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Abstract

This study contributes to the still limited evidence on the effects of online intergroup contact. We conceptualize online contact as occurring through users' comments online, an easy and accessible venue for intergroup encounters. We test two forms of online contact: encountering an outgroup member directly (direct online contact) or through an ingroup member (extended online contact) and their effects on outgroup attitudes, here various forms of threat and social distance. We also examine the emotional mechanisms through which these effects emerge. We rely on an online experiment ($N = 396$) testing online contact with two distinct outgroups, an undocumented immigrant or a gay person. Compared to the control, direct online contact decreased perceived threat and social distance toward gays and lesbians, but not toward undocumented immigrants. Direct online contact improved attitudes toward both outgroups through positive and negative emotions, whereas extended online contact reduced negative emotions, improving attitudes towards undocumented immigrants. We discuss theoretical, methodological and practical implications of these findings.

Keywords: intergroup contact; extended contact; online contact; outgroup attitudes; online comments; emotions

Intergroup Contact Through Online Comments:

Effects of Direct and Extended Contact on Outgroup Attitudes

Intergroup tensions have reached troubling levels. In the US, Americans express strong dislike for ideological “others” (Iyengar & Westwood, 2015) and ethnic relations continue to be one of the most challenging issues of the century (Mastro, 2015). In Europe, growing tensions surround immigration, adding to other group-based animosities (Nasr & Inverardi, 2016; Townsend, 2015). Intergroup contact theory suggests that encounters with people who are on the other side of these divides could improve outgroup attitudes (Allport, 1954). However, not only are ethnic, racial or religious groups often segregated residentially, educationally, and occupationally (Dovidio, Eller, & Hewstone, 2011), but also some citizens actively avoid intergroup interactions. Recognizing these limits, a growing body of research examines various forms of indirect contact (see Dovidio et al., 2011 for review).

We extend this work in three important ways. Drawing on the work on intergroup interactions that are mediated by new technologies (Amichai-Hamburger & McKenna, 2006; Hasler & Amichai-Hamburger, 2013; Walther, 2009), we theorize and test *online intergroup contact* as occurring through comments on online news stories. Comments on online news are not only widely popular (Emmer et al., 2011; Weber, 2014), but also entail users sharing their thoughts and experiences (Lee & Jang, 2010). We propose that online comments can function as a simple form of online intergroup contact.

In addition, we differentiate between two types of online contact: *direct online contact*, namely a personal comment written by an outgroup member, as well as *extended online contact*, or encountering an outgroup member through the comment written by an ingroup member (see Wright et al., 1997). We test whether both improve outgroup attitudes.

Third, we examine the mechanisms underlying online contact effects. We focus on positive and negative emotions, identified as central mediators in the direct intergroup contact

context (Pettigrew & Tropp, 2008). Although there is ample reason to believe that emotions should matter for online contact as well, the evidence on emotional mechanisms in the online contact literature is limited (see however Abu-Rayya, 2017; White et al., 2015).

We rely on an online experiment in which a sample of Americans ($N = 396$) was randomly assigned to read a comment below a mock online newspaper blurb about same-sex marriage or policies related to undocumented immigrants. The reader comment contained a short personal story written by an outgroup member, what we conceptualize as *direct online contact*, a parallel story about an outgroup member but written by a person identified as an ingroup, what we term as *extended online contact*, or a comment with parallel information written by a non-identifiable person, our control condition. We test the effects of online intergroup contact on threat and social distance towards gays and lesbians or undocumented immigrants. By testing online contact with two outgroups separately, we are able to examine the robustness of the proposed effects. Importantly, our sample only includes people who opposed the policies advancing the rights of gays and lesbians or undocumented immigrants. Because the comments were supportive toward the two outgroups, everyone read a comment that was explicitly counter to their original attitude, a challenging context in which to shift outgroup attitudes.

Transformation of Intergroup Contact: Mediated and Online Contact

Intergroup contact theory suggests that interactions with outgroup members foster positive outgroup attitudes (Allport, 1954). The theory applies across contexts and outgroups, such as the elderly, sexual minorities, mentally ill, or racial and ethnic minorities (Pettigrew & Tropp, 2006), and evidence shows that contact can reduce prejudice even when various ideal conditions are not met (Pettigrew & Tropp, 2006; see Atwell Seate, et al., 2015). However, most citizens do not have frequent face-to-face contact with people from groups that they dislike or perceive as outgroups. After all, negative attitudes and individual

tendency to interact with people who are similar and already in-group members (Byrne, 1961) inhibit meaningful intergroup encounters.

