in Supplementary Materials. All measures were only assessed for the target outgroup in the original dataset.

Positive and negative contact. Positive and negative contact were assessed with one item each (e.g., Barlow et al. 2012; "How often do you have a positive/negative contact with White/Black group members?"). The response scale ranged from 1 (Never) to 7 (Extremely frequently).

Outgroup attitudes. Outgroup attitudes were assessed via the feeling thermometer (Esses et al. 1993). Participants were asked to rate how warm they felt towards White [Black] group members whereby responses ranged from 0 (Extremely unfavorable) to 100 (Extremely favorable), and 50 degrees represented neutral attitudes.

Meta-attitude accuracy. Participants beliefs regarding how they think that the outgroup would think of them are operationalized as 'meta-attitudes'. Participants were asked to rate how they think Whites [Blacks] would rate them on the feeling thermometer whereby degrees ranged from 0 (Extremely unfavorable) to 100 (Extremely favorable) and 50 degrees representing neutral attitudes (e.g., Esses et al. 1993). I computed accuracy scores by extracting each individuals' meta-attitudes from the mean of the outgroup's actual outgroup attitudes, following the same procedure used by Lees and Cikara (2020, see also Moore-Berg et al. 2020). Therefore, more negative scores indicate greater discrepancy (i.e., less accuracy).

2.7.2 Study 1 Results

2.7.2.1 Descriptive statistics

Table 2.1 presents descriptive statistics (outgroup attitudes, meta-attitudes and meta-attitude accuracy) across groups and studies. Descriptive statistics and correlations between main variables are presented in Table 2.2 for Studies 1 and 2. An independent samples t-test indicated a significant difference between Blacks and Whites in their accuracy scores [Mean (*SD*)White = -12.48 (22.68), Mean (*SD*)Black = -29.66 (25.40); $t(347) = 6.61$, $p < .001$], such that Blacks were (more than two times) less accurate in their estimation of how the outgroup perceives them compared to Whites.

Table 2.1 Outgroup attitudes, meta-attitudes, and meta-attitude accuracy for studies 1-4

Study	Outgroup attitudes M (SD)	Meta-attitudes M (SD)	Meta-attitude accuracy M (SD)
Study 1			
Whites	73.35 (22.45)	52.81 (22.68)	-12.48 (22.68)
Blacks	65.30 (23.65)	43.69 (25.40)	-29.66 (25.40)
p	.001	.001	< .001
Study 2			
Turks	53.38 (25.89)	49.41 (27.21)	-15.33 (27.21)
Kurds	64.75 (25.81)	48.31 (24.50)	-5.06 (24.50)
p	< .001	.707	.001
Study 3			
Turks	57.23 (25.38)	47.08 (25.90)	-17.66 (25.90)
Kurds	66.26 (23.32)	36.13 (23.89)	-21.09 (23.89)
p	.004	.001	.277
Study 4			
Catholics	67.50 (20.91)	51.40 (23.63)	-21.26 (23.63)
Protestants	72.66 (22.03)	53.57 (23.12)	-13.92 (23.12)
p	.056	.457	.012

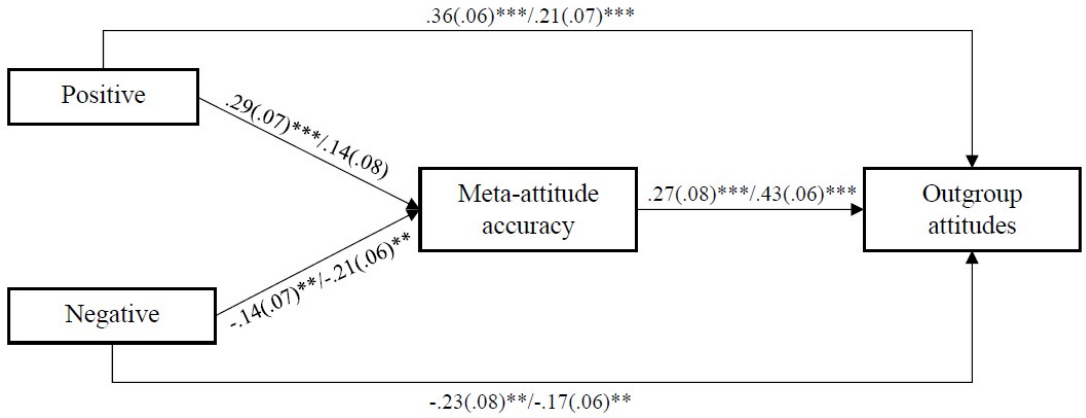
Note. *p* values indicate independent *t*-tests comparing outgroup attitudes, meta-attitudes, and meta-attitude accuracy across group status in each study.

2.7.2.2 Mediational role of meta-attitude accuracy

I conducted a multigroup path analysis in MPlus Version 8.5 (Muthén and Muthén 1998). The bootstrapping procedure (5000 samples) with 95% confidence intervals was performed to test for indirect effects. I used positive and negative contact as independent variables, meta-attitude accuracy as the mediator variable, group status as the grouping variable and outgroup attitudes as the dependent variable.

The indirect effect of positive contact on outgroup attitudes through meta-attitudinal accuracy was significant for only Whites, $\beta = .08$, SE = 0.03, 95% CI [.02, .14], but not for Blacks, $\beta = .06$, SE = 0.036, 95% CI [.00, .15]. The indirect effects of negative contact on outgroup attitudes were only significant for Blacks, β = -.09, SE = 0.03, 95% CI [-.14, -.01], but not for Whites (Figure 2.1). All direct

Figure 2.1 The mediational effect of meta-accuracy among positive and negative contact and outgroup attitudes in Study 1. Note that the left placed coefficients are for Whites and right placed coefficients for Blacks, $N = 347$. $p < .05$*, $p < .01$**, $p < .001$***.



and indirect paths were reported in Table A.1 in Supplementary Materials.

Table 2.2 Descriptive statistics and correlation between the main variables in Study 1 and 2

	Study 1		**Correlations**			
	Mean (SD) Whites	**Mean (SD) Blacks**	1	2	3	4
1. Positive Contact	4.91 (1.61)	5.77 (1.34)	–	.02	.14	.27**
2. Negative Contact	1.85 (1.11)	3.14 (1.40)	.01	–	-.21**	-.26**
3. Meta-accuracy	-12.48 (22.68)	-29.65 (25.40)	.30**	-.11	–	.50**
4. Outgroup attitudes	73.35 (22.45)	65.30 (23.65)	.44**	-.31**	.52**	–
	Study 2					
	Mean (SD) Turks	**Mean (SD) Kurds**	1	2	3	4
1. Positive Contact	4.55 (1.93)	5.51 (1.47)	–	-.03	.36**	.56**
2. Negative Contact	2.14 (1.56)	2.65 (1.69)	.16**	–	-.15	-.03
3. Meta-accuracy	-15.33 (27.21)	-5.06 (24.5)	.23**	.18**	–	.64**
4. Outgroup attitudes	53.38 (25.89)	64.75 (25.81)	.36**	.03	.64**	–

Note. Correlations for ethnic minorities (Blacks and Kurds) are presented to the right of the diagonal, and correlations for ethnic majorities are presented to the left of the diagonal. Correlations are significant at *$p < .050$, and **$p < .010$.

2.7.3 Study 1 Discussion

Confirming H1, meta-perceptions were overly negative in both groups. Positive contact was associated with increased meta-accuracy only among White British participants, while negative contact was associated with decreased meta-accuracy among Black British participants. In turn, meta-attitude accuracy predicted outgroup attitudes for both groups (particularly strongly among the minority group).

The inconsistent findings related to positive contact across group status may be explained by the overwhelming evidence in the contact literature demonstrating contact to be more transformative and leading to greater prejudice reduction for majority group members compared to minority group members (Barlow et al. 2013; Tropp and Pettigrew 2005). Our results suggest partial evidence for H2a and H2b.

2.8 Study 2

Study 2 aimed to replicate Study 1 in a different intergroup context, Turkish–Kurdish relationships in Turkey, characterized by years of strong, intractable conflict (e.g., Uluğ et al. 2021). Despite their status differentials, with Turks being the advantaged group, both groups report strong negative stereotypes about the relevant outgroup (e.g., Bilali et al. 2014). Previous research also shows the existence of strongly biased conflict narratives that are likely to shape negative intergroup relationships in this context (Uluğ et al. 2021).

2.8.1 Study 2 Method

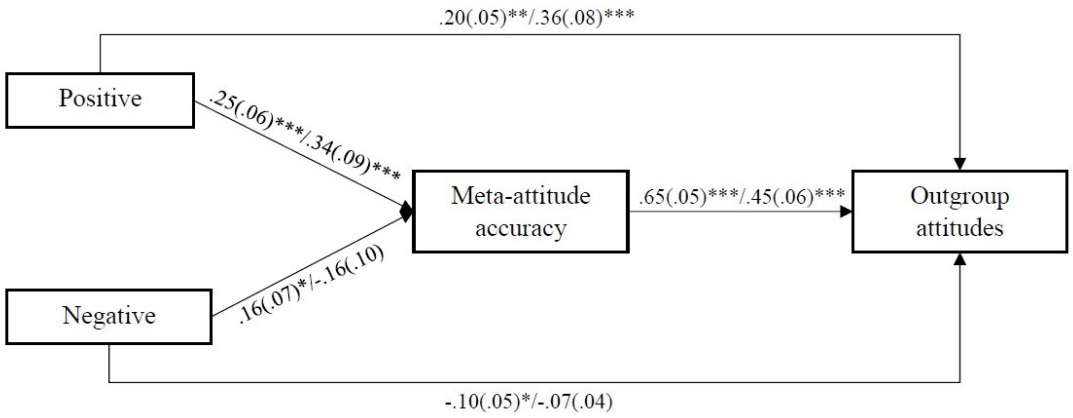
2.8.1.1 Participants and procedure

I used data from a published study (Bagci et al. 2023) after getting permission from the authors. Data were collected online from 397 Turkish nationals (265 ethnic Turks and 132 ethnic Kurds, 248 Females and 149 Males, $M_{\text{age}} = 32.81$, $SD = 11.67$). A post-hoc power analysis can be found in Supplementary Materials.

2.8.1.2 Materials

All measures were identical to Study 1 and were adapted to Turks/Kurds as the target groups.

Figure 2.2 The mediational effect of meta-accuracy among positive and negative contact and outgroup attitudes in Study 2, $N = 333$. Note that the left placed coefficients are for Turks and right placed coefficients for Kurds, $p < .05^{*}$, $p < .01^{**}$, $p < .001^{***}$.



2.8.2 Study 2 Results

2.8.2.1 Descriptive statistics

Table 2.1 displays mean outgroup attitudes, meta-attitudes and meta-attitude accuracy scores. Independent samples t-test indicated a significant difference among Turks and Kurds in their accuracy scores [*Mean* (*SD*)Turk = -15.33 (27.21), *Mean* (*SD*)Kurd = -5.06 (24.5); $t(354) = -3.49$, $p = .001$]. Turks were (three times) less accurate in their estimation of their ingroup evaluation by Kurds than were Kurds in their ingroup evaluation by Turks.

2.8.2.2 Mediational role of meta-attitude accuracy

I ran a multigroup path analysis in MPlus 8.5 as in Study 1. The indirect effects of positive contact on outgroup attitudes through meta-attitude accuracy were significant for both Turks, $\beta = .16$, SE = 0.04, 95% CI [.07, .25], and Kurds, $\beta = .15$, SE = .05, 95% CI [.08, .28]. The indirect effects of negative contact on outgroup attitudes through meta-attitude accuracy were only significant for Turks, $\beta = .10$, SE = 0.04, 95% CI [.01, .19], but not for Kurds (see Figure 2.2). All direct and indirect paths were reported in Table A.2 in Supplementary Materials.

2.8.3 Study 2 Discussion

Study 2 provided further evidence for a discrepancy in group members' judgments of what the outgroup thinks of them and their actual attitudes. For all groups, regardless of status, meta-perceptions were largely inaccurate, demonstrating evidence for H1. Study 2 was conducted in Turkey, in a more conflictual and prejudicial context where Turks, as the majority group, were less accurate in their meta-attitudes. As expected, positive contact was consistently associated with greater meta-attitude accuracy for Turks and Kurds, which was in turn associated with more positive outgroup attitudes (H2a). For Kurds, who are arguably more familiar with negative treatment and prejudice from Turks (e.g., Bagci and Çelebi 2017), negative contact did not predict meta-attitude accuracy. Interestingly, negative contact predicted increased meta-attitude accuracy in the case of Turks (no support for H2b), for whom both types of contact, regardless of contact valence, were associated with greater accuracy.

2.9 Study 3

Studies 1 and 2 established the mediating role of intergroup meta-attitude accuracy in the relationship between contact experiences and outgroup attitudes and demonstrated particularly positive contact to be consistently linked to increased meta-attitude accuracy. Yet, the mechanisms that link contact to meta-attitude accuracy were not explored. Study 3, conducted in the Turkish–Kurdish context, further aimed at exploring social psychological processes that may explain how contact is associated with meta-attitude accuracy, which is in turn linked to more positive outgroup attitudes.

2.9.1 Study 3 Method

2.9.1.1 Participants and procedure

I recruited participants through social media platforms and by distributing QR code brochures in Istanbul. Participants completed an online survey including demographic questions, positive and negative contact, intergroup anxiety, fear, and anger, outgroup knowledge, perspective-taking, and shared reality, meta-attitudes, and outgroup attitudes measures. The required sample size was estimated by an a

priori power analysis (see the Supplemental Material). In total, 433 Turkish citizens were recruited for the study. I excluded 127 participants in total (27 of them were excluded because they indicated their ethnicity was neither Turk nor Kurd, 96 participants failed to provide data on the main dependent variables[1], and finally I excluded four participants due to their age being below 18). The final sample consisted of 306 participants (136 male; 44.4%, 165 female; 53.9%, Mage = 29.84, SD = 10.77; 214 ethnic Turks and 92 ethnic Kurds).

2.9.1.2 Materials

Unless otherwise stated, all response scales ranged from 1 (Strongly disagree) to 7 (Strongly agree). Positive and negative contact, as well as meta-accuracy scales were the same as the previous studies.

Outgroup knowledge. Outgroup knowledge was assessed with two items; "I think I have a good degree of knowledge about Turks [Kurds]." and "I believe I know Turkish [Kurdish] people well." (r = .86).

Shared reality. Shared reality was assessed with seven items developed by Conley et al. (2016). Participants were asked to indicate how far they think their attitudes, experiences, and social as well as political viewpoints agree with the outgroup members' (e.g., "My attitudes are quite similar to those held by most Turkish [Kurdish] people") (α = .67).

Perspective-taking. Perspective-taking was measured with two items adapted from Aberson and Haag (2007); "I think I can understand the way Turks [Kurds] think." and "I can see the perspective of Turks [Kurds]." (r = .71).

Outgroup emotions. Outgroup emotions were measured by four items (Bagci et al. 2022). Participants were asked to indicate the extent to which they feel anger, fury, fear, worry towards the outgroup. [2] The response scale ranged from 1 (not at all) to 7 (quite a lot, r = .80 for outgroup anger, r = .67 for fear).

Intergroup anxiety. Intergroup anxiety was measured by three items (adapted by Bagci and Gungor 2019; Stephan and Stephan 1985): "To what extent would you feel awkward, anxious, tense in a social interaction with a Turkish [Kurdish] person?". The response scale ranged from 1 (not at all) to 7 (quite a lot), α = .89.

1. Note that many respondents who failed to provide data on the main dependent variables did not continue to the study after checking the informed consent page. This may be due to the focus of the research, being either sensitive or uninteresting to the potential participants.

2. Positive emotions (respect and admiration) were also added to counterbalance the positivity-negativity of items and were not included in the analysis.

2.9.2 Study 3 Results

2.9.2.1 Descriptive statistics

Table 2.1 indicates mean outgroup attitudes, meta-attitudes and meta-attitude accuracy scores across groups. Table 2.3 indicates descriptive statistics and correlations among the main variables for Studies 3. An independent samples t-test indicated that there is no statistically significant difference among Turks and Kurds in their accuracy scores [*Mean* (*SD*)Turks = -17.66 (25.90), *Mean* (*SD*)Kurds = -21.09 (23.89); $t(304) = .277$, $p = .60$] and both groups seemed to exhibit substantial discrepancies among the actual attitudes of the outgroup and their perceptions.

2.9.2.2 Mediational role of meta-attitude accuracy

Similar to Studies 1 and 2, I first conducted a multigroup path analysis whereby positive and negative contact were introduced as predictor variables, meta-attitude accuracy as the mediator and outgroup attitudes as the outcome variable. The indirect effects of positive contact on outgroup attitudes through meta-attitude accuracy were significant for Turks, $\beta = .23$, $SE = 0.04$, 95% CI [.15, .33], but not for Kurds, indicating partial evidence for H2a. The indirect effects of meta-attitude accuracy in the link between negative contact and outgroup attitudes were non-significant for both Turks and Kurds (No evidence for H2b). Table A.3 shows all direct and indirect path coefficients in Supplemental Materials.

Cognitive Route

To test the cognitive route, I used multi-group path analyses. I treated positive and negative contact as the independent variables; outgroup attitudes as the dependent variable; shared reality, perspective taking, outgroup knowledge (parallel) and meta-attitude accuracy (serial) as mediators. The initial model fit indices indicated a poor fit, CFI = .67, RMSEA = .50, SRMR = .12, χ^2 (6) = 237.39. After adding the covariances between perspective-taking and outgroup knowledge, the model fit became excellent, CFI = .998, SRMR = .03, RMSEA = .05, χ^2 (4) = 5.73, $p = .22$.

I found significant indirect effects of positive contact on meta-attitude accuracy only through shared reality for both groups: Turks, $\beta = .03$, $SE = 0.01$, 95% CI [.01, .06]; Kurds, $\beta = .06$ $SE = 0.03$, 95% CI [.02, .16]. Similarly, the indirect association between negative contact and meta-attitude accuracy was significant via shared reality only among Turks ($\beta = -.03$, $SE = 0.01$, 95% CI [-.06, -.01]), but not for Kurds. While positive contact was associated with greater outgroup

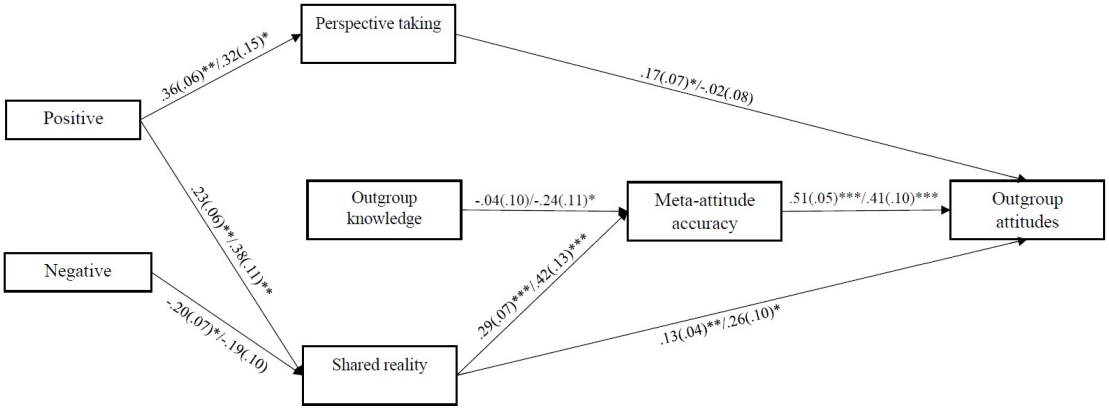
knowledge and perspective-taking, in turn, these variables were not associated with meta-accuracy. Figure 2.3 displays the cognitive route, and all direct and indirect paths were reported in Table A.4 in Supplementary Materials.

Table 2.3 Descriptive statistics and correlations between the main variables in Study 3

Study 3	**Mean (SD) Turks**	**Mean (SD) Kurds**	1	2	3	4	5	6	7	8	9	10
1. Positive contact	4.76 (1.97)	5.98 (1.41)	–	-.16	.27**	.46**	.22*	.30**	.41**	-.61**	-.32**	-.32**
2. Negative contact	2.36 (1.77)	3.05 (1.72)	-.08	–	-.14	-.23*	.10	.04	-.25*	.24*	.41**	.28**
3. Meta-accuracy	-17.66 (25.90)	-21.09 (23.89)	.43**	-.16*	–	.58**	-.17	.007	.49**	-.14	-.35**	-.14
4. Outgroup attitudes	57.23 (25.38)	66.26 (23.32)	.55**	-.27**	.71**	–	.09	-.23*	.55**	-.33**	-.54**	-.20
5. Outgroup knowledge	4.09 (1.86)	5.80 (1.34)	.33**	.08	.12	.30**	–	.67**	-.10	-.17	.04	-.03
6. Perspective taking	4.24 (1.71)	5.59 (1.45)	.35**	.05	.16*	.36**	.78**	–	.005	-.31**	-.14	-.18
7. Shared reality	3.95 (.99)	3.92 (1.30)	.24**	-.22**	.39**	.41**	-.02	-.01	–	-.35**	-.41**	-.24**
8. Intergroup anxiety	1.79 (1.29)	2.35 (1.64)	-.23**	.30**	-.26**	-.29**	-.12	-.13*	-.26**	–	.46**	.40**
9. Outgroup fear	2.32 (1.41)	3.35 (1.59)	-.15*	.22**	-.24**	-.15*	-.12	-.05	-.32**	.51**	–	.62**
10. Outgroup anger	2.57 (1.49)	2.72 (1.60)	-.21**	.39**	-.38**	-.40**	.06	.04	-.50**	.44**	.60**	–

Note. Correlations for Kurds are presented to the right of the diagonal, and correlations for Turks are presented to the left of the diagonal. Correlations are significant at *$p < .050$, and **$p < .010$.