Solving this problem, the work on various forms of *indirect* contact shows that face-to-face interaction is not required for contact to reduce prejudice (e.g., Wright, et al., 1997; Mazziotta, et al., 2011; Crisp & Turner, 2009). Building on this evidence, communication scholars focus on contact through mass media, showing that exposure to positive or counter-stereotypical outgroup members improves outgroup attitudes (e.g., Goldman, 2012; Joyce & Harwood, 2014; Riggle, et al., 1996; Schiappa et al., 2005; 2006; Wojcieszak & Azrout, 2016).

With the growth and popularity of computer-mediated communication (CMC), scholars theorize *online* intergroup contact, contending that intergroup contact theory can fruitfully be applied to online contexts (Amichai-Hamburger & McKenna, 2006; Hasler & Amichai-Hamburger, 2013; Walther, 2009). Drawing from the social identification model of deindividuation effects (SIDE, Reicher, Spears, & Postmes, 1995) which posits that visual anonymity leads to depersonalization and group-based categorization (Lea, Spears, & de Groot, 2001), some argue that online contact can create an attachment to or identification with a virtual group, thereby reducing outgroup prejudice (Amichai-Hamburger & McKenna, 2006; Hasler & Amichai-Hamburger, 2013). Others draw from the social information processing theory (SIP, Walther, 1992) to contend that prolonged online contact can lead to interpersonal attraction and development of relationships as users creatively manage their expressive messages online (Walther et al., 2015). Empirical research testing these propositions indeed finds positive effects of online contact on reduction of prejudice and intergroup bias (Lev-On & Lissitsa, 2015; Walther et al., 2015; White et al., 2015).

This work typically examines contact through text-based chatting (e.g., Abu-Rayya; Alvírez et al., 2015; Ellis & Maoz, 2007; White et al., 2015) or a combination of chats and

message boards in long-term collaborative projects (e.g., Walther et al., 2015). Whereas online chats with outgroup members provide a rich contact experience, they do not occur very frequently, and long-term online collaborations can be costly to organize.

In this paper, we add to the existing literature by conceiving online contact in a simpler, asynchronous form, namely through online comments posted by Internet users under online news articles or in various comment sections in general. Online comments authored by an outgroup person can simulate a contact experience that lies somewhere in between mediated and online contact. Though the “encounter” occurs online, it is not necessarily an interpersonal exchange between the poster and the reader, as the message is not addressed to or directed at a particular person. Yet, the writer engages in the act in a personal way, sharing his or her opinion freely without much editorial discernment (Reader, 2012) and with greater comfort due to the anonymity and diminished social cues (Hasler & Amichai-Hamburger, 2013). As such, online comments often contain personal thoughts and first-hand experiences (Lee & Jang, 2010), and the readers perceive the comment writers as peers with whom they can identify, not as some institutional source (Walther et al., 2010). In this sense, the experience of reading an online comment becomes interpersonal and can simulate intergroup contact, while its effect can promulgate at a wider scale.

It is also crucial to emphasize that online comments are quite prevalent online (Weber, 2014), and they are usually also short and simple. Although they do not offer the overtime, multi-dimensional, and multi-modal online contact experience afforded by long-term collaborative sessions, online comments expose people to the thoughts and experiences of others (directly or indirectly) more easily and with lower “entry barriers.” This is especially important given that those prone to prejudice are not likely to voluntarily engage in prolonged interactions with personally disliked outgroups.

Direct versus Extended Online Contact

We focus on two distinct forms of online intergroup contact: *direct online contact*, namely exposure to an outgroup member in the online environment, as well as *extended online contact*, or learning about an outgroup through an ingroup member (see Wright, et al., 1997). When it comes to directly encountering outgroup members and their personal stories online, the Internet may provide an effective environment for direct intergroup encounters. Online spaces minimize status differences by removing visual cues, thus helping minorities and individuals from lower status groups to appear more equal (Hasler & Amichai-Hamburger, 2013) and to build up confidence to express their views more freely (Spears et al., 2002). Although anonymity and lack of visual cues can, on the one hand, lead to more hostile or deviant behaviors (Suler, 2004), on the other, it can also create a space where people feel less restrained and users engage in greater self-disclosure and openly express their views (Postmes et al., 1998; Suler, 2004). Thus this latter aspect may help minority members feel emboldened enough to express their stories and opinions online.

We propose that direct online contact with an outgroup member telling his/her personal story related to their outgroup status will improve outgroup attitudes. Reading such an account offers vicarious experiences otherwise unfamiliar to the audience in a highly accessible form. In fact, the first-person perspective through which an outgroup member tells his/her story makes people feel closer to the person delivering the message (de Graaf et al., 2012), and this is true regardless of whether the person expresses views that are consistent or counter-attitudinal relative to the reader (Hoeken & Fikkers 2014). Ultimately, these qualities of exposure to an outgroup member and his/her personal story online contribute to transforming a text-based experience into meaningful contact. This is consistent with the direct intergroup contact theory, where “the outgroup interaction partner is explicitly or

implicitly regarded as the key carrier of the effect” (Graf, Paolini & Rubin, 2014, p. 538), resulting in attenuating various indicators of bias and prejudice.

There is another indirect way in which people can be exposed to outgroup members in the online environment, namely by learning about the experiences and predicaments of the outgroup from an ingroup member. In general, extended intergroup contact entails learning that an ingroup member has an outgroup friend and – consequently – becoming familiar with an outgroup through ingroup members (Wright et al., 1997). Such extended contact enhances tolerance and empathy for an outgroup (e.g., Turner, Hewstone, Voci, & Vonofakou, 2008). Germane to our study, even finding out that a fictional ingroup member, presented in media or in stories, has an outgroup friend is sufficient for prejudice reduction (Cameron, Rutland, Brown, & Douch, 2006; Leibkind & McAllister, 1999). After all, real or fictional, members of the ingroup can provide information about how ingroup members understand and respond to the situations related to the outgroup (Wright et al., 1997). We propose that similar beneficial effect should emerge in an online, computer-mediated setting, when people learn about an outgroup member through a person belonging to an ingroup, a proposition that has not been tested.

Emotional Mechanisms Underlying Online Contact Effects

In addition to showing that direct and extended online intergroup contact can improve outgroup attitudes, our second aim is to examine the mechanisms underlying these effects. We argue that online contact, both direct and extended, should generate positive and attenuate negative emotions, thus improving attitudes. First, intergroup contact in general, whether direct or extended, facilitates empathy, and makes people more hopeful, respectful, or grateful (Miller, et al., 2004; Pettigrew, 2008). Similarly, online accounts that feature a story of a tangible and vivid group member – either presented directly by him or herself or through an ingroup member – should elicit positive emotions as long as these accounts are

relatively positive (as those that we examine in our study). Direct accounts from outgroup members and reading about an outgroup through an ingroup member allow people to listen to stories about others' lives and enable one to empathize with the outgroup.

Also, prejudice is often due to threat or anxiety that people associate with intergroup contact, and so reducing these emotions reduces prejudice (Paolini et al., 2006). In general, compared to face-to-face settings, an online environment is a "safer" place for intergroup encounters, especially if one is negative toward the outgroup to begin with, and thus should minimize negative emotions (Amichai-Hamburger & McKenna, 2006; Walther, 2009). Personal stories delivered by outgroup members should be less threatening and make people feel less anxious than parallel messages that give general facts or information about the outgroup. Similarly, knowing that an ingroup member has a positive relationship with an outgroup reduces anxiety and negative expectations about future interactions with the outgroup (see Turner et al., 2008, p. 844; Wright et al., 1997), an effect that should emerge from extended online contact as well.

Emotional mechanisms underlying direct and extended contact effects are often theorized and sometimes tested in the intergroup contact literature in general (see Pettigrew & Tropp, 2006). Nevertheless, parallel evidence from online intergroup contact is severely limited. The two studies that examine the emotional underpinnings of computer-mediated encounters between various groups, focus on whether synchronous text-chats created by the researchers and occurring over several weeks reduce anxiety (Abu-Rayya, 2017), and whether positive emotion words and also words indicating anger and sadness expressed the by participant in an overtime synchronous online chat program reduce outgroup bias (White et al., 2015). In this study we provide the first comprehensive investigation of how online intergroup contact, both direct and extended, improves outgroup attitudes through both positive as well as negative emotions.