Figure 2.3 Cognitive route from contact to outgroup attitudes, Study 3, $N = 306$. Note that the left placed coefficients are for Turks and right placed coefficients for Kurds. $p < .050$*, $p < .010$**, $p < .001$***. Non-significant path coefficients were not displayed for simplicity.

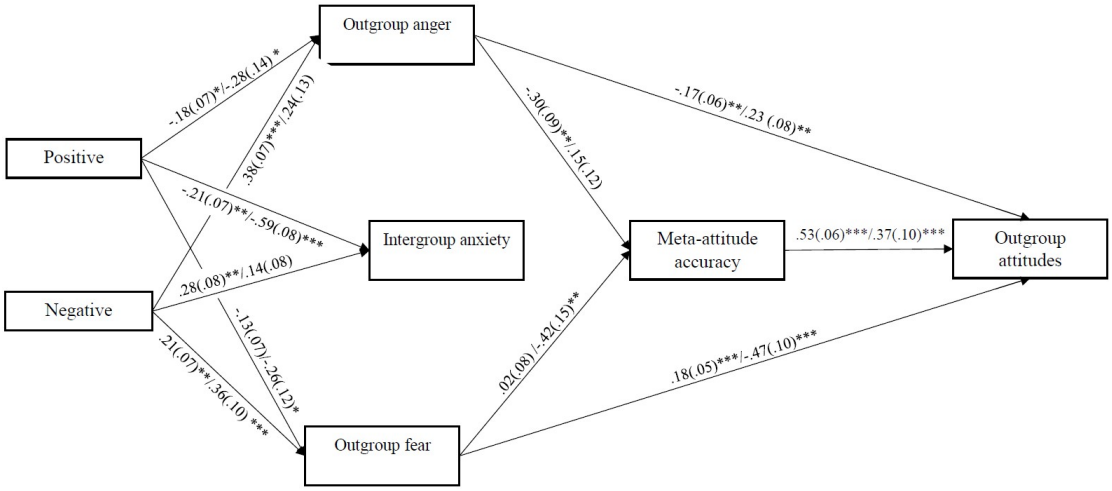


Affective Route

To test the affective route, I used multigroup path analysis where positive contact and negative contact were independent variables; outgroup fear, outgroup anger, intergroup anxiety (parallel) and meta-attitude accuracy (serial) were mediators, and outgroup attitudes were the dependent variable. The initial model indicated a poor fit, CFI = .75, RMSEA = .43, SRMR = .13, χ^2 (6) = 179.27. After adding covariances among outgroup fear, anger and intergroup anxiety, the final model indicated a perfect fit.

Figure 2.4 displays the affective route. The indirect effects for meta-attitude accuracy were only significant through fear for Kurds (from positive contact to outgroup attitudes; $\beta = .04$, $SE = 0.02$, CI [.01, .13]; from negative contact to outgroup attitudes, $\beta = -.06$, $SE = 0.02$ CI [-.12, -.009]), and through anger for Turks (from positive contact to outgroup attitudes; $\beta = .03$, $SE = 0.01$, CI [.01, .06]; and from negative contact to outgroup attitudes, $\beta = -.06$ $SE = 0.02$ CI [-.11, -.02]). The mediational role of intergroup anxiety was non-significant for both groups. All direct and indirect paths were reported in Table A.5 in Supplementary Materials.

Figure 2.4 Affective route from contact to outgroup attitudes, Study 3, N = 306. Note that the left placed coefficients are for Turks and right placed coefficients for Kurds. $p < .05$*, $p < .01$**, $p < .001$***. Path coefficients from intergroup anxiety to outgroup attitudes are -.07 (.04) / .02 (.10). Non-significant path coefficients were not displayed for simplicity.



2.9.3 Study 3 Discussion

Confirming our initial expectation and replicating the results of Study 2, both groups displayed substantial inaccuracy in their perceptions (confirming H1). However, I did not replicate the group status effect detected in Study 2; although actual attitudes towards Kurds were similar in both Studies 2 and 3, Kurds seemed to report greater inaccuracy (as much as Turks) in Study 3. One reason for this inconsistency might relate to the differences in terms of time period in data collection. Data for Study 3 were collected recently, during a time of increased political and economic instability in the country, which might have led Kurds to believe that they are more negatively perceived by Turks than in reality. On the other hand, data in Study 2 included a more diverse sample recruited from cities outside Istanbul, whereas Study 3 sample was mainly from Istanbul.

Furthermore, shared reality was as a consistent mediator for both groups (partial support for H3a). I also found different emotions to predict meta-attitude accuracy across group status: while fear was a critical mediator for Kurds, anger was more pertinent for Turks (providing partial support for H3b). This is unsurprising given the positions of these groups in society and previous findings demonstrating specific emotions to play differential roles across perceiver and target groups (Seger et al. 2017). Therefore, while at a cognitive level, shared reality through positive contact might be a crucial driver of meta-attitudinal accuracy, different negative emotions

may trigger inaccurate meta-attitudes depending on group status and broader sociopolitical circumstances.

2.10 Study 4

The aim of Study 4 was to test our hypotheses in an additional intergroup context. I concentrated on the Northern Irish context to generalize the current findings. Similar to the previous study contexts, Northern Irish context has a long history of conflict (albeit contextually different, e.g., Turner et al. 2013). Moreover, sectarian division is still highly prevalent (Hewstone and Hughes 2015). Nevertheless, in contrast to the Turkish-Kurdish and Black-White contexts examined in the previous studies, Northern Ireland is characterized by institutionalized segregation through the education system (Turner et al. 2013).

2.10.1 Study 4 Method

2.10.1.1 Participants and procedure

I recruited participants from the Prolific Academic online survey platform. The eligibility criteria for recruiting participants were residing in Northern Ireland and being either Irish or British. Sample size was calculated by a priori power analysis and is included in the Supplementary Materials. In total, 290 Northern Ireland residents was recruited for the study. I excluded 26 participants in total (23 of them were excluded because they indicated their religious background was neither Catholic nor Protestant, and three participants failed to provide data on the main dependent variables). The final sample consisted of 264 participants (139 female; 52.7%, Mage = 38.62, SD = 12.18; 154 Protestant and 110 Catholic participants). Subjective socioeconomic status was assessed by a single item (MSES = 3.84, SD = 1.21; 1 = Very low, 7 = Very high). Overall, 0.4% of the participants were primary school graduates, 32.2% were high school graduates, 44.7% were university graduates and 22.7% had post-graduate level education.

2.10.1.2 Materials

The measures were identical to Study 3 and were adapted to the context (Reliabilities: r = .88 for outgroup knowledge, r = .77 for perspective taking, r = .69 for anger and r = .67 for fear, α = .93 for intergroup anxiety and α = .83 for shared reality).

2.10.2 Study 4 Results

2.10.2.1 Descriptive statistics

Table 2.1 indicates meta-attitude accuracy scores across groups. An independent samples t-test indicated a significant difference among Catholics and Protestants in their accuracy [*Mean* (*SD*)Catholics = -21.26 (23.63), *Mean* (*SD*)Protestants = -13.92 (23.12); $t(262)$ = -2.51, p = .012]. Catholics were less accurate than Protestants in their estimation of their ingroup evaluation by the outgroup. Table 2.4 indicates descriptive statistics and correlations among main variables for Studies 4.

2.10.2.2 Mediational role of meta-attitude accuracy

I initially tested the mediational role of meta-attitude accuracy through multigroup path analysis as in Studies 1-3. The indirect effects of positive contact on outgroup attitudes through meta-attitude accuracy were significant for both Catholics, β = .13, *SE* = 0.05, 95% CI [.02, .24], and Protestants, β = .18, *SE* = 0.03, 95% CI [.10, .25]. The indirect effects of meta-attitude accuracy in the link between negative contact and outgroup attitudes were significant for both Catholics, β = -.12, *SE* = 0.06, 95% CI [-.23, -.01] and Protestants, β = -.06, *SE* = 0.03, 95% CI [-.12, -.01]. Table A.6 shows all direct and indirect path coefficients in the Supplemental Materials.

Cognitive Route

I followed the same steps as in Study 3. The initial model fit indices indicated a poor fit, CFI = .76, RMSEA = .41, SRMR = .12, χ^2 (6) = 144.76. As shown by modification indices, I included covariances between perspective taking, outgroup knowledge and shared reality, which improved the model fit.

I found significant indirect effects for meta-attitude accuracy through shared reality

for both groups (Catholics, β = .05, *SE* = 0.02, 95% CI [.01, .11]; Protestants, β = .04 *SE* = 0.01, 95% CI [.01, .08]). As in Study 3, positive contact was associated with greater outgroup knowledge and perspective taking, yet these variables did not further significantly relate to meta-attitude accuracy. None of the cognitive mediators significantly mediated the role of negative contact on meta-attitude accuracy (see Figure 2.5). All direct and indirect paths are reported in Table A.7 in Supplementary Materials.

Affective Route

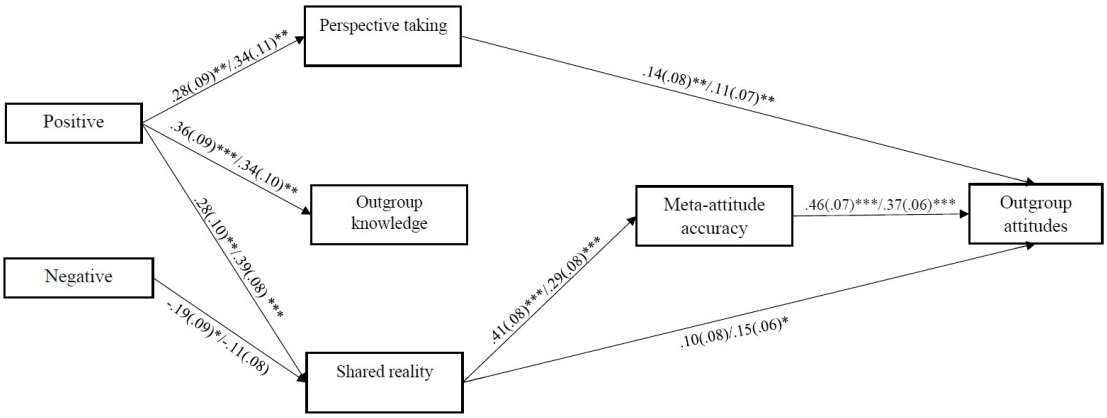
To test meta-attitude accuracy through affective mediators I applied multigroup path analysis. This model initially indicated a poor fit, CFI = .75, RMSEA = .44, SRMR = .12, χ^2 (6) = 161.25. After adding covariances among outgroup fear, anger and intergroup anxiety, the final model indicated a perfect fit. The indirect links between positive or negative contact and meta-attitude accuracy were not significant through any outgroup emotions (see Figure 2.6). All direct and indirect paths were reported in Table A.8 in Supplementary Materials.

Table 2.4 Descriptive statistics and correlation between the main variables in Study 4

Study 4	**Mean (SD) Catholics**	**Mean (SD) Protestants**	1	2	3	4	5	6	7	8	9	10
1. Positive Contact	5.70 (1.36)	5.74 (1.38)	–	-.18*	.46**	.65**	.32**	.34**	.41**	-.37**	-.11	-.30**
2. Negative Contact	2.02 (1.00)	1.92 (.98)	-.40**	–	-.23**	-.27**	.006	-.07	-.18*	.40**	.40**	.32**
3. Meta-accuracy	-21.60 (23.63)	-13.92 (23.12)	.32**	-.30**	–	.64**	.26**	.24**	.44**	-.30**	-.18*	-.23*
4. Outgroup attitudes	67.50 (20.91)	72.66 (22.03)	.53**	-.40**	.69**	–	.28**	.37**	.52**	-.41**	-.19*	-.44**
5. Outgroup knowledge	5.15 (1.12)	5.17 (1.20)	.38**	-.19	.29**	.35**	–	.63**	.31**	-.13	.01	.06
6. Perspective Taking	4.70 (1.21)	5.08 (1.13)	.32**	-.23*	.46**	.50**	.60**	–	.44**	-.20**	-.06	-.17*
7. Shared Reality	4.40 (1.01)	4.66 (.97)	.35**	-.30**	.57**	.55**	.25**	.47**	–	-.30**	-.16*	-.38**
8. Intergroup Anxiety	1.87 (1.15)	1.53 (.90)	-.41**	-.37**	-.41**	-.52**	-.24**	-.36**	-.41**	–	.52**	.24**
9. Outgroup fear	2.04 (1.19)	1.58 (.87)	-.28**	.34**	-.34**	-.35**	-.08	-.22	-.31**	.60**	–	.53**
10. Outgroup anger	1.73 (.97)	1.46 (.88)	-.28**	.40**	-.41**	-.45**	-.15	-.41**	-.40**	.54**	.65*	–

Note. Correlations for Protestants are presented to the right of the diagonal, and correlations for Catholics are presented to the left of the diagonal. Correlations are significant at $^{*}p < .05$ and $^{**}p < .01$.

Figure 2.5 Cognitive route from contact to outgroup attitudes, Study 4, N = 264. Note that the left placed coefficients are for Catholics and right for Protestants. $p < .05$*, $p < .01$**, $p < .001$***.



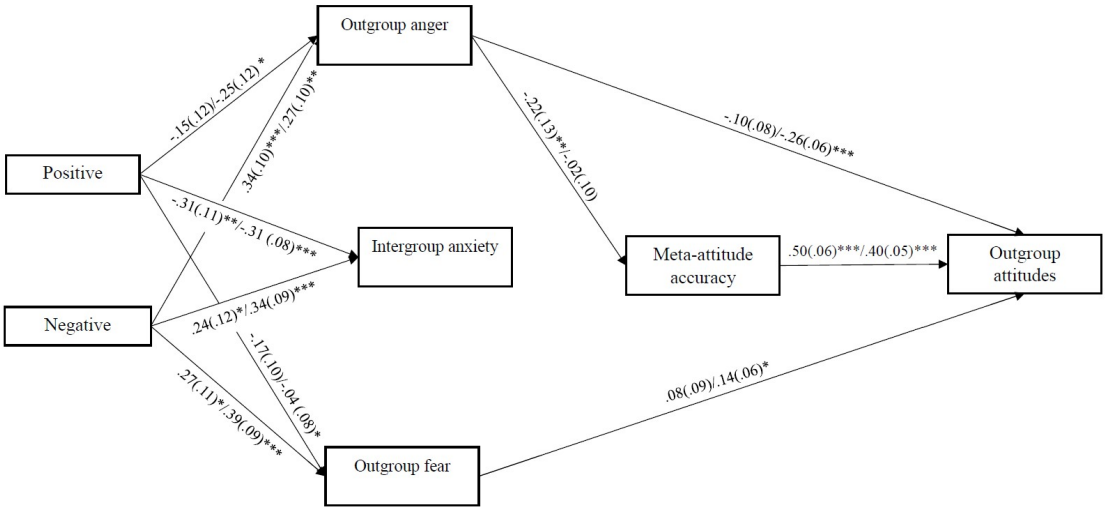
2.10.3 Study 4 Discussion

Replicating the previous studies, participants in Study 4 also reported an overestimation of perceived dislike from the outgroup (Confirming H1). I found this inaccuracy particularly pronounced among Catholic participants, who have been the lower status group in Northern Ireland historically and experienced significant discrimination (BBC 2014). Although this status difference is now thought to have been largely eliminated structurally (e.g., equal numbers of Catholic and Protestants in employment, reflecting a considerable change since 2002; BBC 2022), Catholics' beliefs about being negatively viewed seem to persist., and partly confirming H3a, shared reality functioned as a critical social psychological mechanism that explains how positive contact might be associated with increased meta-attitude accuracy. Replicating the effect of mediational effect of shared reality in the Northern Irish context may indicate more generalizable evidence. On the other hand, negative emotions did not significantly explain meta-attitude accuracy in this context (No support for H3b).

2.11 Part I Interim Discussion

The current research showed that people tend to believe that their ingroup is perceived more negatively by the outgroup than in reality, as the recently growing meta-attitude inaccuracy literature has demonstrated (Frey and Tropp 2006; Moore-Berg et al. 2020; Lees and Cikara 2020; Ruggeri et al. 2021). This finding was consistent

Figure 2.6 Affective Route from Contact to Outgroup Attitudes, Study 4, $N = 264$. Note that the left placed coefficients are for Catholics and right placed coefficients for Protestants. $p < .05$*, $p < .01$**, $p < .001$***. Path coefficients from intergroup anxiety to outgroup attitudes are .16 (.08) /-.13 (.06)*.



across four studies and three different socio-cultural settings. While inaccurate intergroup meta-perceptions existed among both majority and minority status group members, some status differences were observed. Overall, the minority status groups in the UK (Blacks) and Northern Ireland (Catholics) reported significantly greater inaccuracy than the majority status group in the relevant context. This is in line with previous research demonstrating minority status groups to internalize discrimination more and display generally more sensitivity to how they are evaluated in society compared to majority status groups (e.g., Mendoza-Denton et al. 2002; Schmitt et al. 2002). On the other hand, Turks in Turkey, as the majority group, indicated greater inaccuracy (Study 2), which is in line with previous research demonstrating Turks to also report a significant level of collective victimhood in the conflict (Bagci et al. 2018). However, this status effect disappeared in Study 3, which may indicate such (mis)perceptions to be potentially malleable and dynamic over time and across context.

Extending past research, I found that having positive intergroup contact is associated with greater accuracy about the outgroup members' attitudes towards the ingroup among all groups, in line with recent theoretical suggestions (Moore-Berg and Hameiri 2024). Therefore, individuals' positive interactions with outgroup members were associated with having a less distorted view of the outgroup's attitudes towards their ingroup, which was in turn associated with improved outgroup attitudes. The mediational effects of meta-attitude accuracy in the link between nega-

tive contact and outgroup attitudes were however mixed across groups and contexts. Negative contact was associated with more negative outgroup attitudes via lower meta-attitude accuracy only among Blacks in Study 1 and among both Catholics and Protestants in Study 4. Contrary to our expectations, negative contact was associated with greater accuracy among Turks in Study 2. This may suggest that despite its negativity, some contact experiences may still provide a more "realistic" account of what the other group thinks.

Several factors may explain inconsistent findings regarding the effect of negative contact across studies such as methodological issues and contextual differences. Although I have conducted power analyses, statistical power does not necessarily address issues related to representative sampling. For example, in Study 1, our post-hoc power analysis indicated that the power for detecting a significant effect for negative contact was .67 (see the Supplementary Materials). Apart from methodological issues, how negative contact functions in each context may also vary. For example, in Turkey, Turkish–Kurdish relationships represent a high-conflict, high-contact context (Bagci and Çelebi 2017), where high exposure to negative contact may have a weaker impact on meta-attitude accuracy, particularly for Kurds, who may have become desensitized to such experiences due to the ongoing nature of the conflict. This desensitization may explain why, for this group, negative contact was not significantly associated with meta-attitude accuracy. Further research is needed to understand better the links between negative contact and meta-attitudinal accuracy.

2.11.1 Cognitive Route

The current research also examined (in Studies 3 and 4) potential underlying mechanisms between contact and meta-attitude accuracy. Shared reality was the only significant and consistent mediator via meta-attitude accuracy in the relationship between contact and outgroup attitudes. I believe that individuals perceiving a shared reality may partially reflect a "projection heuristic" for the meta-perceiver, as they believe that they share similar experiences and agree on many issues, which means that the outgroup member may also think like them. In other words, if they think they like the outgroup and they perceive some degree of shared reality at the same time, they may also think the outgroup member would use the same heuristic. On the other hand, shared reality is the only variable that emphasizes a "commonality" with the outgroup and implies an inclusive understanding of the two groups, unlike other mechanisms that only consider how the participants think.

As such, previous research has shown that shared mentalities and perceptions, such as inclusive victimhood beliefs, also encourage reconciliation processes in conflictual contexts (e.g., Vollhardt 2015). Similar to inclusive victimhood beliefs, shared reality may imply that the two individuals, despite group differences, are on the same page mentally; this may provide a basis for the formation of common perceptions, greater understanding of intergroup attitudes, and, eventually, the correction of biased meta-perceptions. On the other hand, shared reality mainly mediated the role of positive intergroup contact, but not the role of negative contact in Studies 3 (except Turks) and 4, demonstrating valence to have a significant role in the generation of a shared reality in intergroup relations (Conley et al. 2016; Lutterbach and Beelmann 2020).

Contrary to our expectations, outgroup knowledge and perspective-taking were not associated with greater meta-attitude accuracy. I initially posited that contact may act as an avenue or a tool for transferring information about what the outgroup thinks about the ingroup, and reveal some information about meta-perceptions. Therefore, I expected knowledge about the outgroup and taking their perspective would also signal cues about the outgroup's perception of the ingroup. Nevertheless, these processes may not fully reflect what the outgroup actually thinks. Moreover, in highly polarized intergroup contexts, topics related to group memberships during intergroup interactions are likely to be avoided. For example, in a previous study conducted among Turks and Kurds, the contents of imagined contact were shown to specifically exclude topics related to intergroup relationships (Bagci et al. 2019). Hence, processing information about the outgroup and taking their perspective may not necessarily involve what the outgroup generally thinks about the ingroup, especially when concerns about being discriminatory or prejudiced are high.

2.11.2 Affective Route

The findings through affective factors to meta-attitude accuracy were largely inconsistent. In Study 3, I only found significant indirect effects for meta-attitude accuracy through outgroup fear among Kurds and through anger among Turks in the context of Turkish–Kurdish interethnic conflict. As suggested, outgroup anger and fear may distort the processing of relevant information regarding the outgroup's actual attitudes towards the ingroup (Brown et al. 2008; Cheung-Blunden and Blunden 2008). It is not surprising that different emotions are at play for different-status-level groups based on the nature of the conflict (Seger et al. 2017). While minority Kurds' meta-perceptions may be distorted due to the fear of oppression

and discrimination by the majority Turks, Turks' meta-perceptions may be distorted due to anger because of the various violent acts that have historically occurred in Turkey. On the other hand, the lack of significant findings in the Northern Irish context may be attributed to relatively lower levels of emotional responses to the outgroup, given that the conflict ended over 26 years ago and is therefore perhaps not as salient today as it once was, despite continued segregation (Northern Ireland Council for Integrated Education [NICIE] 2007).

2.11.3 Limitations and Future Directions

One of the biggest limitations of the current research is the correlational nature of our data. The four studies that I conducted used correlational designs, and I must highlight that this methodology is not sufficient for inferring causation (Rohrer et al. 2022). Past research has argued that the association between contact and meta-perceptions may be bidirectional (e.g., Bruneau et al. 2021), and some research has also demonstrated that meta-perceptions about contact were associated with contact willingness (Stathi, Di Bernardo, et al. 2020). Future research should test the causal role of contact using experimental designs.

Another important limitation of our research was the representativeness of the samples across studies. I should note that it is not ideal to study meta-attitude (in)accuracy with student and convenience samples, since the outgroup attitudes reported may not necessarily represent what the overall group actually thinks. While outgroup attitudes reported in Studies 2 and 3 (in Turkey) were comparable to previous studies[3], further research is needed to compute meta-attitude inaccuracy based on a more representative sample.

A further methodological issue may be related to our assessment of meta-attitude inaccuracy. Although previous empirical studies have used similar self-report measures to examine meta-attitude inaccuracies (e.g., Lees and Cikara 2020), it is possible that, especially in some intergroup contexts, participants' self-reported outgroup attitudes may partly reflect politically correct attitudes rather than true attitudes. Therefore, some group members' inaccurate judgments may be due to the outgroup's self-serving bias rather than their own misperceptions. Future research may solve this issue by using behavioral items (such as approach or avoidance tendencies) or implicit measures that potentially reflect more realistic assessments of intergroup perceptions. Additionally, measuring other constructs more objectively such as ac-

3. Mean outgroup attitudes were 57.38 for the Turkish group and 63.57 for the Kurdish group (Yılmaz et al. 2018).

tual outgroup knowledge rather than perceived outgroup knowledge would have increased the predictability of meta-attitude accuracy. More research is also needed to examine the role of shared reality in meta-attitude accuracy. One possible avenue for future research is to further investigate which aspects of a shared reality are most strongly linked to meta-attitude accuracy. For example, previous research has demonstrated shared reality to reduce prejudice towards outgroups through reducing conflict perception and differential closeness (Conley et al. 2016). In a similar vein, shared reality may result in more accurate judgments about what the outgroup thinks through generating a similar understanding about conflict and group memberships. At the applied level, shared reality may be integrated into indirect contact interventions such as imagined or vicarious contact strategies. An alternative methodology may be the use of virtual reality (VR) to implement positive intergroup contact experiences (see Tassinari et al. 2024) while simultaneously generating a sense of shared reality to promote meta-attitude accuracy. While the intergroup contexts examined here represent a variety of settings with more or less conflict and status differential, previous research has also focused on polarized political group memberships (e.g., Lees and Cikara 2020). An interesting avenue might be to explore to what extent findings could be generalized to less polarized intergroup contexts. Moreover, it may be interesting to assess the extent to which these different intergroup contexts favored Allport's (1954) optimal contact conditions. Although the effect of positive contact on meta-attitude inaccuracy through shared reality was consistent across different contexts in the current study, it is possible that some inconsistent findings were due to the lack of some optimal contact conditions in some intergroup contexts. For example, "equal status" is less likely to be satisfied in Turkey than in the two other contexts where egalitarian values are endorsed more strongly. As such, Kende et al. (2018) demonstrated that a contact–prejudice association may be stronger in egalitarian cultures. Moreover, Turkey represents a highly polarized interethnic context where policies that support interethnic integration ("support of the authorities") are relatively weaker. Future research is needed to assess how contextual differences that facilitate or hinder intergroup contact may influence the effectiveness of contact in correcting inaccurate meta-perceptions. In terms of practical implications, previous research has shown disclosure interventions whereby individuals were presented with more accurate perceptions of the outgroup to successfully reduce negative outgroup motive attributions (Lees and Cikara 2020) and negative beliefs (Ruggeri et al. 2021). These studies have used disclosure in non-contact contexts, yet even more fruitful outcomes could be obtained by incorporating disclosure into intergroup contact interventions, which may eventually improve intergroup relationships. Structured interventions through both direct and indirect forms of contact (e.g., mass-mediated contact, extended contact, or electronic con-

tact) may therefore be used as additional tools to rectify existing overestimations (see also Moore-Berg and Hameiri 2024).

2.11.4 Conclusion

I contribute to the growing literature on meta-perceptions by consistently showing that group members in conflictual intergroup contexts tend to believe that they are more disliked by outgroup members than they really are. Our findings further indicate that particularly positive intergroup contact has the potential to rectify these inaccurate perceptions that reinforce the existing conflicts. This work paves the path for further experimental research to allow a more in-depth understanding of the links between contact and meta-attitude accuracy. contribute to the growing literature on meta-perceptions by showing consistently that group members in conflictual intergroup contexts tend to believe that they are more disliked by outgroup members than in reality. Our findings further indicate that particularly positive intergroup contact has the potential to rectify these inaccurate perceptions that reinforce existing conflicts. This work paves the path for further experimental research to allow a more in-depth understanding of the links between contact and meta-attitude accuracy.

3. PART II

3.1 Introduction to Part II

In many intergroup contexts, meta-perceptions (such as meta-prejudice, see Moore-Berg et al. 2020) -people's assumptions of what the outgroup thinks about their ingroup- predict how they evaluate the outgroup (e.g., Lees and Cikara 2020; Moore-Berg et al. 2020). These meta-perceptions are important because beyond guiding perceptions of the outgroup, they also create emotional and behavioral responses towards the outgroup. Empirical research using both correlational and experimental designs indicates various forms of meta-perceptions, such as meta-(de)humanization, meta-stereotypes, and meta-emotions to be mirrored in corresponding outgroup evaluations, including increased (de)humanization, affective responses, and behavioral intentions towards the outgroup (e.g., Kteily et al. 2016; Pavetich and Stathi 2021; Pauketat et al. 2020; Vezzali 2017).

Importantly, people do not always make accurate inferences about how they are seen by the outgroup (e.g., Lees and Cikara 2020). Recent studies have consistently indicated that, particularly in polarized intergroup settings, meta-perceptions are often overly negative or exaggerated (e.g., Frey and Tropp 2006; Landry et al. 2023; Moore-Berg et al. 2020). In turn, such meta-attitude inaccuracy - the extent to which perceptions of outgroup views towards the ingroup diverge from what outgroup members actually think - has detrimental intergroup consequences such as increased polarization, prejudice, and hostility (e.g., Guvensoy et al. 2025; Kteily et al. 2016; Lees and Cikara 2020; Moore-Berg et al. 2020; Mernyk et al. 2022; Ruggeri et al. 2021), urging researchers to identify potential strategies that would successfully correct such misperceptions (Moore-Berg and Hameiri 2024).

While recent theoretical and empirical research has started to examine more extensively meta-attitude (in)accuracy across more or less polarized intergroup settings including ethnic, political and gender divides, only a few studies have systematically

investigated which social psychological strategies are promising in correcting meta-attitude inaccuracies (Guvensoy et al. 2025; Landry et al. 2024; Moore-Berg and Hameiri 2024; see review chapter Moore-Berg 2023). Through three experiments conducted in different intergroup settings, the current research tested the effectiveness of intergroup contact strategies on rectifying meta-attitude inaccuracies. Study 5 (Black and White Americans) and 6 (Democrat and Republican Americans) investigated whether participants engaging in an indirect contact strategy, mass-mediated contact (watching media content depicting successful intergroup interactions, e.g., Ortiz and Harwood 2007; Park 2012), would report greater meta-attitude accuracy compared to those in the control (watching neutral content) and informational feedback (receiving factual information about the outgroup's evaluation of the ingroup, Landry et al. 2024) conditions. In Study 7, using a minimal group paradigm, I examined the effectiveness of a direct intergroup contact strategy (Fast Friendship Procedure, Aron et al. 1997) in a lab-based experiment. I also investigated shared reality, the extent to which individuals perceive the world in the same way as outgroup members (Conley et al. 2016), as a potential mechanism explaining the effects of contact (Studies 5 and 6).

3.2 Meta-attitude (In)Accuracy

Despite increasing attention to the role of negative meta-perceptions in fueling intergroup hostility in the literature, the study of potential misperceptions involved in these judgments has remained relatively scarce (e.g., Lees and Cikara 2020, Lees et al. 2023; Ruggeri et al. 2021), with only few empirical studies examining both the sources and the consequences of meta-attitude (in)accuracy (Guvensoy et al. 2025). A consistent finding across different settings has been the relative exaggeration of negative meta-perceptions compared to actual group evaluations. For example, Lees and Cikara (2020) found that particularly in competitive contexts (such as Democrats vs. Republicans in the US and men and women in the workplace), group meta-perceptions were more negative than reality, a finding that has been replicated across different countries (Ruggeri et al. 2021), as well as ethnic group memberships (Guvensoy et al. 2025). In turn, such misperceptions are likely to shape group members' opinions and behaviors often negatively, by predicting greater hostility and polarization (Guvensoy et al. 2025; Lees and Cikara 2020; Moore-Berg et al. 2020).

Although recent work highlights the role of meta-attitude inaccuracy in creating

intergroup tensions, the social psychological predictors of why group members form such misperceptions in the first place have largely remained unexplored. So far, only two studies have explicitly studied the origins of meta-attitude inaccuracy, mainly using correlational designs. Lees et al. (2024) examined various individual and contextual variables that shape meta-attitude (in)accuracy in the US political context. Accordingly, besides demographic factors such as age and education, online political activity seemed to consistently decrease meta-attitude inaccuracy, while trust in voting integrity was associated with increasing inaccuracy among Democrats (Lees et al. 2024). Guvensoy et al. (2025) further investigated whether positive and negative intergroup contact predicted meta-attitude (in)accuracy in highly conflictual intergroup contexts (such as Turks and Kurds in Türkiye; Catholics and Protestants in Northern Ireland) and found positive contact to be consistently associated with decreased meta-attitude inaccuracy in all groups, mainly through increased shared reality, demonstrating the potential of intergroup contact to rectify overly negative meta-attitudes. The present research aims to extend this limited body of literature by a) testing the role of two distinct contact strategies (both direct and indirect) experimentally, b) comparing contact-based strategies to the more immediate strategy of providing factual information, and c) examining different intergroup contexts that vary in the level of conflict and polarization.

3.3 Correcting Meta-attitude Inaccuracy Through Direct and Indirect Intergroup Contact

While studies on the roots of meta-attitude (in)accuracy are still scarce, the concerning prevalence of such inaccuracies across diverse groups and settings, along with their harmful intergroup consequences, has prompted growing interest in identifying corrective strategies. So far, providing factual information about the actual group evaluations has been shown to increase meta-attitude accuracy and decrease violent intentions in the highly polarized US political context (e.g., Landry et al. 2023; Mernyk et al. 2022). In the same setting, Voelkel et al. (2023) further investigated the outcomes of various interventions, including misperception correction, outgroup friendship priming (i.e., thinking about an outgroup friend), as well as warm elite-relationship priming (i.e., observing warm relationships between two opponent party politicians) and found all interventions to successfully reduce affective polarization. Moore-Berg and Hameiri (2024) proposed that meta-perceptions could be corrected in various ways, but mainly through direct vs. indirect interventions. Specifically, direct interventions refer to strategies in which individuals are given explicit, fac-

tual information about how they are perceived by members of the outgroup. For example, participants may be shown survey data or clear statements that correct exaggerated beliefs (e.g., "Republicans like Democrats more than Democrats think," as in Landry et al. 2023). These interventions aim to shift attitudes through awareness and reappraisal, and often demonstrate strong effects on immediate, proximal outcomes. In contrast, indirect interventions offer a subtler route whereby individuals experience an organic and implicit exposure to outgroup perspectives, which could be established through various forms of intergroup interactions. Following these initial findings and suggestions, the current research aims to systematically investigate the effectiveness of intergroup contact-based strategies compared to the more direct intervention of informational feedback on the correction of meta-attitude inaccuracies.

Since its introduction by Allport (1954), intergroup contact has traditionally been considered a central tool for prejudice reduction both in laboratory and field research (Lemmer and Wagner 2015; Pettigrew 1998; Pettigrew and Tropp 2006). Intergroup contact functions as a powerful strategy to improve intergroup relationships by reducing intergroup anxieties and threats (Schmid et al. 2014), as well as increasing outgroup perspective-taking and empathy (e.g., Pettigrew and Tropp 2008). Indeed, contact-based interventions have been consistently identified as one of the most effective tools of reducing negative intergroup attitudes—even in deeply divided contexts marked by conflict (Al Ramiah and Hewstone 2013) and heightened perceptions of discrimination and threat (Van Assche et al. 2023; see also Lemmer and Wagner 2015; Paluck and Green 2009). As such, previous studies demonstrated that group members' initial intergroup anxieties decreased after directly engaging in experimentally induced cross-group friendship interactions (Page-Gould et al. 2008).

However, polarized and segregated intergroup contexts may not always allow for the occurrence of positive direct intergroup contact experiences (e.g., Dixon et al. 2019), in which case indirect contact strategies whereby face-to-face contact is not required may function as effective alternatives (White et al. 2021). One promising indirect contact strategy is mass-mediated contact (Harwood 2021; Park 2012; also known as a special form of vicarious contact, Vezzali et al. 2017; or parasocial contact elsewhere, Schiappa et al. 2006), whereby participants have indirect contact with outgroup members via various media tools (e.g., news reports, books, TV shows). A growing body of research suggests that observing cross-group interactions via actual or fictional media contents can produce many of the benefits of direct contact such as reduced prejudice (e.g., Mazziotta et al. 2011; Ortiz and Harwood 2007), as well as increased empathy and perspective-taking (e.g., Paluck and Green 2009). These effects are likely to arise from vicarious learning and emotional alignment processes

(see Vezzali et al. 2017 for a review) and ultimately shift attitudes through greater inclusion of the other to the self and improved ingroup norms (Cocco et al. 2022).

Beyond typically tested prejudice-reducing outcomes, I argue that both direct and indirect contact strategies may facilitate potential reductions in meta-attitude inaccuracies. Intergroup contact opens up space for communication, the exchange of social cues, and perspective-taking (e.g., Stathi et al. 2020; Matera et al. 2024; Moore-Berg and Hameiri 2024; Livingstone 2023), which may not only reduce prejudice, but also indirectly encourage individuals to revise their assumptions about how they are perceived by outgroup members. Even when these interactions do not involve explicit discussions about how groups perceive each other, the mere experience of a positive, friendly interaction can serve as a subtle signal that contradicts overly negative meta-perceptions. For example, when individuals expect negative judgments but instead experience warmth, friendliness, or interest from an outgroup member (see contact meta-perceptions, Stathi et al. 2020), this discrepancy between expectation and experience may prompt them to revise their (negative) meta-perceptions. Hence, through both face-to-face and mediated forms of intergroup interactions, it is possible that individuals receive explicit or implicit verbal and/or nonverbal signals from outgroup members about how they are being perceived and, through such feedback, they may form a more realistic perception of outgroup members' evaluations (Guvensoy et al. 2025). In fact, intergroup contact can reshape and inform existing stereotypes (e.g., Brambilla et al. 2012; Zingora et al. 2021), and may lead to the revision of existing belief systems (Hodson et al. 2018), overall providing the opportunity to transform "long-lasting frozen attitudes" in hostile intergroup contexts (Bar-Tal and Hameiri 2020).

Supporting these arguments, empirical research provided correlational evidence that positive contact experiences with outgroup members are associated with greater meta-attitude accuracy (Guvensoy et al. 2025). The authors further investigated various affective and cognitive social psychological mechanisms that explain these links and concluded that particularly shared reality, the extent to which individuals perceive the world in the same way as outgroup members do (Conley et al. 2016), consistently explained the association between contact and meta-attitude accuracy in distinct groups and contexts (Guvensoy et al. 2025). In other words, positive contact was suggested to create a common understanding and perception of viewing the world similarly across group boundaries, which contributed to a more accurate inference of what the outgroup thinks about the ingroup.

3.4 The Current Research

While there is growing interest in the study of intergroup meta-perceptions and related misunderstandings in various contexts (e.g., Lees and Cikara 2020; Moore-Berg et al. 2021), as well as whether and how intergroup contact is associated with meta-attitude (in)accuracy (Guvensoy et al. 2025), the systematic comparison of various strategies that directly targets shifting meta-attitude inaccuracies is scarce and only restricted to the US political context (see Landry et al. 2023; Voelkel et al. 2023 for affective polarization). On the other hand, existing research on the effects of structured direct and indirect contact strategies has traditionally aimed at changing meta-perceptions themselves (e.g., Bruneau et al. 2021), rather than shifting meta-attitude accuracies per se. Studies 5 and 6 specifically compared the effectiveness of mass-mediated contact to a more direct intervention strategy (factual information providing) among Black and White Americans and among Democrats and Republicans in the US, respectively. Study 7 examined the effectiveness of a direct contact strategy (Fast Friendship Procedure, Aron et al. 1997) on decreasing meta-attitude inaccuracy in a laboratory experiment using the Minimal Group Paradigm, hence was conducted in a relatively non-polarized intergroup context.

I hypothesized that (H1a) participants engaging in either mass-mediated contact (watching media contents that depict positive intergroup interactions, Studies 5 and 6) or direct contact (through Fast Friendship Procedure, Aron et al. 1997, Study 7) would report greater meta-attitude accuracy compared to the participants in the control groups (watching non-relevant news in Studies 5 and 6; individual self-disclosure in Study 7). Based on previous empirical research demonstrating the effectiveness of directly providing factual information (e.g., Landry et al. 2023), I also expected participants in this condition to display greater meta-attitude accuracy compared to the participants in the control condition (Studies 5 and 6; H1b). Given that previous research has not yet compared these two strategies empirically, no a priori hypothesis was formulated regarding the differences between mass-mediated contact and informational feedback. Following previous correlational evidence demonstrating shared reality to be a prominent mediating mechanism that links intergroup contact to meta-attitude (in)accuracy (Guvensoy et al. 2025), I further predicted that shared reality would mediate the effects of the contact strategies in Studies 5 and 6 (H2). All study materials are available online at the Open Science Framework repository (OSF; https://osf.io/k4dc8). I report all additional measures in the SM.