Indicators of Outgroup Attitudes

As our outcome variables, we examine perceived threat (in three different forms) and social distance. Intergroup threat occurs when “one group's actions, beliefs, or characteristics challenge the goal attainment or well-being of another group” (Riek et al., 2006, p. 336). Seeing a group as threatening predicts negative attitudes and, as a meta-analysis shows, this relationship holds for various types of threat and for a range of groups (Riek et al., 2006). In turn, social distance has a long history in the study of intergroup relations. It is defined as “feelings of unwillingness among members of a group to accept or approve a given degree of intimacy in interaction with a member of an out-group” (Williams, 1964, p. 29). The social distance scale, tapping such avoidant attitudes and behaviors, was one of the earliest indicators of prejudice (Bogardus, 1925). In sum, these two outcomes are fundamental to intergroup relations. If online contact is to impact these relations, then it should succeed in shifting how threatening people see certain social groups and how willing people are to engage in interaction with outgroup members.

Context, Hypotheses and Research Question

We test our theoretical predictions across two outgroups—gays and lesbians and undocumented immigrants—in the U.S. context, as they were two social groups visible on the political agenda. Public attitudes toward policies related to gays and lesbians such as gay marriage have shifted substantially from a 35% margin of support in 2001 to a 62% support in 2017 (Pew Research Center, 2017). Attitudes towards undocumented immigrants are more complex. Although a majority (above 70%) supports allowing undocumented immigrants currently in the U.S. to stay if they meet certain requirements (Pew Research Center, 2015, 2016), a third of the public supports building a wall along the U.S.—Mexico border (Pew Research Center, 2016), and over 40% sees immigrants as a burden to the country as they take jobs, housing, and healthcare (Pew Research Center, 2015). In sum, whereas sexual

minorities as an outgroup are not strongly polarizing, the issue of undocumented immigration elicits ambivalent sentiments and more clearly divides the American public.

Also, testing online contact with these two groups can shed light on the differential effects that direct and extended online contact can have on different types of threat. For example, among those who oppose same-sex marriage, gays and lesbians may be perceived as threatening traditional values and morals, i.e., perceived symbolic threat (Haddock, Zanna, & Esses, 1993; Herek, 2000). In turn, undocumented immigrants might be seen, primarily, as a threat to ingroup's welfare, resources, or safety, i.e., perceived realistic threat (Stephan et al., 2009). Because our study examines both outgroups and also both symbolic and realistic threat, we can show whether and how online direct and extended contact influences these outcomes.

In sum, testing our theoretical predictions in the context of two distinct groups assures that our results are not driven by some particularities of one group alone.

Based on the presented review, we advance the following theoretical expectations. We posit that *direct* online intergroup contact (i.e., reading comments written by a member of the outgroup) should reduce general (*H1a*), symbolic (*H1b*) and realistic threat (*H1c*) and social distance (*H1d*) compared to control (i.e., reading comments written by an anonymous person). We also posit that *extended* intergroup contact (i.e., reading comments about the outgroup written by a member of the ingroup) should reduce general (*H2a*), symbolic (*H2b*) and realistic threat (*H2c*) and social distance (*H2d*) compared to control (i.e., reading comments written by an anonymous person).

Here we also advance a research question regarding the relative effects exerted by both forms of online contact. Because no study on computer-mediated intergroup interactions investigates extended online contact, and – to our knowledge – no research systematically compares direct and extended contact side-by-side, it is not clear whether direct exposure to

an outgroup online or rather exposure through an ingroup member will more effectively improve outgroup attitudes. Theoretically, direct online contact may be more effective, in that – as aforementioned – it is a concrete outgroup member who is the “carrier” of contact effects (Graf, et al., 2014), and so encountering a concrete outgroup person online may be particularly effective. On the other hand, however, people may be more open to an outgroup when learning about it from those toward whom they are more open and favorable from the start, namely an in-group (see e.g., Gomez et al., 2008; 2013). Given these uncertainties, we ask whether *direct* versus *extended* online contact differently influences outgroup threat and social distance (*RQ*).

We further expect that these effects will be mediated by emotions, such that *direct* (H3) as well as *extended* (H4) online intergroup contact will enhance positive emotions, which will decrease perceived general threat (*H3a, H4a*), symbolic threat (*H3b, 4b*), realistic threat (*H3c, H4c*), and social distance (*H3d, H4d*). In turn, *direct* (H5) and *extended* (H6) online intergroup contact will reduce negative emotions, which will decrease perceived general threat (*H5a, H6a*), symbolic threat (*H5b, H6b*), realistic threat (*H5c, H6c*), and social distance (*H5d, H6d*). These meditational paths are graphically presented in Figure 1.

Method

Sample

We rely on experimental data from 396 American adults recruited from the Amazon’s Mechanical Turk subject pool between the dates of February 17 to 19, 2017 (gays and lesbians condition $n = 162$; undocumented immigrants condition $n = 234$).¹ Only those born and currently located in the U.S. were allowed to participate. The sample was split roughly evenly across gender (52% males, 48% females) and was relatively middle-aged ($M = 40.3$, $SD = 13.7$, $MDN = 37$). About 81% of the sample identified themselves as non-Hispanic

¹ This number excludes 12 respondents who either failed an attention check item or finished the survey too quickly.

White, 10% as Black or African American, 4% Hispanic or Latino, 5% Asian or Pacific Islander, and 1% Native American.² Although not nationally representative, studies show that Mechanical Turk samples are more demographically diverse, better reflect the general population, and are equally or more attentive to experimental tasks compared to other convenience samples (Berinsky, Huber, & Lenz, 2012; Hauser & Schwarz, 2015; Paolacci, Chandler, & Ipeirotis, 2010). Also, the results of identical studies run on Mechanical Turk and nationally representative samples lead to substantively the same results (Leeper & Mullinix, 2014).

Procedure

Participants first answered some demographic questions and questions about their attitudes toward the two issues tested. Those who indicated neutral or oppositional attitudes towards “allowing same-sex couples to legally marry” were assigned to online contact with gays or lesbians. Those who indicated neutral or oppositional attitudes towards immigration (“allowing undocumented immigrants who came to the US as children to stay in the US”) were assigned to online contact with undocumented immigrants. Participants indicating neutral or oppositional attitudes toward both issues were randomly assigned to online contact with one of the two outgroups.³ Those who indicated favorable attitudes toward both issues were precluded from participating in the study. Once assigned to an outgroup condition, participants were randomly assigned to one of three experimental conditions and answered posttest questions.

Experimental stimuli. The stimuli material was presented as an online reader’s comment immediately under a short news blurb related to either the U.S. Supreme Court

² The overrepresentation of non-Hispanic Whites is likely due to the screening question we had, which precluded participation of those who were supportive of gay marriage *and* supportive of allowing undocumented immigrants a path to citizenship (see below for more details). For the undocumented immigration issue, we re-ran all analyses without Hispanics ($n = 9$) and obtained identical results.

³ About 30% of the sample reported neutral attitudes towards these policy issues. Excluding these individuals did not alter our results although the p -values were slightly lower due to the reduced sample size. Here we report the results based on the full sample including those with neutral attitudes.

ruling that made same-sex marriage legal or a federal government program (DACA) that allows young undocumented immigrants a chance to stay in the U.S. The news blurb, which served as a context for the comment, did not vary between contact conditions and was identical in length across the issue conditions (51 words).

The online comment, which was the core of our stimuli, appeared immediately under the news blurb and showed an abbreviated version of the commenter's name and their response to the news blurb. The direct online contact condition featured an individual, explicitly identifying himself as a gay man or an undocumented immigrant, sharing his story related to the Supreme Court ruling and the DACA program, respectively (sexual minorities 181 words; undocumented immigrants 181 words). The extended online contact condition featured an individual, who identified himself as the friend of a gay person or an undocumented immigrant (and who explicitly mentions that he himself is not gay/immigrant), sharing the very same story as above, but from an ingroup perspective (sexual minorities 185 words; undocumented immigrants 185 words). The control condition presented exactly the same information but described in general terms by an unidentified commenter (sexual minorities 181 words; undocumented immigrants 178 words).