3.5 Study 5

Study 5 investigated the effectiveness of mass-mediated contact on correcting meta-attitude inaccuracies among Black and White Americans in the US through an online experiment. While over the past decade explicit racial attitudes have generally moved toward neutrality, particularly among White Americans, implicit attitudes are changing more slowly and unevenly across groups (Charlesworth and Banaji 2019). Yet, despite these changes, racial inequality and intergroup tension have remained persistent. Previous empirical research conducted in this particular intergroup setting demonstrated that individuals who are made aware of their biases and encouraged to have intergroup contact showed lower levels of intergroup bias (Devine et al. 2002). Further, Black minorities in the US, similar to other minorities, are often negatively portrayed in the media, which subsequently contributes to their overall negative evaluation (Fujioka 2005) or associates with their negative stereotyping (Tan et al. 2000). At the same time, social movements such as Black Lives Matters have been recently shown to shift public discourse on digital media platforms (Dunivin et al. 2022) and recent media-based interventions (e.g., stereotype media literacy) have been shown to improve White participants' outgroup evaluations (Erba et al. 2019).

3.5.1 Study 5 Method

The experiment was pre-registered at the Open Science Framework (https://osf.io/pbta9).

3.5.1.1 Participants

Participants were recruited through the Prolific Academic platform. From the initial sample, 34 participants were excluded because they did not provide answers to the main dependent variables, 15 participants due to their ethnic background not being Black or White as per inclusion criteria (Hispanic, White African or other), and one participant for age being below 18 years-old. A total of 39 participants in the control condition and 46 in the informational feedback condition failed the attention checks used after the manipulation and therefore were excluded from the main dataset. The final sample consisted of 555 participants (342 female, 202 male, 9 nonbinary, and two who preferred not to report their gender; 300 White American, 255 Black

American), with a mean age of 42.18 years ($SD = 12.90$). Subjective socio-economic status was assessed on a scale from 1 (Very low) to 7 (Very high), with a mean score of 3.72 ($SD = 1.37$). Among participants, 0.40% completed primary school, 35.5% completed high school, 45.40% completed university, and 18.70% obtained a graduate-level degree as their highest level of education.

3.5.1.2 Procedure

After providing their consent, participants were randomly assigned to one of three conditions. In the mass-mediated contact condition, participants watched an actual 3-minute news segment in which a Black and a White American talked about the details of their cross-ethnic friendship (https://www.youtube.com/watch?v=5xtLBRdBQWU&t=1s). In the informational feedback condition, participants received a narrative text where the outgroup members' overly negative meta-perceptions were explicitly corrected, as in previous studies (see the Supplemental Materials for the text, Landry et al. 2023). In the control condition, participants watched non-relevant news about travel destinations (https://www.youtube.com/watch?v=Ng4B9e-AHmE). All videos were sourced from the same news outlet and time period to ensure consistency across conditions. After the manipulation, participants completed measures assessing outgroup attitudes, meta-attitudes, shared reality, and additional measures (see the Supplemental Materials for the list of variables). The entire study took approximately 8 minutes to complete. A debriefing statement was presented at the end of the online survey.

3.5.1.3 Materials

Outgroup attitudes. Outgroup attitudes were measured using the feeling thermometer (Esses et al. 1993). Participants were asked to rate how warm they feel towards [the outgroup] with responses ranging from 0 degrees (extremely unfavorable) to 100 degrees (extremely favorable), with higher scores indicating more positive attitudes.

Meta-attitude (in)accuracy. I operationalized meta-attitudes as participants' beliefs regarding how they thought the outgroup would think of them on the feeling thermometer ('Please indicate how warm you think [the outgroup] feel towards your group on a range between 0 degree (extremely unfavourable) to 100 degrees (extremely favourable), with 50 degrees representing neutral attitudes.'). I computed

accuracy scores by extracting each individual's meta-attitudes from the mean of the outgroup's actual outgroup attitudes, following the same procedure used by past research (Guvensoy et al. 2025; Lees and Cikara 2020; see also Moore-Berg et al. 2020). I used the control group's outgroup attitude scores because this group was not exposed to any interventions. Any divergence from 0 represents inaccuracy; if the meta-attitude accuracy score is less than 0, it shows that the participant estimated the outgroup's view towards the ingroup as more negative than it is, while positive scores indicated that the participants estimated the outgroup's view towards the ingroup as more positive than it really is.

Shared reality. Shared reality was measured with a seven-item scale developed by Conley et al. (2016). Participants were asked to indicate the extent to which they thought their attitudes, experiences, social and political viewpoints overlapped with those of outgroup members (e.g., "My attitudes are quite similar to those held by most [outgroup] Americans"; $\alpha = .82$).

Content positivity. Content positivity was measured with a single item "How positive was the content of the media you have just watched?" to check whether the results are due to the positivity of the contents.

Please see the Supplemental Materials for additional variables.

3.5.2 Study 5 Results

3.5.2.1 Preliminary analysis

There was no significant mean difference between the Control, $M = 6.40$ ($SD = .80$) and Mass-mediated Contact Conditions, $M = 6.52$ ($SD = .98$), t(381) = -1.33, $p = .185$, $d = 0.14$, in content positivity, indicating both contents to be equally positively perceived. Next, I checked levels of outgroup attitudes, meta-attitudes, and meta-attitude (in)accuracy across groups. White Americans reported significantly more positive outgroup attitudes ($M = 78.07$, $SD = 21.30$) compared to Black Americans ($M = 68.47$, $SD = 24.80$), t(553) = 4.90, $p < .001$, 95% CI [5.75, 13.44]. Perceptions of how warmly others view one's ingroup (meta-attitudes) were also higher among White Americans ($M = 56.98$, $SD = 23.82$) than among Black Americans ($M = 52.51$, $SD = 26.44$), $t(553) = 2.09$, $p = .037$, 95% CI [0.27, 8.65]. Meta-attitude inaccuracy was significantly higher among Black Americans ($M = –23.63$, $SD = 26.44$) than White Americans ($M = –7.87$, $SD = 23.82$), $t(553) = 7.38$, $p < .001$, 95% CI [11.56, 19.94]. Note that all means and analyses reported here are collapsed across experimental conditions. Table 3.1 demonstrates the descriptive statistics.

Table 3.1 Study 5 descriptive statistics

Condition	Political Background	M	SD	N
Meta-perceptions				
Control	White Americans	52.49	22.70	100
	Black Americans	44.16	25.65	77
Mass-mediated Contact	White Americans	58.63	24.97	105
	Black Americans	55.33	27.79	101
Informational Feedback	White Americans	59.86	23.20	95
	Black Americans	57.10	23.65	77
Outgroup Attitudes				
Control	White Americans	76.14	20.71	100
	Black Americans	64.85	25.79	77
Mass-mediated Contact	White Americans	81.77	18.72	105
	Black Americans	69.66	23.54	101
Informational Feedback	White Americans	76.01	24.08	95
	Black Americans	70.53	25.32	77
Meta-accuracy				
Control	White Americans	-12.36	22.71	100
	Black Americans	-31.97	25.65	77
Mass-mediated Contact	White Americans	-6.21	24.97	105
	Black Americans	-20.76	27.79	101
Informational Feedback	White Americans	-4.99	23.20	95
	Black Americans	-19.04	24.65	77

3.5.2.2 Main analysis

I conducted a one-way between-subjects ANOVA to examine mean differences across conditions on meta-attitude (in)accuracy scores to assess the effect of experimental conditions on meta-attitude accuracy scores. There was a significant main effect of condition, $F(2, 552) = 6.74$, $p = .001$, $\eta_p^2 = .024$ indicating that meta-attitude (in)accuracy differed across the three groups; participants in the Control group reported the largest meta-attitude inaccuracy (M = -20.89, SD = 25.87, n = 177), followed by those in the Mass-mediated Contact (M = -13.35, SD = 27.32, n = 206) and Informational Feedback (M = -11.28, SD = 24.36, n = 172) conditions. Tukey HSD post-hoc comparisons indicated that participants in the Control condition reported significantly lower meta-attitude accuracy scores than those in the Mass-mediated contact condition (Mdiff = -7.54, SE = 2.66, p = .013) and the Informational feedback condition (Mdiff = -9.62, SE = 2.78, p = .002). However, there was no significant difference between the Mass-mediated Contact and Informational Feedback conditions (Mdiff = -2.07, SE = 2.68, p = .721). These results confirm

that both strategies were similarly effective in reducing meta-attitude inaccuracy.[1] Please see the Supplemental Materials for additional analyses with additional measures as covariates.

I further explored whether the effects were similar across the two groups using a 2 (racial group) by 3 (experimental condition) between-subjects ANOVA. The analyses revealed a significant main effect of the experimental group, $F(2, 549) = 8.65$, $p < .001$, $\eta_p^2 = .031$, indicating that meta-attitude accuracy differed across conditions. There was also a significant main effect of racial group, $F(1, 549) = 57.57$, $p < .001$, $\eta_p^2 = .095$, White Americans Mean Meta-attitude accuracy = -7.85 (SE = 1.43) showed significantly higher meta-attitude accuracy than Black/African Americans Mean Meta-attitude accuracy = -23.92 ($SE = 1.56$). However, the interaction between experimental conditions and racial group was not significant, $F(2, 549) = 0.68$, $p = .505$, $\eta_p^2 = .002$, indicating that the effect of the experimental group on meta-attitude accuracy did not differ by racial group. Tukey HSD post-hoc comparisons further showed that participants in the Mass-mediated Contact Condition (M = - 13.49, $SE = 1.72$) showed significantly greater meta-attitude accuracy than those in the Control Condition (M = -22.17, SE = 1.88), $p = .009$, and participants in the Informational Feedback Condition (M = -12.01, SE = 1.90) also showed significantly greater meta-attitude accuracy compared to Control ($p = .001$). However, there was no significant difference between Mass-mediated Contact and Informational Feedback Conditions ($p = .697$).

3.5.2.3 Mediational analysis

A mediation analysis using PROCESS Model 4 was conducted to examine whether shared reality mediated the effects of condition (X: 0 = Control, 1 = Mass-mediated Contact, 2 = Informational feedback) on meta-attitude (in)accuracy. The overall model predicting meta-attitude (in)accuracy was significant, $R^2 = .307$, $F(3, 551) = 81.24$, $p = .001$. Shared reality was a strong and positive predictor of meta-attitude accuracy ($\beta = .53$, $SE = 0.85$, $p < .001$). Compared to the Control group, the Informational Feedback condition significantly increased shared reality ($\beta = .26$,

1. We also conducted the same analyses without excluding participants who failed the attention checks and findings remained similar. The ANOVA revealed a statistically significant main effect of the condition on meta-attitude accuracy, $F(2, 637) = 4.66$, $p = .010$, $\eta_p^2 = .015$. Tukey HSD post-hoc comparisons showed that participants in the control group reported significantly more negative meta-accuracy scores than those in the media contact group (Mdiff = 6.32, $SE = 2.54$, p = .035) and the informational feedback condition (Mdiff = 6.93, $SE = 2.50$, $p = .016$). However, there was no significant difference between media contact and informational feedback (Mdiff = 0.61, $SE = 2.53$, $p = .968$).

$SE = 0.12$, $p = .015$), while the effect of Mass-mediated Contact condition was non-significant ($\beta = .18$, $SE = 0.11$, $p = .076$). The partially standardized relative indirect effect was not significant for Mass-mediated Contact ($\beta = .10$, $SE = 0.05$, 95% CI [-.01, .20]), but was significant for Informational Feedback ($\beta = .14$, $SE = 0.06$, 95% CI [.02, .25]).

3.5.3 Study 5 Discussion

Study 5 tested whether and how a brief mass-mediated contact strategy improved meta-attitude accuracy in the context of White-Black Americans in the US, relative to the informational feedback strategy. Findings demonstrated that particularly Black Americans, but also White Americans, were highly inaccurate in their meta-perceptions, which is in line with previous research showing minority group members to display greater meta-attitude inaccuracy (i.e., Black British in the UK, Guvensoy et al. 2025). Group comparisons demonstrated that both mass-mediated contact and informational feedback strategies were significantly and equally effective in improving meta-attitude accuracy. In line with this finding, Voelkel et al. (2023) also found that the correcting misperception intervention (similar to our informational feedback condition) was similarly effective in reducing affective polarization in the US political context as the observation of warm cross-partisan interactions between political leaders (similar to our mass-mediated contact condition). These findings suggest that even indirect contact strategies via the media can be effective tools that may shift overly biased meta-perceptions. Interestingly, unlike previous research showing shared reality to mediate the effects of contact on meta-attitude (in)accuracy (Guvensoy et al. 2025), I found only the effects of informational feedback strategy, but not the effects of mass-mediated contact, to be significantly mediated by shared reality.

3.6 Study 6

Study 6 was conducted in a relatively more polarized context - Democrats and Republicans in the US - with the aim of replicating the findings in Study 5. Political polarization has intensified in the US in recent decades, contributing to the rise of affective and ideological divisions between partisans (Iyengar et al. 2019; Druckman and Levendusky 2019). Notably, both Democrats and Republicans now express strong negative feelings toward each other, often exceeding their attitudes

toward racial or religious outgroups (Finkel et al. 2020). In fact, the majority of existing research in meta-attitude (in)accuracy has been conducted in this political context (e.g., Landry et al. 2021; Lees and Cikara 2020; Moore-Berg et al. 2020) and consistently demonstrated meta-perceptions to be overly more negative than reality. Nevertheless, research also demonstrated various contact strategies framed as "interparty contact" may reduce affective polarization (Wojcieszak and Warner 2020). These initial findings require further investigation of strategies that successfully reduce potential misperceptions, which consistently fuel intergroup hostility (e.g., Lees and Cikara 2020).

3.6.1 Study 6 Method

The experiment was pre-registered at the Open Science Framework (https://osf.io/8urk5).

3.6.1.1 Participants and procedure

The procedure was largely similar to Study 5, except for the context. Accordingly, I used a different video from the same news source that depicted positive contact between a Democrat and a Republican family (https://www.youtube.com/watch?v=M0Rkh-mNWwg). Participants were recruited through the Prolific Academic platform. Among the initial sample, 20 participants were excluded from the final analysis because, despite the screening procedure, they accessed the link intended for the other group. Additionally, 19 participants were excluded for not providing responses to the main dependent variables, and three participants who identified as politically 'independent' were excluded due to the lack of a clearly defined ingroup-outgroup in the context of this research. Finally, 50 participants (7 in the mass-mediated contact condition and 43 in the informational feedback condition) who failed attention checks were excluded. The final sample consisted of 397 participants (231 female, 159 male, 5 nonbinary, and 2 who preferred not to report their gender; 199 Democrat, 198 Republican), with a mean age of 41.94 years (SD = 13.74). Subjective socio-economic status was 4.06 (SD = 1.36), with 0.30% of participants having completed primary school, 23.90% having completed high school, 44.80% having completed university, and 31% having obtained a graduate-level degree as their highest level of education.

3.6.1.2 Materials

Measures were identical to Study 5 and in/outgroups were adapted to the current context (Democrats/Republicans). The Cronbach's alpha for the shared reality scale was .83.

3.6.2 Study 6 Results

There was no significant mean difference in terms of content positivity among the Mass-mediated Contact (M = 6.60, SD = 0.81) and Control Condition videos (M = 6.50, SD = 0.67), $t(291)$ = -1.12, p = .265, d = 0.14. As in Study 5, I initially checked levels of outgroup attitudes, meta-attitudes, and meta-attitude (in)accuracy across political groups. Republicans reported significantly more positive outgroup attitudes (M = 52.13, SD = 26.34) compared to Democrats (M = 36.90, SD = 28.94), $t(395)$ = -5.48, $p < .001$, 95% CI[-20.68, -9.76]. Perceptions of how warm others view one's ingroup (meta-attitudes) were also higher among Republicans (M = 49.77, SD = 26.99) than among Democrats (M = 34.61, SD = 26.54), $t(395)$ = -5.64, $p < .001$, 95% CI[-20.44, -9.87]. Meta-attitude inaccuracy was also significantly higher, and more importantly positively biased among Republicans (M = 20.18, SD = 26.99), $t(395)$ = -10.65, $p < .001$, 95% CI[-33.89, -23.32] compared to Democrats (M = -8.44, SD = 26.54). Note that all means and analyses reported here are collapsed across experimental conditions. Table 3.2 demonstrates the descriptive statistics.

3.6.2.1 Main analysis

I conducted a two-way ANOVA for examining the effects of political party background (Democrat vs. Republican) and experimental conditions (Mass-mediated Contact, Informational Feedback, Control) on meta-attitude accuracy where values close to zero represent the most proximate meta-perceptions to actual ones. [2] The 2 x 3 ANOVA revealed that there was a main effect of the experimental condition, $F(2, 391)$ = 7.85, $p < .001$, η_p^2 = .039. Tukey HSD post-hoc comparisons demon-

2. This analysis deviated from the pre-registration because after we saw the descriptive statistics showing differentiating negative and positive meta-accuracy scores for the subgroups we decided to add group as a factor. The 2 (political party: Democrat vs. Republican) × 3 (experimental condition) ANOVA still tests the main effect of the intervention, which was pre-registered. The main reason for this analytic change was that aggregating positive and negative meta-accuracy scores sourced from different groups masking meaningful variation in the data, thereby limiting our ability to interpret the underlying effects.

Table 3.2 Study 6 descriptive statistics

Condition	Political Background	*M*	*SD*	*N*
Meta-perceptions				
Control	Democrat	27.33	25.21	72
	Republican	44.06	28.72	81
Mass-mediated Contact	Democrat	38.33	28.08	69
	Republican	56.87	26.47	71
Informational Feedback	Democrat	39.22	24.68	58
	Republican	48.85	22.21	46
Outgroup Attitudes				
Control	Democrat	29.60	27.18	72
	Republican	43.05	25.59	81
Mass-mediated Contact	Democrat	47.51	28.72	69
	Republican	63.97	24.92	71
Informational Feedback	Democrat	33.36	28.10	58
	Republican	49.83	23.07	46
Meta-accuracy				
Control	Democrat	-15.71	25.21	72
	Republican	14.46	28.72	81
Mass-mediated Contact	Democrat	-4.72	28.08	69
	Republican	27.27	26.48	71
Informational Feedback	Democrat	-3.82	24.68	58
	Republican	19.25	22.21	46

strated that participants in the Mass-mediated Contact Condition, M = 11.28 (SE = 2.22), reported significantly lower meta-attitude accuracy scores than those in the Control Condition M = -.62 (SE = 2.13), p = .001), whereas the Informational Feedback Condition M = 7.71 (SE = 2.60) did not significantly differ from either the Control (p = .161) or Mass-mediated Contact conditions (p = .290). However, this main effect of the intervention should be interpreted with caution. Mean scores indicated that in the Control Condition, Democrats showed a mean meta-attitude (in)accuracy of M = -15.72, (SD = 25.21), indicating a tendency to overestimate the opposite group's negative attitudes. In contrast, Republicans (n = 81) had a mean of M = 14.46, (SD = 28.73), reflecting a tendency to overestimate the positivity of the outgroup towards the ingroup. Therefore, the fact that the overall average for the Control Condition (collapsed across political identity) was close to 0 (M = 0.26, SD = 30.98) - indicating high accuracy is not likely to represent meaningful subgroup differences. [3] In the Mass-mediated Contact Condition, Democrats had a

3. Although the overall mean for the control group appears close to zero (M = 0.26), this value is sourced from the aggregation of positive and negative deviations contributed by the subgroups. Thus, a closer look to subgroup means is essential for accurately interpreting meta-attitude (in)accuracy.

mean of M = -4.72 (SD = 28.08), while Republicans had a notably higher mean of M = 27.27 (SD = 26.48). The aggregated mean was 11.51 (SD = 31.56). Finally, in the Informational Feedback Condition, Democrats showed a mean of M = -3.83 (SD = 24.68), and Republicans had a mean of M = 19.25 (SD = 22.09). Therefore, although mass-mediated contact led to similar amounts of changes in meta-attitude accuracy scores, for Democrats the interventions decreased meta-attitude inaccuracy, while for Republicans both Mass-mediated Contact and Informational Feedback intervention strategies increased meta-attitude inaccuracy (towards over positivity). There was also a main effect of the political background, $F(1, 391) = 111.88$, $p < .001$, $\eta_p^2 = .222$. Specifically, Republican participants (M = 20.33, SE = 1.93) reported greater divergence from 0, indicating a substantially lower meta-attitude accuracy than Democrat participants (M = -8.09, SE = 1.87). Yet, the interaction term was not significant, $F(2, 391) = 0.92$, $p = .402$, $\eta_p^2 = .005$.