Measures. *General threat.* At the posttest, a single-item index was used to assess perceptions of threat from the group depicted in the messages. Participants were asked to rate on a scale from 0 to 100, how much they felt that gays and lesbians or undocumented immigrants were 'not at all threatening to our country' (0) to 'extremely threatening to our country' (100). Overall, participants in perceived less threat from gays and lesbians ($M = 45.55$, $SD = 32.60$) than from undocumented immigrants ($M = 65.26$, $SD = 27.31$).

Perceived symbolic threat. Symbolic threat was measured by adapting items used by Stephan and colleagues (1999, 2000, 2002). The respondents read "American identity is being threatened because there are too many [gays and lesbians/undocumented immigrants]"

in the US”, “American norms and values are being threatened because of the presence of [gays and lesbians/undocumented immigrants]”, “[Gays and lesbians/undocumented immigrants] are a threat to the American culture” and responded on a 1 to 7 scale ranging from “strongly disagree” to “strongly agree” (gays and lesbians Cronbach’s $\alpha = .92$, $M = 4.25$, $SD = 1.78$; undocumented immigrants Cronbach’s $\alpha = .94$, $M = 4.71$, $SD = 1.74$).

Perceived realistic threat. Three items assessed perceived realistic threat. The items were necessarily different depending on the outgroup condition to preserve realism, but both were adapted from realistic threat battery used in past research (Riek, 2010). In the condition of online contact with gays or lesbians, participants were asked on a scale of 1 (“strongly disagree”) to 7 (“strongly agree”) whether they felt “Gays and lesbians have more economic power than they deserve in this country”, “The legal system is too lenient on gays and lesbians” and “Gays and lesbians hold too many positions of power and responsibility in this country” (Cronbach’s $\alpha = .88$, $M = 3.83$, $SD = 1.63$). On the same scale, participants in the condition of online contact with undocumented immigrants, were asked to indicate their agreement with the following items: “Because of the presence of undocumented immigrants, American people have more difficulties in finding a job”, “Because of the presence of undocumented immigrants, American people have more difficulties in finding a house”, and “Because of the presence of undocumented immigrants, unemployment in America will increase” (Cronbach’s $\alpha = .89$, $M = 4.75$, $SD = 1.64$).

Social distance. To measure social distance, we used an adapted social distance scale (Bogardus, 1925). Participants rated the extent to which they felt comfortable or uncomfortable interacting with “gay or lesbian” or “an undocumented immigrant” who was (a) a neighbor, (b) a roommate; (c) someone I have to work closely with at my job; and (d) a close friend (from 1 “extremely uncomfortable” to 7 “extremely comfortable”). The items

were reverse coded and averaged into a reliable scale (gays and lesbians: Cronbach's $\alpha = .91$, $M = 3.79$, $SD = 1.71$; undocumented immigrants: Cronbach's $\alpha = .95$, $M = 4.38$, $SD = 1.85$).

Positive emotions. The same questions were used for measuring positive and negative emotions. Participants were asked to indicate how much they felt the following emotions while reading the comment on a 1 ("not at all") to 7 ("very much") scale: sympathetic, compassionate, enthusiastic, and hopeful. These items were combined into a single positive emotions scale (gays and lesbians: Cronbach's $\alpha = .93$, $M = 3.08$, $SD = 1.77$; undocumented immigrants: Cronbach's $\alpha = .92$, $M = 3.16$, $SD = 1.65$).

Negative emotions. On a parallel scale, participants also indicated how much they felt anxious and angry while reading the comment. We averaged these two items (gays and lesbians: Pearson's $r = .63$, $M = 2.24$, $SD = 1.55$; undocumented immigrants: Pearson's $r = .52$, $M = 2.38$, $SD = 1.55$).⁴

Analytical Strategy

In order to estimate the main effects from our conditions, we run four ANOVA models predicting general, symbolic and realistic threat, and also social distance toward both outgroups from direct (*H1a-d*) and extended (*H2a-d*) online contact, vis-à-vis the control groups. We report results from the pair-wise contrasts using Fisher's Least Squared Difference (LSD) to test our hypotheses. Because we have clear directional predictions, we report one-sided significance tests for testing the hypothesized group contrasts in ANOVA.