3.6.2.2 Mediational analysis

A mediation analysis using PROCESS Model 4 was conducted to examine whether shared reality mediated the effects of condition (X: 0 = Control, 1 = Mass-mediated Contact, 2 = Informational feedback) on meta-attitude (in)accuracy. The overall model predicting meta-attitude (in)accuracy was significant, $R^2 = .30$, $F(3, 393) = 56.43$, $p < .001$. Shared reality positively predicted meta-attitude accuracy ($\beta = 0.46$, SE = 0.135, $p <.001$. The partially standardized relative indirect effect of mass-mediated contact on meta-attitude accuracy through perceived shared reality was statistically significant ($\beta = .21$, SE = 0.06, 95% CI [.08, .34]). Partially standardized relative indirect effect for the Informational Feedback condition was not significant (β = -0.02, SE = 0.06, 95% CI [-.14., .10]). The relative direct effect of the mass-mediated contact was non-significant $\beta = 4.83$, $SE = 3.02$, $t(393) = 1.60$, $p = .110$, 95% CI [-01.11, 10.77], but the relative direct effect for the informational feedback condition was significant $\beta = 6.75$, $SE = 3.23$, $t(393) = 2.09$, $p = .037$, 95% CI [.39, 13.11]. Additional analyses

3.6.3 Study 6 Discussion

Study 6 aimed to replicate the findings of Study 5 in a different, relatively more polarized intergroup context where both Democrats and Republicans have previously been shown to report negative biases in their meta-perceptions (e.g., Lees and Cikara 2020; Mernyk et al. 2022; Moore-Berg et al. 2020). Our findings are partly

in line with previous studies demonstrating Democrats' meta-attitude (in)accuracy scores representing over-negativity. Contrary to our expectations, Republicans also indicated incorrect assumptions, yet in the opposite direction. In other words, they perceived their ingroup to be more liked than reality. This positively biased perception reported by the Republican group is intriguing and in contrast with existing studies showing no substantial differences among the two groups in terms of accuracies (Lees & Cikara 2020; Moore-Berg et al. 2020; Druckman et al. 2022). Although the main effect indicates that mass-mediated contact decreases meta-attitude accuracies overall, these analyses should be interpreted with caution; while Democrats' meta-attitude accuracy significantly differed in the intervention conditions, Republicans' scores diverged from 0 more than Democrat's scores, with both intervention strategies resulting in greater over-positivity. A further mediation analysis revealed that shared reality significantly mediated the effects of Mass-mediated Contact condition on meta-attitude (in)accuracy. This is consistent with previous correlational findings (Guvensoy et al. 2025); participants in the Mass-mediated Contact condition perceived higher levels of shared reality with the outgroup, which, in turn, predicted more positive meta-attitude accuracy scores.

While Studies 5 and 6 focused on the effectiveness of mass-mediated contact, Study 7 aimed to test a direct, face-to-face contact strategy through Fast Friendship Procedure that involves reciprocal self-disclosure between group members (Aron et al. 1997). Fast Friendship has been previously integrated into the study of both direct and indirect contact methodologies (e.g., Bagci et al. 2021; Page-Gould 2008; Kende et al. 2017). Previous research indicated self-disclosure and interpersonal intimacy to be essential components of intergroup contact experiences (Davies et al. 2011; Marinucci et al. 2021). While in the designed procedure, I did not include group-level (meta-)perceptions within interpersonal dialogues, I expected participants to report greater accuracy in their meta-attitudes after engaging in a direct and positive contact with the outgroup in an intimate sharing environment.

3.7 Study 7

In Study 7, I focused on a relatively non-competitive, non-polarized environment and formed groups through the Minimal Group Paradigm (Tajfel 1970). Minimal group paradigm studies have consistently shown people to have a biased perception of groups and to favor their ingroup, even when there is no realistic threat or competition in the context (e.g., Spears and Otten 2012). To our knowledge, the

majority of existing research on meta-attitude accuracies has been conducted in polarized and conflictual intergroup contexts (Guvensoy et al. 2025; Lees and Cikara 2020), and it is largely unknown whether group members would still form negative meta-perceptions in less conflictual intergroup contexts (but see Lees and Cikara 2020 comparing competitive versus cooperative groups).

3.7.1 Study 7 Method

The experiment was pre-registered at the Open Science Framework (https://osf.io/zje8t).

3.7.1.1 Participants

I advertised the study through posters displayed around the university campus and recruited participants via the university's participant pool system (SONA). The required sample size estimation was calculated by using the GPower software and provided in the Supplemental Materials. The final sample consisted of 88 participants (55 female, 31 male, $M_{\text{age}} = 20.93$, $SD = 2$), 44 participants in each group (Red vs. Blue). Subjective socioeconomic status was $M_{\text{SES}} = 4.89$, $SD = .98$ (1 = Very low, 7 = Very high).

3.7.1.2 Procedure

I scheduled appointments for participants, ensuring that at least two participants were assigned to each session. Participants in the study were either voluntary university students who read about the experiment through posters or students who registered to participate in the experiment via the SONA platform. Upon arriving at the laboratory, participants were welcomed by the experimenter (the first author) and provided with an overview of the study. The students were gender-matched, randomly paired and each pair was randomly assigned to one of two conditions. Every participant underwent a group formation process whereby they would be competing against each other to solve a puzzle (https://im-a-puzzle.com/share/1c1a6b866dd1538). Participants were informed that their completion times would be recorded as points on their group's chart (either Blue or Red group), contributing to their group's overall performance. After the instructions, the experimenter distributed two folded papers to determine group affiliations.

Next, participants were seated at individual computers and began solving the puzzle. The experimenter recorded the completion time for each participant. In the second phase of the experiment, participants completed pre-tests, which included measures of outgroup attitudes and meta-attitudes. Following the completion of these forms, participants in the experimental conditions were introduced to the fast-friendship procedure. The task involved three sets of questions (see SM for the list of questions). Participants in the control condition responded to the same amount of questions on a paper, alone. After this phase, all participants filled out post-test questions. The entire study session took approximately 60 minutes. Participants were debriefed via email at the end of the whole data collection process.

3.7.1.3 Materials

Pre-test measures included assessments of outgroup attitudes, meta-attitudes, and a single-item measure to evaluate familiarity with the other participant: "Do you know the other person? Please rate how much you know about them from 1 (I do not know this person) to 7 (I know this person very well)."

Post-test materials included the same main scales of attitudes and meta-attitudes, with an additional two-single item measures for measuring task pleasantness worded as "How pleasant/enjoyable did you find the task you just completed" for the control group or the level of pleasantness of the interaction for the experimental group "How pleasant/enjoyable did you find the interaction with your partner?" responses ranged from 1 = Very Unpleasant, 7 = Very Pleasant), and an additional single item was used for measuring self-disclosure levels "To what extent did you open up to your partner during the conversation?/To what extent did you open up while answering the questions you were given?". The task was rated as significantly more pleasant in the Direct Contact Condition (M = 6.40, SD = .89) than in the Control Condition (M = 4.50, SD = 1.21), $t(86)$ = -8.38, $p < .001$, 95% CI [-2.36, -1.45].[4]Participants in the Mass-mediated Contact Condition reported significantly higher levels of disclosure (M = 5.86, SD = 1.07) than those in the Control Condition (M = 5.22, SD = 1.30), $t(86)$ = -2.51, p = .014, 95% CI [-1.15, -0.13]. These measures, adapted to the study context (Red and Blue outgroups), were identical to those used in the previous studies. At the end of the study, participants were asked to complete demographic questions including age, gender and income. See the

4. I have checked whether positivity changes the results of our main analysis by conducting repeated ANCOVA in which positivity was entered as a covariate. The results including the main effect of time on meta-attitude accuracy and the interaction by time and the experimental condition remained non-significant.

Supplemental Materials for additional measures.

3.7.2 Study 7 Results

3.7.2.1 Preliminary analysis

Table 3.3 presents descriptive statistics including means and standard variation for outgroup attitudes, meta-attitudes, meta-attitude accuracy scores for pre- and post-tests.

Table 3.3 Descriptive statistics Study 7

Variable	**Condition**	**N**	**M**	**SD**
Pre-test outgroup attitudes	control	46	61.02	15.90
	experimental	42	61.71	17.48
Post-test outgroup attitudes	control	46	66.11	16.76
	experimental	42	83.19	13.85
Pre-test meta-attitudes	control	43	56.37	15.24
	experimental	42	55.74	16.73
Post-test meta-attitudes	control	46	62.95	14.67
	experimental	42	79.45	13.39
Pre-test meta-attitude accuracy	control	43	-4.77	15.69
	experimental	42	-5.97	17.51
Post-test meta-attitude accuracy	control	46	-3.15	15.07
	experimental	42	-3.73	13.55

I conducted a repeated measures ANOVA test to examine the effect of conditions on the change in meta-attitude (in)accuracy scores from pre- to post-test. Findings indicated no significant main effect of time on meta-attitude (in)accuracy, $F(1, 83) = 1.993$, $p = .162$, $\eta_p^2 = .023$. There was also no significant interaction effect between time and condition, $F(1, 83) = .003$, $p = .954$, Mpre-test control = -4.77 (SD = 15.69), Mpre-test experimental = -5.97 (SD = 17.52, Mpost-test control = -2.34 (SD = 15.27), Mpost-test experimental = -3.73 (SD = 13.56). There were no significant effects for condition in the between-subjects analysis, $F(1, 83) = 0.194$, $p = .661$, $\eta_p^2 = .002$.

3.7.2.2 Exploratory analysis

I further conducted repeated measures ANOVA to examine whether the condition was effective on meta-attitude scores from pre- to post-test. There was a significant main effect of time on meta-attitudes, $F(1, 83) = 90.180$, $p < .001$, $\eta_p^2 = .521$. The mean meta-attitudes at pre-test for the control group was Mpre-test control = 56.37 ($SD = 15.25$), and for the experimental group was Mpre-test experimental = 55.74 ($SD = 16.73$). At post-test, the mean meta-attitudes for the control group were Mpost-test control = 63.86 ($SD = 14.76$), and for the experimental group was Mpost-test experimental = 79.45 ($SD = 13.39$). There was also a significant interaction effect between time and condition, $F(1, 83) = 24.386$, $p < .001$, $\eta_p^2 = .227$ indicating that the change in meta-attitudes over time differed significantly between the experimental and control conditions. Specifically, the Contact intervention led to a greater increase in meta-attitude positivity in the experimental group compared to the Control group. The tests of Within-Subjects Contrasts further supported these findings, showing a significant linear trend for the effect of time, $F(1, 83) = 90.180$, $p < .001$, and a significant linear interaction between time and condition, $F(1, 83) = 24.386$, $p < .001$. The between-subjects analysis also showed a significant main effect of the condition on meta-attitudes, $F(1, 83) = 6.991$, $p = .010$, $\eta_p^2 = .078$, with the contact group indicating more positive meta-attitudes compared to the control group.

3.7.3 Study 7 Discussion

Study 7 tested a direct contact experiment by using fast-friendship and minimal group paradigm procedures in the laboratory. Our findings indicated that overall participants in the minimal groups reported fairly accurate meta-attitudes, indicated by scores close to 0. I also did not find meta-attitude (in)accuracy scores to change significantly through intergroup contact. This is partly in line with Lees and Cikara's (2020) findings that meta-attitude inaccuracies may be more prevalent in competitive intergroup contexts compared to cooperative ones. However, additional analyses demonstrated that participants engaging in direct contact with the outgroup reported more positive outgroup attitudes, as well as more positive meta-attitudes, which experimentally replicated previous correlational findings indicating the links between contact and positive meta-perceptions (e.g., Techakesari et al. 2015).

3.8 Part II Interim Discussion

The current research aimed at investigating whether and how direct and indirect contact strategies may transform how (in)accurately group members perceive the outgroup's views toward the ingroup. While social psychological research conducted within the last decade has consistently provided evidence that group members hold a more pessimistic view of how they are evaluated by the outgroup than in reality (e.g., Lees and Cikara 2020; Moore-Berg et al. 2020), only recently scholars have started to examine both the origins and implications of overly negative meta-perceptions, and more importantly through which strategies they could be corrected (e.g., Landry et al. 2023; Mernyk et al. 2022). Drawing on the well-established theory of intergroup contact (Allport 1954; Pettigrew 1998), the current set of studies aimed at experimentally testing contact strategies (both direct and indirect) as potential rectifiers of intergroup meta-attitude inaccuracies. In Studies 1 and 2, I examined the effectiveness of mass-mediated contact relative to a more direct intervention - informational feedback - that has been shown to successfully reduce meta-attitude inaccuracy in previous research (e.g., Landry et al. 2023). Study 7 tested whether a direct contact strategy whereby group members engaged in an intimate face-to-face contact in a lab-based experiment would improve meta-attitude accuracy. I also focused on various intergroup contexts that varied in the level of intergroup polarization, testing the strategies across racial (Study 5), political (Study 6), and minimal group (Study 7) divides and tested shared reality as a potential mediating mechanism (Studies 1 and 2).

First, a preliminary investigation of intergroup meta-attitude (in)accuracy levels across groups and contexts indicate that group members' inferences about how much they are (dis)liked by the outgroup were mostly inaccurate in line with previous empirical studies (e.g., Moore-Berg et al. 2020). Yet, I also found these misperceptions to vary substantially across groups and contexts (Guvensoy et al. 2025; Lees and Cikara 2020). While in Study 7, the minimal group paradigm as a relatively meaningless and less polarized intergroup context did not produce substantial meta-attitude inaccuracies, both White and Black Americans (Study 5), as well as Democrats in the US (Study 7) reported negatively biased estimations, with particularly Black Americans' meta-perceptions diverging from what White Americans actually reported as their outgroup attitudes substantially (over 30 points on a scale from 0 to 100). This finding is in line with previous studies demonstrating, in general, minority group members to display greater meta-attitude inaccuracy (see Guvenoy et al. 2025). Potential reasons for this asymmetry include the ongoing

prevalence of perceived and actual discrimination (Schmitt and Branscombe 2002), as well as historical oppression that minority group members may internalize (e.g., Mendoza-Denton et al. 2002), which might have led this group to be particularly vulnerable to misperceptions. An alternative explanation might be the self-reported over positivity in White participants' outgroup attitudes; motivated by political correctness efforts and demand effects in the current study, White Americans might have reported exaggerated positive attitudes that may not accurately reflect actual attitudes, at least at the explicit level.

An interesting finding is the overly positive meta-attitudes reported by Republican participants in Study 6, which is inconsistent with earlier studies conducted before 2020, indicating this group to be negatively and similarly biased as Democrats (Moore-Berg et al. 2020). To our knowledge, only one empirical study demonstrated overly positive meta-perceptions so far; Webber et al. (2025) found that Syrian refugees, despite general accuracy in their inferences, reported being significantly more positively evaluated by host community members than reality. Other research has suggested that meta-attitude (in)accuracies are contextual, dynamic and may even fluctuate over brief periods of time due to recent political shifts (e.g., Guvensoy et al. 2025; Lees et al. 2025). The current trend observed among Republicans may be a byproduct of changing political conjuncture in recent years. Despite previous studies showing about a 6-point difference of outgroup-dislike (see Moore-Berg et al. 2020), I have found approximately a 13-point difference on the feeling thermometer (twice as more) in outgroup attitudes between Democrats and Republicans. Considering recent political events, Democrats seeing Republicans more negatively than Republicans do Democrats might be due to the latest hostile and non-normative political environment including the Capitol Hill attack (Reuters 2022), and Trump's re-election in the 2024 Presidential election. A plausible explanation for Republicans' inaccurate, but overly positive meta-perceptions might be a projection heuristic (Bianchi et al. 2009; Guvensoy et al. 2025), where participants' own views of the outgroup anchored their meta-perceptions. Indeed, in both groups Democrat and Republican participants rated the outgroup views of their own ingroup similar to their own views of the outgroups (see 3.2). Although this pattern appears in both groups, it does not invalidate the projection-based explanation for lower (but in the positive direction) meta-attitude (in)accuracy among Republicans, given that meta-accuracy was calculated as a relative score based on the actual outgroup attitudes of Democrats which were notably lower than what Republicans had anticipated.

On the other hand, the observed over positivity among Republicans - feeling more liked than they really are - might be a reflection of collective narcissistic traits,

whereby group members rely on an inflated view of the ingroup (such as "My group deserves special treatment", Golec de Zavala et al. 2009), which is indeed a strong predictor of outgroup hostility (see Golec de Zavala and Lantos 2020 for a recent review). Confirming this suggestion, previous research found Republicans to indicate greater national-level collective narcissism compared to Democrats (Federico et al. 2022). It is also possible that through changing societal dynamics in online and offline cross-party communications, this group has become more segregated over time, leading to decreases in the understanding and awareness of how their ingroup is evaluated. A closer look at the mean scores for outgroup attitudes and meta-attitudes for this group separately suggests that Democrats' attitudes towards Republicans were very negative in this research, which might have contributed to the larger gap detected in Republicans' perceptions. Further research is needed to understand why and how both groups' intergroup perceptions have changed over time.

Concerning the main research questions, I found evidence for H1a in Studies 1 and 2, indicating mass-mediated contact to be an effective strategy to shift meta-attitude inaccuracies in all groups. While these shifts were in the expected directions among Whites, Blacks, and Democrats by improving their meta-attitude accuracy, the effect observed among Republicans was a significant increase in meta-attitude inaccuracy biased toward greater positivity. This raises important questions about the overall implications of meta-attitude (in)accuracy for group members; are inaccurate meta-perceptions still harmful for intergroup relationships even if they are overly positive? Does such meta-attitude inaccuracy also fuel affective polarization? Theoretically, positive meta-perceptions are likely to correspond with similarly positive attitudes and behaviors (e.g., Stathi et al. 2020). However, the way intergroup dynamics change upon overly positive meta-perceptions, especially when they are not reciprocated, is largely unknown.

Unlike our expectation, the final experiment did not provide evidence for the effectiveness of a direct contact intervention, despite creating significant improvements in both outgroup attitudes and meta-attitudes in line with contact theory. Existing literature taking a comparative approach to the study of direct and indirect contact interventions is mixed, with some empirical studies demonstrating no clear superiority of one strategy over the other in improving intergroup attitudes and behaviors (e.g., Vezzali et al. 2017), and some studies indicating direct contact strategies to be more effective than their indirect counterparts (e.g., Brown and Paterson 2016). I believe one particular reason why direct contact was not effective in changing meta-attitude inaccuracy in this context was the use of minimal group paradigm, which did not create high levels of meta-attitude inaccuracy in the first place (diverging

approximately 5 points out of a scale from 0 to 100). Therefore, meta-attitude inaccuracy strategies might be especially critical in polarized contexts with a history of conflict, threat or competition (see confirming evidence in Lees and Cikara 2020), and may not provide benefits in the lack of salient, historically grounded, or emotionally charged intergroup boundaries.

In both Studies 5 and Study 6 (except for Republicans), I found evidence for the effectiveness of Informational Feedback strategy in improving meta-attitude accuracy (partial support for H1a). In line with previous research comparing the role of different depolarization interventions of affective polarization (Voelkel et al. 2023), the effects created by mass-mediated contact and informational feedback were comparable. This suggests that structured interventions - both direct and indirect - suggested by Moore-Berg and Hameiri (2024) might be similarly strong rectifiers of meta-attitude inaccuracies with no visible advantage of one over the other. However, a closer look at group members' separate outcomes, while both strategies seem efficient in creating more positive meta-perceptions, outgroup attitude improvement seems to be particularly salient after mass-mediated contact, which indicates that indirect, more subtle or implicit strategies through more natural experiences of intergroup interactions (Moore-Berg and Hameiri 2024) may contribute more to overall improvements of intergroup relationships in these contexts.

Moreover, our study uniquely contributes to the existing literature by focusing on meta-attitude accuracy particularly, beyond meta-attitudes. While prior interventions have targeted changing group-level meta-perceptions (e.g., meta-dehumanization, Landry et al. 2023), they have rarely aimed at improving the accuracy of these perceptions. Although all three studies provided evidence for some improvement in meta-perceptions in the experimental conditions (i.e., how positively participants believed the outgroup felt about them), only Studies 1 and 2 showed corresponding improvements in meta-attitude accuracy in the experimental conditions. This distinction is important because increased meta-accuracy does not necessarily suggest changes in the valence of meta-perceptions (e.g., more positive meta-attitudes).

Finally, although shared reality has been shown to consistently function as a mediator of positive contact effects (Guvensoy et al. 2025), I found only partial evidence for this in Study 6 (in line with H2). This suggests that, especially in a polarized intergroup context, feeling psychologically aligned or "on the same page" with the outgroup might be a crucial mechanism in improving meta-attitude accuracy. These results also align with prior research highlighting the importance of perceived commonality and mutual understanding in reducing intergroup biases (e.g., Conley et al. 2016; Guvensoy et al. 2025; Skorinko and Sinclair 2018). The lack of signifi-

cant mediational effects in Study 5 may be due to the context or the manipulation itself which was naturally different in the two studies. While I found shared reality to be an important mechanism in Study 6, it is also important to further investigate other social psychological mechanisms through which various contact strategies may shift meta-attitude (in)accuracy. Previously, Guvensoy et al. (2025) investigated both an affective and cognitive route linking positive contact experiences to meta-attitude (in)accuracy correlationally and indicated only shared reality to be a significant and consistent mediator. Other variables such as affective responses (e.g., intergroup anxiety, empathy, Pettigrew and Tropp 2008) might be explored in future research. It might be also important to distinguish through which social psychological processes each intervention created shifts in misperceptions; while mass-mediated contact is likely to trigger emotional reactions of warmth, empathy and solidarity, a narrative with explicit corrective statements may reduce meta-attitude inaccuracy through more cognitive processes such as intergroup reappraisal or social categorization. Further research may examine in more depth both social and cognitive elements that create improvements in meta-attitude accuracy scores.

Apart from the issues described above, the current studies involve further limitations that should be noted. Methodologically, I were unable to assess long-term effects of the strategies and it remains unclear whether the shifts in meta-attitude (in)accuracy levels persist over time. Future research should examine longitudinal effects, including behavioral outcomes (e.g., support for policies, actual intergroup behavior) and how meta-attitude (in)accuracies shift in the light of various individual, intergroup and societal level changes. I also computed meta-attitude accuracy scores based on a relatively small sample of group members in the control conditions like in previous studies (e.g., Guvensoy et al. 2025), however these attitudes are self-reported and bound to various study-based confounds (such as demand effects or social desirability) that may not reflect the true attitudes of groups. Future research may test the discrepancies between more implicit attitudes of group members and meta-attitudes.

While I tested our strategies in various intergroup contexts that range from low to high conflict and polarization, the generalizability of the findings is only limited to the contexts studied in this research until more evidence is provided in the future. Moreover, research has recently detected other individual and contextual factors that potentially contribute to meta-attitude (in)accuracy such as trust in, and posting of political information on social media (Lees et al. 2025), which could be further incorporated into the test of various intervention strategies. Incorporating such factors into future interventions could offer a more nuanced understanding of when and for whom strategies like intergroup contact are most effective in correcting

meta-attitude inaccuracies across different contexts.

3.8.1 Conclusion

The current studies aimed at testing whether and how various strategies reduced meta-attitude inaccuracy across different contexts and groups. Consistent with previous studies, I found meta-attitude inaccuracy to be pronounced in contexts characterized with highly stable and competitive group memberships, and among minority status group members. Intergroup contact might stand as a critical remedy for these misperceptions; while intergroup contact has been suggested to be an "indirect" intervention to deal with overly negative meta-perceptions (Moore-Berg and Hameiri 2024), a brief mass-mediated contact intervention was as effective as a direct corrective method in creating shifts in meta-attitude inaccuracies. Given their scalability, low cost, and broad reach, media interventions represent a powerful tool and offer unique practical advantages for addressing biased intergroup perceptions, even in settings where direct contact is impractical or undesired, such as online spaces or politically polarized environments. While direct corrective strategies might also create intended shifts in meta-perceptions as also indicated in previous research, their explicit nature and relatively less friendly tone might also trigger potential reactance in group members. Therefore, embedding positive intergroup encounters in social media narratives, public awareness campaigns and messaging or educational programs can subtly—but effectively—challenge exaggerated beliefs about how outgroups feel toward the ingroup and provide strong opportunities for real-world applications.

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APPENDIX A

A.1 Power Analyses

Study 1 post-hoc power analysis. Since we used published data, we did not have the opportunity to conduct an a priori power analysis. We calculated power via the Monte Carlo Simulation web application created by Schoemann, Boulton, and Short (2017; https://schoemanna.shinyapps.io/mc_power_med/). For a single mediator model with 351 participants, and for 1000 replications, we used correlation coefficients between X, Y, and M, and standard deviations as parameters; $r_{XM} = .30$, $r_{XY} = .45$, $r_{MY} = .65$; $SD_X = 1.84$, $SD_M = 26.73$, $SD_Y = 26.38$. The results indicated a power of 1.0 at a 99% confidence level where X is positive contact, M is meta-attitude accuracy, and Y is outgroup attitudes. For negative contact, post-hoc power analysis indicated .67 power at an 80% confidence level where X is negative contact, Y is outgroup attitudes and M is meta-attitude accuracy (see additional parameters; $r_{XY} = .03$, $r_{XM} = .09$, $SD_X = 1.62$).

Study 2 post-hoc power analysis. We followed the same steps as in Study 1. For a single mediator model with 356 participants, and for 1000 replications, we used correlation coefficients between X, Y and M, and standard deviations as parameters; $r_{XM} = .10$, $r_{XY} = .29$, $r_{MY} = .53$; $SD_X = 1.53$, $SD_M = 26.62$, $SD_Y = 23.42$. The results indicated a power of .73 at an 80% confidence level, where X is positive contact, Y is outgroup attitudes, and M is meta-attitude accuracy. For negative contact the results indicated a power of 1.0 at a 99% confidence level where X is negative contact, Y is outgroup attitudes and M is meta-attitude accuracy (see additional parameters; $r_{XY} = -.324$, $r_{XM} = .533$, $SD_X = 1.43$).

Study 3 a priori power analysis. The a priori sample size was estimated by the Monte Carlo Simulation web application created by Schoemann, Boulton, and Short (2017; https://schoemanna.shinyapps.io/mc_power_med/). For a three-parallel-mediators model, to achieve a power of .80, with small regression coefficients (.20 each; because social psychology research usually produces small effect sizes; Stanley et al., 2018), with a 95% CI and 5000 replications, the minimum required sample size was 260. To achieve 99% power with .20 regression coefficients for each path, a sample size of 430 participants was required.

Study 4 a priori power analysis. The a priori sample size was estimated by the Monte Carlo Simulation web application created by Schoemann, Boulton and Short (2017; https://schoemanna.shinyapps.io/mc_power_med/). For a three-parallel-mediators model, to achieve a power of .80, with small regression coefficients (.20 each; because social psychology research usually produces small effect sizes; Stanley et al., 2018), with a 95% CI and 5000 replications, the minimum required sample size was 260. To achieve 99% power with .20 regression coefficients for each path, a sample size of 430 participants was required.

A Priori Power Analyses and Sample Size Justifications

Study 5

An a priori power analysis was conducted using G*Power (Faul et al., 2007) to determine the required sample size for a one-way ANOVA with three groups (mass-mediated contact, informational feedback and the control condition). The analysis targeted the effect of experimental condition on meta-attitude accuracy and out-group attitudes. Based on prior data (Guvensoy et al., 2025), we used a correlation coefficient of $r = .14$ between contact and meta-attitude accuracy as a reference. This value was converted to an approximate Cohen's $f = 0.14$, with minor adjustments made to account for potential inflation. Using this effect size ($f = 0.14$), an alpha level of .05, and a desired power of .90, the analysis indicated that a total sample size of 651 participants would be required to detect a statistically significant group effect. In light of this analysis and considering budget constraints, we planned to recruit 650 participants.

Study 6

In Study 7, we aimed to replicate the findings from Study 6 using an identical design and analysis strategy. Therefore, the same a priori power analysis applies to the replication study. We relied on the parameters established in Study 6 (effect size $f = 0.14$, $\alpha = .05$, desired power = .90). However, due to budget constraints, we were able to recruit a smaller sample in this study.

Study 7

An a priori power analysis was conducted using G*Power (Faul et al., 2007) to determine the required sample size for detecting a small-to-medium interaction effect ($f = 0.15$) in a 2 (Group: Experimental vs. Control) $\times$ 2 (Time: Pre vs. Post) mixed-design ANOVA. With $\alpha = .05$, power = .80, and an assumed correlation of .50 between repeated measures, the required total sample size was 90 participants

(i.e., 45 per group).

A.2 Measures

Main Scales Used in Study 1

Group

"How would you describe your ethnic background?"

Positive Contact

"How frequently do you form positive contact with [Black people] White people?"

Negative Contact

"How frequently do you have negative contact with [Black people] White people?"

Outgroup Attitudes

"Please indicate how warm you feel towards the following groups on a range between 0 degree (extremely unfavourable) to 100 degrees (extremely favourable), with 50 degrees representing neutral attitudes. – Blacks [Whites]"

Meta-attitudes

"The following is about how warm others feel towards your ethnic group. Please indicate how warm these groups feel towards your group on a range between 0 degree (extremely unfavourable) to 100 degrees (extremely favourable), with 50 degrees representing neutral attitudes. – Kurds [Turks]"

Main Scales Used in Study 2

Group

"How would you describe your ethnic background?"

Positive Contact

"How frequently do you form positive contact with [Turks] Kurds?"

Negative Contact

"How frequently do you have negative contact with [Turks] Kurds?"

Outgroup Attitudes

"Please indicate how warm you feel towards the following groups on a range between 0 degree (extremely unfavourable) to 100 degrees (extremely favourable), with 50 degrees representing neutral attitudes. – Kurds [Turks]"

Meta-attitudes

"The following is about how warm others feel towards your ethnic group. Please indicate how warm these groups feel towards your group on a range between 0 degree (extremely unfavourable) to 100 degrees (extremely favourable), with 50 degrees representing neutral attitudes. – Kurds [Turks]"

Main Scales Used in Study 3

Ethnicity

"We are all Republic of Turkey citizens, but we may also be from different origins. Which group do you feel you belong to?"

Positive Contact

"How frequently do you form positive contact with [Turks] Kurds?"

Negative Contact

"How frequently do you have negative contact with [Turks] Kurds?"

Outgroup Knowledge

"I think I have a good degree of knowledge about [Turks] Kurds." "I believe I know [Turkish] Kurdish people well."

Shared Reality

"My attitudes are quite similar to those held by most [Turkish] Kurdish people." "Most [Turks] Kurds haven't gone through the same experiences that I have." (r) "If I were to interact with a [Turkish] Kurdish person, chances are good that we would agree about lots of things." "I don't agree with [Turks] Kurds about most social and political issues." (r) "[Turks] Kurds and I share the same outlook on the world." "My life history is pretty different from that of most [Turks] Kurds." (r) "In general, my viewpoints are directly opposed to those of [Turks] Kurds." (r) Perspective taking "I

can see the perspective of [Turks] Kurds." "I think I can understand the way [Turks] Kurds think."

Outgroup Fear

"This question aims to measure your emotions towards [Turks] Kurds. Please indicate the extent you feel the following emotions in general. – Fear" "This question aims to measure your emotions towards [Turks] Kurds. Please indicate the extent you feel the following emotions in general. – Worry"

Outgroup Anger

"This question aims to measure your emotions towards [Turks] Kurds. Please indicate the extent you feel the following emotions in general. Anger" "This question aims to measure your emotions towards [Turks] Kurds. Please indicate the extent you feel the following emotions in general. Fury"

Positive emotions

"This question aims to measure your emotions towards [Turks] Kurds. Please indicate the extent you feel the following emotions in general. Admiration"

"This question aims to measure your emotions towards [Turks] Kurds. Please indicate the extent you feel the following emotions in general. – Respect"

Intergroup Anxiety

"To what extent would you feel ..... in a social interaction with a [Turkish] Kurdish person? – Tense"

"To what extent would you feel ..... in a social interaction with a [Turkish] Kurdish person? – Awkward"

"To what extent would you feel ..... in a social interaction with a [Turkish] Kurdish person? – Anxious"

Outgroup Attitudes

"Please indicate how warm you feel towards [Turks] Kurds on a range between 0 degree (extremely unfavourable) to 100 degrees (extremely favourable), with 50 degrees representing neutral attitudes."

Meta-attitudes

"The following is about how warm others feel towards your community. Please indicate how warm you think [Turks] Kurds feel towards your group on a range between 0 degree (extremely unfavourable) to 100 degrees (extremely favourable), with 50 degrees representing neutral attitudes."

Main Scales Used in Study 4

Community

"We appreciate that people vary in terms of how strongly they identify with their community but broadly speaking, what community would you typically say you are a member of?"

Positive Contact

"How frequently do you form positive contact with [Catholics] Protestants?"

Negative Contact

"How frequently do you have negative contact with [Catholics] Protestants?"

Outgroup Knowledge

"I think I have a good degree of knowledge about [Catholics] Protestants." "I believe I know [Catholic] Protestant people well."

Shared Reality

"My attitudes are quite similar to those held by most [Catholic] Protestant people." "Most [Catholics] Protestants haven't gone through the same experiences that I have." (r) "If I were to interact with a [Catholic] Protestant person, chances are good that we would agree about lots of things." "I don't agree with Catholics [Protestants] about most social and political issues." (r) "[Catholics] Protestants and I share the same outlook on the world." "My life history is pretty different from that of most [Catholics] Protestants." (r) "In general, my viewpoints are directly opposed to those of [Catholics] Protestants." (r)

Perspective Taking

"I can see the perspective of Catholics [Protestants]." "I think I can understand the way Catholics [Protestants] think."

Outgroup Fear

"This question aims to measure your emotions towards [Catholics] Protestants. Please indicate the extent you feel the following emotions in general. Fear"

"This question aims to measure your emotions towards [Catholics] Protestants. Please indicate the extent you feel the following emotions in general. Worry"

Outgroup Anger

"This question aims to measure your emotions towards [Catholics] Protestants. Please indicate the extent you feel the following emotions in general. – Anger"

"This question aims to measure your emotions towards [Catholics] Protestants. Please indicate the extent you feel the following emotions in general. – Fury"

Positive Emotions

"This question aims to measure your emotions towards [Catholics] Protestants. Please indicate the extent you feel the following emotions in general. – Admiration"

"This question aims to measure your emotions towards [Catholics] Protestants. Please indicate the extent you feel the following emotions in general. – Respect"

Intergroup Anxiety

"To what extent would you feel ..... in a social interaction with a [Catholic] Protestant person? – Tense"

"To what extent would you feel ..... in a social interaction with a [Catholic] Protestant person? – Awkward"

"To what extent would you feel ..... in a social interaction with a [Catholic] Protestant person? – Anxious"

Outgroup Attitudes

"Please indicate how warm you feel towards [Catholics] Protestants on a range between 0 degree (extremely unfavourable) to 100 degrees (extremely favourable), with 50 degrees representing neutral attitudes."

Meta-attitudes

"The following is about how warm others feel towards your community. Please indicate how warm you think [Catholics] Protestants feel towards your group on a range between 0 degree (extremely unfavourable) to 100 degrees (extremely favourable), with 50 degrees representing neutral attitudes."

Main Scales Used in Study 5

Ethnic Background

"How would you describe your ethnic background?" (White American, Black/African American, American Indian/Alaska Native, Native Hawaiian/Other

Pacific Islander, Asian, Not Listed; Please Indicate .....)

Shared Reality

"My attitudes are quite similar to those held by most [Black Americans] White Americans people." "Most [Black Americans] White Americans haven't one through the same experiences that I have." (r) "If I were to interact with a [Black American] White American person, chances are good that we would agree about lots of things." "I don't agree with [Black Americans] White Americans about most social and political issues." (r) "[Black Americans] White Americans and I share the same outlook on the world." "My life history is pretty different from that of most [Black Americans] White Americans." (r) "In general, my viewpoints are directly opposed to those of [Black Americans] White Americans." (r)

Positivity

"How positive was the content of the media you have just watched?"

Outgroup Attitudes

"Please indicate how warm you feel towards [Black Americans] White Americans on a range between 0 degree (extremely unfavourable) to 100 degrees (extremely favourable), with 50 degrees representing neutral attitudes."

Meta-attitudes

"The following is about how warm others feel towards your community. Please indicate how warm you think [Black Americans] White Americans feel towards your group on a range between 0 degree (extremely unfavourable) to 100 degrees (extremely favourable), with 50 degrees representing neutral attitudes."

Main Scales Used in Study 6

Political Background

"Generally speaking, do you think of yourself as a Democrat, a Republican or something else?" (Democrat, Republican, Other; Please Indicate .....)

Shared Reality

"My attitudes are quite similar to those held by most [Democrats] Republicans people." "Most [Democrats] Republicans haven't one through the same experiences that I have." (r) "If I were to interact with a [Democrat] Republican person, chances

are good that we would agree about lots of things." "I don't agree with [Democrats] Republicans about most social and political issues." (r) "[Democrats] Republicans and I share the same outlook on the world." "My life history is pretty different from that of most [Democrats] Republicans." (r) "In general, my viewpoints are directly opposed to those of [Democrats] Republicans." (r)

Positivity

"How positive was the content of the media you have just watched?"

Outgroup Attitudes

"Please indicate how warm you feel towards [Democrats] Republicans on a range between 0 degree (extremely unfavourable) to 100 degrees (extremely favourable), with 50 degrees representing neutral attitudes."

Meta-attitudes

"The following is about how warm others feel towards your community. Please indicate how warm you think [Democrats] Republicans feel towards your group on a range between 0 degree (extremely unfavourable) to 100 degrees (extremely favourable), with 50 degrees representing neutral attitudes."

Main Scales Used in Study 7

Past Knowledge of the Outgroup Member

"Do you know the other person? Please rate how much you know about them from 1 (I do not know this person) to 7 (I know this person very well)."

Pre-experimental Outgroup Attitudes

"Please indicate how warm you feel towards [Group Red] Group Blue on a range between 0 degree (extremely unfavourable) to 100 degrees (extremely favourable), with 50 degrees representing neutral attitudes."

Pre-experimental Meta-attitudes

"The following is about how warm others feel towards your community. Please indicate how warm you think [Group Red] Group Blue feel towards your group on a range between 0 degree (extremely unfavourable) to 100 degrees (extremely favourable), with 50 degrees representing neutral attitudes."

Post-experimental Outgroup Attitudes

"Please indicate how warm you feel towards [Group Red] Group Blue on a range between 0 degree (extremely unfavourable) to 100 degrees (extremely favourable), with 50 degrees representing neutral attitudes."

Post-experimental Meta-attitudes

"The following is about how warm others feel towards your community. Please indicate how warm you think [Group Red] Group Blue feel towards your group on a range between 0 degree (extremely unfavourable) to 100 degrees (extremely favourable), with 50 degrees representing neutral attitudes."

Task Pleasantness "How pleasant/enjoyable did you find the task you just completed" for the control group or the level of pleasantness of the interaction for the experimental group "How pleasant/enjoyable did you find the interaction with your partner?" responses ranged from 1 = Very Unpleasant, 7 = Very Pleasant)

Self-disclosure "To what extent did you open up to your partner during the conversation?" (Experimental Group)/ "To what extent did you open up while answering the questions you were given?" (Control Group).

Additional Measures

Study 1 and Study 2 included the following measures that were not relevant for the current study: social identity threat, ethnic collective narcissism, ethnic ingroup satisfaction, and psychological well-being. These data have been published as:

Bagci, S. C., Stathi, S., & Golec de Zavala, A. (2023). Social identity threat across group status: Links to psychological well-being and intergroup bias through collective narcissism and ingroup satisfaction. *Cultural Diversity and Ethnic Minority Psychology*, *29*(2), 208-220. https://doi.org/10.1037/cdp0000509

Unanalyzed Measures in Study 3 and Study 4

The following measures were assessed but not included in any analysis to simplify the research questions.

Intergroup contact frequency. We assessed intergroup contact frequency with a single item adapted by Bagci et al. (2021; "How often do you interact with Kurds/Turks [Catholics/Protestants]?"). This item was presented on a 7-point scale (1 = Never, 7 = Extremely frequently), higher scores referred to a greater amount of time spent together.

Contact quantity. Intergroup contact quantity was measured with a single item (e.g., Bagci, Rutland, Kumashiro, Smith, & Blumberg, 2014), by asking participants to indicate the number of outgroup friends they have ("How many Kurdish/Turkish [Catholic/Protestant] friends do you have?"), the response scale ranged from 1 = None to 7 = More than 31.

Contact quality. Intergroup contact quality was measured with a single item. Participants were asked: "How often do you share your secrets with Kurdish/Turkish [Catholics/Protestants] group members?". The response scale ranged from 1 = Never to 7 = Always.

Ingroup identification. Four items were used to measure ingroup identification on a 7-point Likert-type scale, which was adapted by Verkuyten (2007). The items mainly assessed a sense of belonging to the group ("I belong to my ethnic group."), how proud individuals feel as a part of the group ("I am proud of my ethnic group."), and how central the group is to the participants' self-concept ("I identify with my ethnic group." and "My ethnic identity is an important part of my identity."). Responses range from 1 (Strongly disagree) to 7 (Strongly agree), and higher scores indicate greater ingroup identification.

Additional Measures Used

Study 5

Social dominance orientation. The short version of the social dominant orientation developed by Pratto et al. (2013) was used. As a part of this scale participants were first given instructions as: "There are many kinds of groups in the world: men and women, ethnic and religious groups, nationalities, political factions." And then, they were asked to indicate to what extent they agreed (1 = strongly disagree, 7 = strongly agree) the ideas about groups in general "e.g., Superior groups should dominate inferior groups." $\alpha = .81$.

Perceived conflict. We used a single item to measure conflict perceived by participants (Gaunt, 2011; Struch & Schwartz, 1989). Participants were asked to indicate to what extent they agreed that they believe there is a conflict between Black and White Americans groups in the United States. Responses ranged from 1 = not at all to 7 = very much.