To examine whether positive and negative emotions mediate these effects (*H3a-d* – *H6a-d*), we run mediation models using a PROCESS macro (Hayes, 2013). PROCESS is a flexible computational tool suitable for estimating various mediation or moderation models. In our case, we follow procedures outlined for simple mediation involving categorical

⁴ Because the correlation between anger and anxiety was rather low, we also re-estimated all our mediation models with anger and anxiety separately. The mediation results for anger and anxiety towards gays and lesbians were identical to results with the aggregate negative emotion scale. The separated results for anger and anxiety toward undocumented immigrants, however, suggest that for this outgroup condition, the mediation was driven by a reduction in anxiety, not anger, toward the outgroup.

independent variables (see Hayes & Preacher, 2014), and utilized two indicator variables that tap into our two conditions (direct online contact and extended online contact), relative to the control condition, to estimate the indirect effects. The indirect effects (reported here as 95% confidence intervals) are estimated based on 5,000 bootstrapped samples. As a test of mediation, bootstrap methods are considered superior to alternative approaches such as the Sobel test, because it does not rely on the normality assumption of the indirect effect (Hayes, 2013).

Results

Main Effects of Direct and Extended Online Contact (*H1a-d, H2a-d*)

The first two sets of hypotheses posited a main effect from our conditions, direct and extended online contact, on our four dependent variables, general, symbolic, realistic threat, and social distance (see Table 1). As expected, direct online contact significantly reduced general threat (*H1a supported*; $M_{\text{control}} = 48.89$, $M_{\text{direct}} = 34.76$, $p = .013$) and symbolic threat (*H1b supported*; $M_{\text{control}} = 4.42$, $M_{\text{direct}} = 3.77$, $p = .030$), but not realistic threat (*H1c rejected*; $M_{\text{control}} = 3.89$, $M_{\text{direct}} = 3.65$, $p = .221$) towards gays and lesbians. Direct online contact also significantly reduced social distance towards that group (*H1d supported*; $M_{\text{control}} = 4.00$, $M_{\text{direct}} = 3.30$, $p = .017$). However, direct online contact did not significantly affect any of the four variables measuring threat and distance toward undocumented immigrants. In sum, our first set of hypotheses is only partially supported.

In contrast, extended online contact did not have any significant effects on general, symbolic or realistic threat and social distance, leading us to reject our second set of hypotheses (*H2a-d rejected*). This null effect was consistent for both outgroups studied. Addressing our research question (*RQ*), we also examined whether the direct and extended online contact conditions produced significantly different levels of threat and social distance. We find that direct online contact more successfully than extended online contact reduced

general threat ($M_{\text{extended}} = 51.59$, $M_{\text{direct}} = 34.76$, $p = .008$), symbolic threat ($M_{\text{extended}} = 4.50$, $M_{\text{direct}} = 3.77$, $p = .035$), as well as social distance towards gays and lesbians ($M_{\text{extended}} = 4.01$, $M_{\text{direct}} = 3.30$, $p = .033$). The two conditions did not differ in terms of realistic threat ($M_{\text{extended}} = 3.94$, $M_{\text{direct}} = 3.65$, $p = .370$), and did not differ in terms of threat or social distance towards undocumented immigrants (as suggested by the insignificant effects reported above).

Indirect Effects Through Positive Emotions (*H3a-d*, *H4a-d*)