Ingroup identification. Two items were used to measure ingroup identification (Verkuyten, 2009). Participants were asked to indicate to what extent they agreed that they feel connected to and identified with their ingroup, responses ranged from 1 = strongly disagree to 7 = strongly agree. $\alpha = .85$.

Study 6

All additional measures were identical to those used for Study 5 and were adapted to the study context (Democrat/Republican). Cronbach's alpha for SDO were .77 and ingroup identification .90.

Measures Unanalyzed

Study 5 & Study 6

Future contact intentions. We measured future contact intentions using a single item "Please indicate the extent to which the following statement applies to you. In general, how interested would you be in interacting with Black (White) Americans?". Responses ranged from 1 = Not at all to 7 = A Great deal.

Study 7

Approach - Avoidance Tendencies (Pre - and Post- test). "Please indicate agreement with the following statements (1=Not at all 7=Very much).", "In general, when thinking of meeting an unknown Group Red (Group Blue) person, I would want to ... a) ...avoid him/her. b) ....keep him/her at a distance. c) ....have nothing to do with him/her. d) ....talk to him/her. e) ....find out more about him/her. f) ....spend time with him/her."

Pre-experimental Phone Number Sharing (Shearer, 2017). "Would you like to share your contact (phone) number with your partner in the outgroup?" (Yes/No) and "Please enter your contact number." (Text Box).

Pre-experimental Phone Number Sharing Estimation. "Do you think your partner in the outgroup shared his/her phone number with you?" (Yes/No)

Post experimental Phone Number Sharing. "You expressed your opinion about sharing your number before the second phase of the experiment. Would you like to share your phone number with your partner right now?", "If yes please type." (Yes/No and text box)

Post-experimental Phone Number Sharing Estimation. "Do you think your partner in the outgroup shared his/her phone number with you after this stage of the experiment?" (Yes/No) Meta-approach meta-avoidance - (Pre - and Post- test). "The following measures are related to how you think a member of Group Red (Group Blue) would want to a) ...avoid you. b) ...keep you at a distance. c) ...talk to you. d) have nothing to do with him/her. e) ...find out more about you. f) ...spend time with you."

A.3 Experimental Materials

Study 5

Mass-mediated Contact and Control Condition Instructions: "In the next page you will watch a three-minute video. Make sure that you are in an environment where you will comfortably hear the sound. Please watch and listen carefully. After the video ends, we will ask you some questions about what you have watched. If you do not see the video, please make sure you click "allow cookies"."

"Please click to start the video."

(Mass-mediated contact)

https://drive.google.com/file/d/1yErGWT9ALS7C3epXQh5qQkiEbFh8bf_7/view

(Control condition)

https://drive.google.com/file/d/1oFKrFvGl6zDrVaXYS3ZYg8Zi0zDj9ONH/view

Informational Feedback Condition Instructions: "We are social scientists studying prejudice, or a feeling of strong dislike toward another group of people. One way we study prejudice is by asking participants, like yourself, to rate how they feel toward various groups using the scale below. High values mean they feel warm and like the group, while low values mean they feel cold and dislike the group."

"Our research team has recently run a series of studies to investigate possible differences in prejudice perceptions. We asked Blacks and Whites individuals to rate how much they liked or disliked the other party using the prejudice scale. We found that Blacks tend to think that Whites strongly dislike Blacks. However, as revealed by the data we have collected, the reality is that Blacks' ideas about how much Whites dislike Blacks are grossly exaggerated. Put differently, Whites like Blacks much more than Blacks tend to think."

Study 6

Mass-mediated Contact Instructions: "In the next page you will watch a three-minute video from 2020. Make sure that you are in an environment where you will comfortably hear the sound. Please watch and listen carefully. After the video ends,

we will ask you some questions about what you have watched. If you do not see the video, please make sure you click "allow cookies".” Control Condition Instructions: “In the next page you will watch a three-minute video. Make sure that you are in an environment where you will comfortably hear the sound. Please watch and listen carefully. After the video ends, we will ask you some questions about what you have watched. If you do not see the video, please make sure you click "allow cookies".”

“Please click to start the video.”

(Mass-mediated contact condition)

https://drive.google.com/file/d/1FaThPtKVyqGVhZw95hklRTSQqUM0_by2/view

(Control condition)

https://drive.google.com/file/d/1oFKrFvGl6zDrVaXYS3ZYg8Zi0zDj9ONH/view

Informational Feedback Condition Instructions: “We are social scientists studying prejudice, or a feeling of strong dislike toward another group of people. One way we study prejudice is by asking participants, like yourself, to rate how they feel toward various groups using the scale below. High values mean they feel warm and like the group, while low values mean they feel cold and dislike the group.”

“Our research team has recently run a series of studies to investigate possible differences in prejudice perceptions. We asked Republicans and Democrats to rate how much they liked or disliked the other party using the prejudice scale. We found that Republicans tend to think that Democrats strongly dislike Republicans. However, as revealed by the data we have collected, the reality is that Republicans' ideas about how much Democrats dislike Republicans are grossly exaggerated. Put differently, Democrats like Republicans much more than Democrats tend to think.”

Study 7

Experimenter Guide

Welcoming Participants Welcome the participants as they arrive. Ask the first participant to take a seat at the round table while waiting for the second participant. Do not close the door until both participants have arrived. Hang the sign on the door that reads: “An experiment is in progress. Please do not interrupt.” **Condition**

Assignment Half of the participant pairs will be randomly assigned to the control group and the other half to the experimental group.

Experimental group: Participants will engage in intergroup contact through face-to-face interaction. (Use "Question List 0" for the experimental group.)

Control group: Participants will answer question sets individually using pen and paper. (Use "Question List 1" for the control group.)

Part 1 – Round Table: Distribution of Envelopes

- Have both participants sit at the round table.

- Say: "Welcome to our study. If you're ready, we will begin. In the first part of the experiment, I will randomly give each of you an envelope." (Hand out the envelopes) "Please open your envelopes and show them to each other."

- Each participant will open their envelope and see their group assignment.

- For example: "You are a member of the Red team." / "You are a member of the Blue team."

Squared Tables – Puzzle Competition

- Ask participants to move to the computer desks.

- Say: "Now, please take your seats at the computer desks. In this part of the experiment, you will participate in a puzzle competition. Each of you will compete on behalf of your assigned team. Try to complete the puzzle as quickly as possible. The time shown in the top-left corner will be recorded as your team's score. Lower scores mean better performance. The team with the lowest total score will win." "Can you locate the 'EASY' button in the upper-left corner of the screen? When you're ready, I'll say 'Start', and you will both click on 'EASY' at the same time to begin the competition. Ready? Start!"

- Puzzle link: https://im-a-puzzle.com/share/1c1a6b866dd1538

- Assist them in launching the puzzle.

- Ensure both participants click "EASY" at the same time to start the timer.

- Record each participant's completion time and note it visibly on their group's score chart.

- Give them their identification cards and ask them to wear them around their necks throughout the study.

Part 2 – Pre-Interaction Survey

• Say: “Now we will move on to the second part of the experiment. You will answer a few questions on the computer.”

• Open Qualtrics.

• Enter each participant’s ID.

• Ask them to call you when they finish the survey.

Part 3 – Question Lists Experimental Group

• Invite participants back to the round table.

• Say: “Now we will begin the third part of the experiment. I will give you a list of questions. First, read all of the questions. Then choose five questions from the second section that you will ask your partner. After that, we will begin the conversation.” “If you are ready, let’s begin.” (Read the first question aloud and direct it to the blue team first, then red.)

• Make sure participants take turns asking and answering questions. Control Group

• Ask participants to return to their individual desks.

• Say: “Now I will give you a list of questions. Please answer the questions on the white sheets of paper using a pen.”

• Provide each participant with Question List 1, a sheet of paper, and a pen.

• Ensure they are working independently. Part 4 – Final Survey

• Say: “Now we have reached the final part of the study. You will complete the second and final section of the survey.”

• Open the second part of the Qualtrics survey on each computer.

• Assist with entering participant IDs again if needed.

• When both participants are finished, thank them and proceed with any debriefing or compensation procedures.

Fast Friendship Procedure Question List – Control Condition

Please take two minutes to read the following questions. You are expected to respond to all questions in the first and third sets, and to choose and answer five questions from the second set. When you’re ready, you may begin by answering the first question from Set I.

Set I

1. Take five minutes to write your life story in as much detail as possible.

Set II (Choose five questions to answer)

1. Would you like to be famous? What kind of fame would you prefer? 2. What would a perfect day look like for you? 3. What are you most grateful for in your life? 4. If you could wake up tomorrow having gained any one ability or skill, what would it be? 5. What is the greatest achievement of your life? 6. What do you value most in a friendship? 7. What does friendship mean to you? 8. Is your relationship with your family close and warm? Do you think your childhood was happier than most people's? 9. Where are you from? Can you list the places you've lived so far? 10. What did you do last summer? 11. What is the best TV series you've watched? Tell me about it. 12. What's your ideal holiday like? Why? 13. Where did you go to high school? What kind of school was it? 14. Which foreign country would you most like to visit? What makes it appealing to you? 15. How often do you get a haircut? Where do you go? Have you ever had a really bad haircut experience? 16. What was the last concert you attended? How many albums of this band/artist do you own? Have you seen them live before? If so, where?

Set III 1. Share a recent personal problem you experienced, explain how you dealt with it, and describe how it made you feel.

Fast Friendship Procedure Question List – Experimental Condition

Please take two minutes to read the following questions. From the second set, choose five questions to ask your partner. When you're ready, begin by answering the first question from Set I. Each participant should take turns answering the first and last questions. From Set II, choose any five questions to ask your partner. After your partner answers each question, wait for them to ask you a question in return. You may choose the same or different questions from your partner.

Set I

1. For five minutes, tell your life story to your partner in as much detail as possible.

Set II (Choose five questions to ask your partner)

1. Would you like to be famous? In what way would you like to be famous? 2. What would a perfect day look like for you? 3. What are you most grateful for in your life? 4. If you could wake up tomorrow having gained any one quality or

ability, what would it be? 5. What is the greatest achievement of your life? 6. What do you value most in a friendship? 7. What does friendship mean to you? 8. Is your relationship with your family close and warm? Do you think your childhood was happier than most people's? 9. Where are you from? Can you list the places you've lived so far? 10. What did you do last summer? 11. What is the best TV series you've watched that your partner hasn't seen? Can you describe it to your partner? 12. What is your ideal holiday like? Why? 13. Where did you go to high school? What kind of school was it? 14. Which foreign country would you most like to visit? What makes it appealing to you? 15. How often do you get your hair cut? Where do you go for a haircut? Have you ever had a really bad haircut experience? 16. What was the last concert you attended? How many albums of that band/artist do you own? Have you seen them live before? If so, where?

Set III

1. Share a personal problem with your partner and ask for advice on how to solve it. Also, ask your partner to describe how they think you might be feeling about this problem and how they might react if they were in your place.

(In Turkish - Original) Soru Listesi – Deney Grubu

Lütfen aşağıdaki soruları okumak için iki dakinanızı ayırın, ikinci setteki sorulardan beş adet partnerinize sormak için seçiniz. Hazır olduğunuzda ilk setteki soruyu cevaplayarak başlayabilirsiniz. İlk ve son soruyu her katılımcı sırayla cevaplamalıdır. İkinci setten ise istediğiniz beş soruyu seçip partnerinize sorun, her bir soru için partnerinizin cevabı bittikten sonra, partnerinizin size soru sormasını bekleyin. İkinci sette partnerinizle aynı veya farklı soruları seçip ona sorabilirsiniz.

Set I

1. Beş dakika boyunca partnerinize olabildiğince detaylı bir şekilde hayat hikayenizi anlatın.

Set II

1. Ünlü olmak ister miydin? Ne şekilde ünlü olmak isterdin? 2. Senin için mükemmel bir gün nasıl olurdu? 3. Hayatında en çok minnettarlık duyduğun şey nedir? 4. Yarın herhangi bir nitelik veya yetenek kazanmış olarak uyanacak olsaydın, bunun ne olmasını isterdin? 5. Hayatındaki en büyük başarı nedir? 6. Bir arkadaşlıkta en çok neye değer verirsin? 7. Senin için arkadaşlığın anlamı nedir? 8. Ailenle il-

işkin yakın ve sıcak mıdır? Çocukluğunun çoğu insanınkinden daha mutlu geçtiğini düşünüyor musun? 9. Nerelisin? Şimdiye kadar yaşadığın yerleri sayabilir misin? 10. Geçen yaz ne yaptın? 11. Partnerinin izlemediği, ama senin izlediğin en iyi dizi hangisi olabilir? Partnerine diziyi anlatır mısın? 12. Favori tatilin nasıldır? Neden? 13. Liseyi nerede okudun? Nasıl bir lisen vardı? 14. En çok hangi yabancı ülkeyi ziyaret etmek isterdin? Burayı senin için çekici kılan nedir? 15. Saçını ne sıklıkla kestirirsin? Saçını kestirmek için nereye gidiyorsun? Hiç gerçekten kötü bir saç kesimi deneyimin oldu mu? 16. En son gittiğin konser neydi? Bu grubun (sanatçının) kaç albümü sende var? Onları daha önce gördün mü? Gördüysen nerede gördün?

Set III

1. Partnerinle kişisel bir sorununuzu paylaşın ve partnerinizden bu sorunu nasıl çözebileceği konusunda tavsiye isteyin. Ayrıca partnerinden, seçtiğiniz bu sorun hakkında nasıl hissedebileceğini ve nasıl tepkiler verebileceğini tasvir etmensini isteyin.

Soru Listesi – Kontrol Grubu

Lütfen aşağıdaki soruları okumak için iki dakinanızı ayırın. İlk ve son setteki tüm soruları seçmeden cevaplamanız beklenmektedir. İkinci setteki sorulardan ise beş adet seçerek cevaplayınız. Hazır olduğunuzda ilk setteki soruyu cevaplayarak başlayabilirsiniz.

Set I

1. Beş dakikanızı ayırarak kendi hayat hikayenizi olabildiğince detaylı bir şekilde yazın.

Set 2

1. Ünlü olmak ister miydin? Nasıl ünlü olmak isterdin? 2. Senin için mükemmel bir gün nasıl olurdu? 3. Hayatında en çok minnettarlık duyduğun şey nedir? 4. Yarın herhangi bir özellik veya yetenek kazanmış olarak uyanacak olsaydın, bunun ne olmasını isterdin? 5. Hayatındaki en büyük başarı nedir? 6. Bir arkadaşlıkta en çok neye değer verirsin? 7. Senin için arkadaşlığın anlamı nedir? 8. Ailenle ilişkin yakın ve sıcak mıdır? Çocukluğunun çoğu insanınkinden daha mutlu geçtiğini düşünüyor musun? 9. Nerelisin? Şimdiye kadar yaşadığın yerleri sayabilir misin? 10. Geçen yaz ne yaptın? 11. İzlediğin en iyi dizi hangisidir? Bu diziden bahset. 12. En sevdiğin tatilin nasıldır? Neden? 13. Liseyi nerede okudun? Nasıl bir lisen

vardı? 14. En çok hangi yabancı ülkeyi ziyaret etmek istersin? Burayı senin için çekici kılan nedir? 15. Saçını ne sıklıkla kestirirsin? Saçını kestirmek için nereye gidiyorsun? Hiç gerçekten kötü bir saç kesimi deneyimin oldu mu? 16. En son gittiğin konser neydi? Bu grubun(sanatçının) kaç albümü sende var? Onları daha önce gördün mü? Gördüysen nerede gördün?

Set III

1. Son zamanlarda yaşadığınız kişisel bir sorununuzu paylaşın ve bu sorununuzu nasıl çözdüğünüzü anlatın. Ayrıca bu soruna dair hislerinizi paylaşın.

Additional Exploratory Analysis

Study 5

Analysis of covariance. We have conducted ANCOVA to control the effect of Social Dominance Orientation (SDO). There was a statistically significant effect of experimental condition on meta-attitude accuracy scores after controlling for SDO, $F(2,550) = 6.53$, $p = .002$, partial $\eta^2 = .023$. The covariate, SDO, was not a significant predictor of meta-attitude accuracy, $F(1,550) = 0.79, p = .374$, partial $\eta^2 = .001$. The overall model was significant, $F(3,550) = 4.62, p = .003, R^2 = .025$ (adjusted $R^2 = .019$).

Moderation Effects of Ingroup Identification and Perceived Conflict

Moderation effects of Ingroup Identification and Perceived Conflict. We checked the correlations between ingroup identification and perceived conflict, Pearson's $r = .196$, $p = .051$, then analyzed them using Model 1 separately.

Ingroup Identification. A moderation analysis was conducted using PROCESS Model 1 to examine how ingroup identification moderated the relationship between experimental condition separately (X: 0 = Control, 1 = Mass-mediated Contact, 2 = Informational Feedback) and meta-attitude accuracy (Y). The overall model was significant, $F(5,549) = 4.10$, $p = .001$, with an R^2 of .036.

There was a significant interaction between the Mass-mediated Contact group and

ingroup identification, $b = 4.95$, $SE = 2.02$, $t = 2.45$, $p = .014$, 95% CI $[0.98, 8.92]$, suggesting that the effect of the Mass-mediated Contact condition on Meta-attitude accuracy scores depends on the level of ingroup identification. The interaction between Informational Feedback and ingroup identification was not statistically significant, $b = 3.59$, $SE = 2.24$, $t = 1.61$, $p = .109$, 95% CI $[-0.80, 7.99]$.

Probing the interaction at different levels of the moderator revealed that at medium levels of ingroup identification ($M_{\text{ingroup identification}} = 4.00$), neither Mass-mediated Contact ($b = -0.74, p = .862$) nor Informational Feedback ($b = 3.37, p = .457$).

At higher levels of ingroup identification ($M_{\text{ingroup identification}} = 6.00$), both Mass-mediated Contact ($b = 9.17, p = .001$) and Informational Feedback ($b = 10.56, p < .001$) were associated with significantly higher meta-attitude accuracy compared to Control. This effect was stronger at very high identification levels ($M_{\text{ingroup identification}} = 7.00$), Mass-mediated Contact ($b = 14.12, p < .001$), Informational Feedback ($b = 14.15, p < .001$).

Perceived conflict. A moderation analysis was conducted using PROCESS Model 1 (Hayes, 2022) to test whether the effect of experimental condition on meta-attitude accuracy was moderated by perceived conflict. The overall model was significant, $F(5, 548) = 15.35, p < .001$, explaining approximately 12.3% of the variance in meta-attitude accuracy ($R^2 = .123$).

The main effects of both Mass-mediated Contact ($b = 21.53, SE = 9.35, p = .022, 95\%$ CI $[3.16, 39.90]$) and Informational Feedback conditions ($b = 25.87, SE = 9.73, p = .008, 95\%$ CI $[6.76, 44.98]$) were statistically significant, indicating that both experimental conditions were associated with increased meta-attitude accuracy compared to the control condition. The main effect of perceived conflict was also significant, $b = -3.43, SE = 1.43, p = .017, 95\%$ CI $[-6.24, -0.62]$, such that higher levels of perceived conflict were associated with lower meta-attitude accuracy. However, the interaction between the experimental condition and perceived conflict was not statistically significant overall, interaction between the experimental condition and perceived conflict was not statistically significant overall, $\Delta R^2 = .007, F(2, 548) = 2.09, p = .125$.

Study 6

Analyses of covariance. A univariate ANCOVA was conducted to examine the effect of experimental condition on meta-attitude accuracy scores while control-

ling for SDO. There was a significant effect of experimental condition on meta-attitude accuracy after controlling for SDO, $F(2, 393) = 5.688, p = .004$, partial $\eta^2 = .028$, indicating a small to medium effect size. Descriptive statistics showed that participants in the Contact condition reported the most positive meta-attitude accuracy scores ($M = 11.51$, SD = 31.56), followed by the Feedback condition ($M = 6.38, SD = 26.18$), while those in the Control condition reported the lowest scores ($M = 0.26, SD = 30.98$).

The covariate SDO also had a significant effect on meta-attitude accuracy, $F(1, 393) = 14.287, p < .001$, partial $\eta^2 = .035$, suggesting that SDO levels were significantly related to the dependent variable. The overall model explained 6% of the variance in meta-attitude accuracy scores, $R^2 = .060$, adjusted $R^2 = .053$.

Moderation Effects of Ingroup Identification and Perceived Conflict

We checked the correlations between ingroup identification and perceived conflict Pearson's $r = -.095, p = .059$, then analyzed them using Model 1 separately. To examine whether ingroup identification moderated the relationship between experimental condition and meta-attitude accuracy, a moderation analysis was conducted using PROCESS Model 1 (Hayes, 2022). Experimental condition (dummy-coded) was entered as the independent variable, meta-attitude accuracy as the dependent variable, and ingroup identification as the moderator. The overall model was significant, $F(5, 391) = 5.29, p < .001$, explaining 6.3% of the variance in meta-attitude accuracy scores ($R^2 = .063$). Ingroup identification significantly predicted meta-attitude accuracy, $b = 5.56, SE = 2.77, t = 2.01, p = .046$, such that higher levels of identification were associated with greater meta-attitude accuracy scores. However, neither the main effects of experimental condition (Contact vs. Control: $B = 4.13, p = .347$; Informational Feedback vs. Control: $B = 21.49, p = .361$) nor the interaction terms (Contact $\times$ ingroup identification: $B = 1.45, p = .681$; Informational Feedback $\times$ ingroup identification: $B = -2.41, p = .535$) were significant.

We further tested the moderation effect of perceived conflict in a separate model. The overall model was significant, explaining 25.4% of the variance in meta-attitude accuracy, $R = 0.50, R^2 = 0.25, F(5, 391) = 26.60, p < .001$. The main effects of the experimental condition contrasts were not significant (X1 = contact vs. control, $b = 6.71, SE = 13.03, p = .607$; X2 = Informational Feedback vs. control, $b = -11.82, SE = 14.67, p = .421$), whereas perceived conflict was a significant negative predictor of meta-attitude accuracy ($b = -11.96, SE = 1.65, p < .001$). The interaction effects between experimental condition and perceived conflict were not signifi-

cant (X1 $\times$ perceived conflict: $b = 0.13, SE = 2.37, p = .957$; X2 $\times$ perceived conflict: $b = 3.45, SE = 2.56, p = .179$), and the change in explained variance due to the interaction was small and nonsignificant, $\Delta R^2 = 0.0042, F(2, 391) = 1.09, p = .337$. These results indicate that while perceived conflict negatively predicted meta-attitude accuracy, it did not moderate the effect of experimental condition on meta-attitude accuracy.

A.4 Tables

Table A.1 Direct and indirect path coefficients in multigroup path analysis among Black and White groups in Study 1

Effects	**Standardized Beta**	**Standard Error**	p	**95% CI**
Whites				
PC → MA	.29	.07	< .001	[.14, .43]
MA → OA	.27	.08	.001	[.10, .43]
PC → OA	.36	.06	< .001	[.22, .48]
PC → MA → OA	.08	.03	.011	[.02, .14]
NC → MA	-.14	.07	.059	[-.29, .006]
NC → OA	-.23	.08	.004	[-.38, -.07]
NC → MA → OA	-.04	.02	.108	[-.09, .001]
Blacks				
PC → MA	.14	.08	.094	[.000, .33]
MA → OA	.43	.06	< .001	[.29, .54]
PC → OA	.21	.07	.004	[.11, .40]
PC → MA → OA	.06	.04	.103	[.00, .15]
NC → MA	-.21	.07	.002	[-.31, -.04]
NC → OA	-.17	.06	.004	[-.26, -.02]
NC → MA → OA	-.09	.03	.003	[-.14, -.01]

Note. PC = Positive Contact, NC = Negative Contact, MA = Meta-attitude accuracy, OA = Outgroup Attitudes

Table A.2 Direct and indirect path coefficients in multigroup path analysis among Turkish and Kurdish groups in Study 2

Effects	**Standardized Beta**	**Standard Error**	p	**95% CI**
Turks				
PC → MA	.25	.06	< .001	[.11, .37]
MA → OA	.65	.05	< .001	[.53, .75]
PC → OA	.20	.05	.001	[.08, .31]
PC → MA → OA	.16	.04	.001	[.07, .25]
NC → MA	.16	.07	.023	[.02, .29]
NC → OA	-.10	.05	.066	[-.22, .00]
NC → MA → OA	.10	.04	.024	[.01, .19]
Kurds				
PC → MA	.34	.09	< .001	[.21, .58]
MA → OA	.45	.07	< .001	[.30, .56]
PC → OA	.36	.09	< .001	[.23, .58]
PC → MA → OA	.15	.05	.003	[.08, .28]
NC → MA	-.16	.10	.101	[-.35, .03]
NC → OA	.07	.04	.140	[-.02, .16]
NC → MA → OA	-.07	.04	.106	[-.16, .01]

Note. PC = Positive Contact, NC = Negative Contact, MA = Meta-attitude accuracy, OA = Outgroup Attitudes

Table A.3 Direct and indirect path coefficients in multigroup path analysis among Turkish and Kurdish groups in Study 3

Effects	**Standardized Beta**	**Standard Error**	p	**95% CI**
Turks				
PC → MA	.42	.05	< .001	[.30, .53]
MA → OA	.56	.06	< .001	[.44, .68]
PC → OA	.29	.05	< .001	[.18, .40]
PC → MA → OA	.23	.04	< .001	[.15, .33]
NC → MA	-.13	.07	.066	[-.27, .006]
NC → OA	-.15	.05	.003	[-.26, -.05]
NC → MA → OA	-.07	.04	.083	[-.16, .003]
Kurds				
PC → MA	.26	.19	.181	[-.04, .69]
MA → OA	.48	.09	< .001	[.24, .61]
PC → OA	.31	.08	< .001	[.25, .59]
PC → MA → OA	.12	.07	.109	[-.02, .29]
NC → MA	-.10	.13	.413	[-.36, .14]
NC → OA	-.11	.06	.085	[-.24, .02]
NC → MA → OA	-.05	.06	.404	[-.01, .06]

Note. PC = Positive Contact, NC = Negative Contact, MA = Meta-attitude accuracy, OA = Outgroup Attitudes

Table A.4 Direct and indirect path coefficients in multigroup path analysis for cognitive route among Turkish and Kurdish groups in Study 3

Effects	Standardized Beta	Standard Error	p	95% CI
Turks				
PC → SR	.23	.06	< .001	[.09, .35]
PC → PT	.36	.06	< .001	[.23, .49]
PC → OK	.11	.08	.170	[.21, .47]
PC → MA	.33	.06	< .001	[.21, .45]
SR → MA	.29	.07	< .001	[.15, .42]
PT → MA	.08	.11	.465	[-.15, .28]
OK → MA	-.04	.10	.704	[-.23, .18]
PC → OA	.20	.04	< .001	[.10, .29]
MA → OA	.51	.05	< .001	[.40, .63]
SR → OA	.13	.04	.001	[.05, .21]
PT → OA	.17	.07	.014	[.03, .30]
OK → OA	.05	.07	.422	[-.07, .19]
PC → MA → OA	.17	.04	< .001	[.10, .26]
PC → SR → MA → OA	.03	.01	.007	[.01, .06]
PC → OK → MA → OA	-.007	.02	.712	[-.04, .03]
PC → PT → MA → OA	.01	.02	.483	[-.02, .06]
NC → SR	-.20	.07	.010	[-.34, -.04]
NC → PT	.08	.08	.305	[-.07, .23]
NC → OK	.11	.08	.170	[-.05, .26]
NC → MA	-.07	.06	.266	[-.20, .05]
NC → OA	-.15	.05	.002	[-.24, -.05]
NC → MA → OA	-.04	.03	.286	[-.11, .02]
NC → SR → MA → OA	-.03	.01	.036	[-.06, -.005]
NC → OK → MA → OA	-.002	.008	.765	[-.02, .01]
NC → PT → MA → OA	.003	.007	.631	[-.01, .02]
Kurds				
PC → SR	.38	.11	.001	[.24, .70]
PC → PT	.32	.15	.038	[.09, .70]
PC → OK	.24	.17	.148	[-.04, .62]
PC → MA	.11	.19	.549	[-.20, .51]
SR → MA	.42	.13	.002	[.18, .71]
PT → MA	.13	.11	.249	[-.09, .36]
OK → MA	-.24	.11	.033	[-.47, -.03]
PC → OA	.19	.10	.080	[.03, .46]
MA → OA	.41	.10	< .001	[.16, .57]
SR → OA	.26	.10	.016	[.07, .50]
PT → OA	-.02	.08	.765	[-.22, .12]
OK → OA	.17	.09	.061	[.008, .38]
PC → MA → OA	.04	.07	.506	[-.08, .19]
PC → SR → MA → OA	.07	.04	.078	[.02, .17]
PC → OK → MA → OA	-.02	.03	.419	[-.11, .003]
PC → PT → MA → OA	.01	.02	.487	[-.01, .08]
NC → SR	-.19	.10	.073	[-.40, .26]
NC → PT	.10	.12	.419	[-.14, .34]
NC → OK	.14	.12	.234	[-.10, .38]
NC → MA	-.003	.12	.981	[-.23, .23]
NC → OA	-.09	.07	.181	[-.22, .06]
NC → MA → OA	-.001	.04	.980	[-.09, .09]
NC → SR → MA → OA	-.03	.02	.168	[-.09, .003]
NC → OK → MA → OA	-.01	.01	.338	[-.05, .009]
NC → PT → MA → OA	.006	.009	.529	[-.01, .02]

Note. PC = Positive Contact, NC = Negative Contact, MA = Meta-attitude accuracy, OA = Outgroup Attitudes, SR = Shared Reality, PT = Perspective Taking, OK = Outgroup Knowledge

Table A.5 Direct and indirect path coefficients in multigroup path analysis for affective route among Turkish and Kurdish groups in Study 3

Effects	Standardized Beta	Standard Error	p	95% Confidence Intervals
Turks				
PC → IA	-.21	.07	.004	[-.35, -.06]
PC → A	-.18	.07	.010	[-.31, -.04]
PC → F	-.13	.07	.005	[-.27, .006]
PC → MA	.36	.06	< .001	[.24, .47]
IA → MA	-.05	.07	.445	[-.20, .08]
A → MA	.30	.09	.001	[-.46, -.12]
F → MA	.02	.08	.767	[-.14, .19]
PC → OA	.28	.05	< .001	[.17, .30]
MA → OA	.53	.06	< .001	[.41, .65]
IA → OA	-.07	.05	.151	[-.16, .02]
A → OA	-.17	.06	.004	[-.28, -.05]
F → OA	.18	.05	< .001	[.07, .28]
PC → MA → OA	.19	.04	< .001	[.11, .28]
PC → IA → MA → OA	.006	.009	.466	[-.01, .02]
PC → F → MA → OA	-.002	.007	.795	[-.01, .01]
PC → A → MA → OA	.029	.015	.059	[.004, .06]
NC → IA	.28	.08	.001	[.11, .44]
NC → A	.38	.07	< .001	[.23, .51]
NC → F	.21	.07	.005	[.06, .35]
NC → MA	-.008	.07	.910	[-.16, .13]
NC → OA	-.11	.05	.026	[-.21, -.01]
NC → MA → OA	-.005	.04	.911	[-.09, .07]
NC → IA → MA → OA	-.008	.01	.496	[-.03, .01]
NC → F → MA → OA	.003	.010	.785	[-.01, .02]
NC → A → MA → OA	-.061	.023	.009	[-.11, -.02]
Kurds				
PC → IA	-.59	.08	< .001	[-.84, -.52]
PC → A	-.28	.14	.042	[-.62, -.08]
PC → F	-.26	.12	.028	[-.59, -.12]
PC → MA	.29	.19	.128	[-.01, .72]
IA → MA	.17	.13	.193	[-.06, .45]
A → MA	.15	.12	.202	[-.08, .37]
F → MA	-.42	.15	.006	[-.72, -.12]
PC → OA	.29	.11	.010	[.15, .61]
MA → OA	.37	.10	< .001	[.13, .52]
IA → OA	.02	.20	.807	[-.17, 22]
A → OA	.23	.08	.004	[.05, .38]
F → OA	-.47	.09	< .001	[-.64, -.26]
PC → MA → OA	.109	.06	.109	[-.005, .27]
PC → IA → MA → OA	-.03	.04	.360	[-.14, .01]
PC → F → MA → OA	.042	.03	.207	[.007, .13]
PC → A → MA → OA	-.016	.02	.427	[-.06, .01]
NC → IA	.14	.08	.066	[-.002, .31]
NC → A	.24	.13	.078	[-.02, .50]
NC → F	.36	.10	< .001	[.16, .55]
NC → MA	-.013	.13	.920	[-.27, .22]
NC → OA	-.016	.07	.816	[-.15, .12]
NC → MA → OA	-.005	.04	.918	[-.10, .08]
NC → IA → MA → OA	.009	.01	.371	[-.002, .03]
NC → F → MA → OA	-.058	.02	.044	[-.12, -.009]
NC → A → MA → OA	.014	.01	.363	[-.008, .05]

Note. PC = Positive Contact, NC = Negative Contact, MA = Meta-accuracy, IA = Intergroup Anxiety, F = Outgroup Fear, A = Outgroup Anger.

Table A.6 Direct and indirect path coefficients in multigroup path analysis among Catholic and Protestant groups in Study 4

Effects	Standardized Beta	Standard Error	p	95% Confidence Intervals
Catholics				
PC → MA	.24	.10	.015	[.04, .43]
MA → OA	.56	.05	< .001	[.45, .67]
PC → OA	.31	.07	< .001	[.16, .44]
PC → MA → OA	.13	.05	.015	[.02, .24]
NC → MA	-.20	.10	.037	[-.40, -.02]
NC → OA	-.10	.07	.154	[-.23, .05]
NC → MA → OA	-.12	.05	.041	[-.23, -.01]
Protestants				
PC → MA	.43	.06	< .001	[.27, .54]
MA → OA	.42	.06	< .001	[.30, .53]
PC → OA	.44	.06	< .001	[.29, .55]
PC → MA → OA	.18	.03	< .001	[.10, .25]
NC → MA	-.15	.07	.028	[-.29, -.02]
NC → OA	-.09	.05	.095	[-.20, .01]
NC → MA → OA	-.06	.03	.028	[-.12, -.009]

Note. PC = Positive Contact, NC = Negative Contact, MA = Meta-accuracy, OA = Outgroup Attitudes.

Table A.7 Direct and indirect path coefficients in multigroup path analysis for cognitive route among Catholic and Protestant groups in Study 4

Effects	Standardized Beta	Standard Error	p	95% Confidence Intervals
Catholics				
PC → SR	.28	.10	.006	[.07, .47]
PC → PT	.28	.09	.002	[.10, .45]
PC → OK	.36	.09	< .001	[.17, .54]
PC → MA	.06	.10	.544	[-.13, .25]
SR → MA	.41	.08	< .001	[.24, .57]
PT → MA	.22	.11	.052	[-.007, .43]
OK → MA	.007	.10	.947	[-.19, .21]
PC → OA	.27	.07	< .001	[.13, .40]
MA → OA	.46	.07	< .001	[.32, .61]
SR → OA	.10	.08	.207	[-.06, .24]
PT → OA	.14	.08	.088	[-.02, .30]
OK → OA	-.01	.07	.854	[-.16, .14]
PC → MA → OA	.03	.04	.550	[-.06, .11]
PC → SR → MA → OA	.05	.02	.044	[.01, .11]
PC → OK → MA → OA	.001	.02	.951	[-.03, .04]
PC → PT → MA → OA	.03	.02	.117	[-.001, .07]
NC → SR	-.19	.09	.049	[-.37, .007]
NC → PT	-.12	.08	.154	[-.29, .04]
NC → OK	-.05	.10	.624	[-.23, .14]
NC → MA	-.10	.09	.284	[-.29, .07]
NC → OA	-.09	.07	.219	[-.22, .06]
NC → MA → OA	-.04	.04	.301	[-.14, .03]
NC → SR → MA → OA	-.03	.02	.086	[-.08, .001]
NC → OK → MA → OA	.000	.006	.978	[-.01, .01]
NC → PT → MA → OA	-.01	.01	.269	[-.04, .007]
Protestants				
PC → SR	.39	.08	< .001	[.21, .53]
PC → PT	.34	.11	.002	[.11, .55]
PC → OK	.34	.10	.002	[.12, .54]
PC → MA	.30	.07	< .001	[.12, .43]
SR → MA	.29	.08	< .001	[.12, .44]
PT → MA	-.09	.08	.286	[-.26, .08]
OK → MA	.13	.08	.117	[-.02, .31]
PC → OA	.39	.07	< .001	[.23, .50]
MA → OA	.37	.06	< .001	[.26, .49]
SR → OA	.15	.06	.015	[.02, .26]
PT → OA	.11	.07	.141	[-.04, .25]
OK → OA	-.05	.06	.380	[-.18, .07]
PC → MA → OA	.11	.03	.001	[.008, .11]
PC → SR → MA → OA	.04	.01	.010	[.01, .07]
PC → OK → MA → OA	.01	.01	.237	[-.003, .05]
PC → PT → MA → OA	-.01	.01	.34	[-.03, .01]
NC → SR	-.11	.08	.169	[-.27, .04]
NC → PT	-.01	.08	.856	[-.18, .13]
NC → OK	.07	.09	.448	[-.10, .25]
NC → MA	-.13	.06	.051	[-.26, .000]
NC → OA	-.07	.05	.149	[-.18, .02]
NC → MA → OA	-.05	.02	.052	[-.10, .000]
NC → SR → MA → OA	-.01	.01	.242	[-.03, .004]
NC → OK → MA → OA	.004	.006	.550	[-.008, .01]
NC → PT → MA → OA	.001	.004	.896	[-.007, .01]

Note. PC = Positive Contact, NC = Negative Contact, MA = Meta-accuracy, OA = Outgroup Attitudes, SR = Shared Reality, PT = Perspective Taking, OK = Outgroup Knowledge.

Table A.8 Direct and indirect path coefficients in multigroup path analysis for affective route among Catholic and Protestant groups in Study 4

Effects	Standardized Beta	Standard Error	p	95% Confidence Intervals
Catholics				
PC → IA	-.31	.11	.006	[-.51, -.07]
PC → A	-.15	.12	.233	[.12, .53]
PC → F	-.17	.10	.108	[-.37, .04]
PC → MA	.14	.10	.183	[-.06, .35]
IA → MA	-.20	.10	.057	[-.40, .01]
A → MA	-.22	.13	.098	[-.48, .05]
F → MA	.002	.13	.987	[-.26, .24]
PC → OA	.27	.07	< .001	[.12, .40]
MA → OA	.50	.06	< .001	[.38, .63]
IA → OA	-.16	.08	.053	[-.33, .01]
A → OA	-.10	.08	.205	[-.24, .07]
F → OA	.08	.09	.402	[-.11, .27]
PC → MA → OA	.07	.05	.190	[-.03, .18]
PC → IA → MA → OA	.03	.01	.085	[-.004, .07]
PC → F → MA → OA	.000	.01	.989	[-.03, .02]
PC → A → MA → OA	.01	.02	.378	[-.01, .06]
NC → IA	.24	.12	.041	[-.001, .46]
NC → A	.34	.10	.001	[.12, .53]
NC → F	.27	.11	.020	[.02, .48]
NC → MA	-.08	.09	.405	[-.26, .10]
NC → OA	-.06	.07	.421	[-.20, .09]
NC → MA → OA	-.04	.05	.414	[-.13, .05]
NC → IA → MA → OA	-.02	.02	.228	[-.07, .004]
NC → F → MA → OA	.000	.02	.988	[-.04, .03]
NC → A → MA → OA	-.04	.03	.187	[-.10, .008]
Protestants				
PC → IA	-.31	.08	< .001	[-.45, -.14]
PC → A	-.25	.12	.034	[-.44, .01]
PC → F	-.04	.08	.610	[-.20, .10]
PC → MA	.40	.07	< .001	[.22, .52]
IA → MA	-.09	.09	.306	[-.26, .08]
A → MA	-.02	.10	.804	[-.20, .19]
F → MA	-.04	.11	.734	[-.28, .17]
PC → OA	.35	.06	< .001	[.20, .46]
MA → OA	.40	.05	< .001	[.29, .51]
IA → OA	-.13	.06	.031	[-.25, -.01]
A → OA	-.26	.06	< .001	[-.39, -.16]
F → OA	.14	.06	.024	[.01, .27]
PC → MA → OA	.16	.03	< .001	[.08, .22]
PC → IA → MA → OA	.01	.01	.337	[-.01, .03]
PC → F → MA → OA	.001	.005	.890	[-.007, .01]
PC → A → MA → OA	.003	.01	.799	[-.01, .02]
NC → IA	.34	.09	< .001	[.15, .50]
NC → A	.27	.10	.008	[.08, .48]
NC → F	.39	.09	< .001	[.21, .57]
NC → MA	-.09	.08	.239	[-.25, .06]
NC → OA	-.03	.06	.653	[-.15, .10]
NC → MA → OA	-.04	.03	.242	[-.10, .03]
NC → IA → MA → OA	-.01	.01	.359	[-.04, .01]
NC → F → MA → OA	-.006	.02	.760	[-.06, .02]
NC → A → MA → OA	-.003	.01	.827	[-.02, .02]

Note. PC = Positive Contact, NC = Negative Contact, MA = Meta-accuracy, IA = Intergroup Anxiety, F = Outgroup Fear, A = Outgroup Anger.