Our next set of hypotheses examined the indirect effects of direct and extended online contact through both positive and negative emotions (see Table 2). As expected, direct online contact with both outgroups significantly increased positive emotions experienced while reading the comment (gays and lesbians $b = .91$, $p < .01$; immigrants $b = .57$, $p < .05$), which, in turn, significantly reduced general threat perceived from gays and lesbians ($b = -7.52$, $p < .01$) and undocumented immigrants ($b = -4.78$, $p < .01$), symbolic (gays and lesbians $b = -.50$, $p < .01$; immigrants $b = -.25$, $p < .01$) and realistic threat from both outgroups (gays and lesbians $b = -.34$, $p < .01$; immigrants $b = -.32$, $p < .01$), as well as social distance (gays and lesbians $b = -.41$, $p < .01$; immigrants $b = -.30$, $p < .01$). These consistent paths together resulted in a series of significant indirect effects from direct online contact through positive emotions on general threat (gays and lesbians Bootstrapped CI [-12.99, -2.04]; immigrants CI [-6.33, -.43]), symbolic threat (gays and lesbians CI [-.85, -.15]; immigrants Bootstrapped CI [-.33, -.03]), realistic threat (gays and lesbians CI [-.62, -.11]; immigrants CI [-.37, -.03]), and social distance (gays and lesbians CI [-.66, -.10]; immigrants CI [-.37, -.03]) (see Table 3). In sum, positive emotions experienced while reading a personal online post of an outgroup member were significant mediators of direct online contact effects, consistently across both issues, supporting our third set of hypotheses (*H3a-d supported*).

In contrast, extended online contact did not have any effects on positive emotions (gays and lesbians $b = .42$, $p = .205$; immigrants $b = .16$, $p = .555$; see Table 2), resulting in

insignificant mediation via positive emotions for extended contact (see Table 3; *H4a-d rejected*).

Indirect Effects Through Negative Emotions (*H5a-d, H6a-d*)

When it comes to our second mediator, as expected, direct online contact significantly decreased negative emotions, but only during online contact with gays and lesbians ($b = -.70$, $p < .05$) not with undocumented immigrants ($b = -.31$, $p = .210$). In turn, negative emotions significantly reduced general threat (gays and lesbians $b = 9.12$, $p < .01$; immigrants $b = 4.21$, $p < .01$), symbolic threat (gays and lesbians $b = .38$, $p < .01$; immigrants $b = .30$, $p < .01$), realistic threat (gays and lesbians $b = .45$, $p < .01$; immigrants $b = .21$, $p < .01$), and social distance (gays and lesbians $b = .43$, $p < .01$; immigrants $b = .35$, $p < .01$) toward both outgroups. The indirect effects of direct online contact through negative emotions were thus significant for all four outcome variables, but for gays and lesbians only, not for undocumented immigrants: general threat (gays and lesbians CI [-12.34, -1.49]; immigrants CI [-.77, 4.03]), symbolic threat (gays and lesbians CI [-.55, -.06]; immigrants CI [-.05, .28]), realistic threat (gays and lesbians CI [-.63, -.07]; immigrants CI [-.03, .22]), and social distance (gays and lesbians CI [-.59, -.08]; immigrants CI [-.06, .32]). As such, *H5a-d* is only partially supported.

In turn, extended online contact with undocumented immigrants ($b = -.52$, $p < .05$), not with gays and lesbians ($b = -.07$, $p = .807$) significantly reduced negative emotions, which were significantly associated with general, symbolic, and realistic threat, as well as social distance, as mentioned above. As a result, the effects of extended online contact with undocumented immigrants were significantly mediated through negative emotions for all four outcome variables (general threat CI [-4.84, -.43]; symbolic threat CI [-.34, -.03]; realistic threat CI [-.25, -.03]; social distance CI [-.37, -.04]). We find no significant indirect effects from extended online contact with gays and lesbians through negative emotions

(general threat CI [-4.99, 6.41]; symbolic threat CI [-.22, .25]; realistic threat CI [-.26, .29]; social distance CI [-.25, .28]). In sum, negative emotions were significant mediators of extended contact effects, but only with undocumented immigrants, leading to a partial support for *H6a-d*.

General Discussion

With its broad reach across groups and cultures, the Internet offers new opportunities for intergroup contact (Walther, 2009). Against this backdrop, we conceptualized online comments featuring experiences of an outgroup member as a venue for online intergroup contact, a conceptualization that is less demanding and more frequently encountered than the other approaches studied to date (e.g., Alvírez et al., 2015; White et al., 2015). Building on the work on intergroup contact from non-computer-mediated contexts, we examined two forms of online contact: learning first-hand about the personal experiences of a concrete outgroup member and exposure to an ingroup member talking about the outgroup. We also attended to the emotional mechanisms underlying these effects, one of the first study of this kind (see also White et al., 2015).

Our results substantiated some of our core theoretical claims, though somewhat different effects emerged for the two outgroups tested, gays and lesbian versus undocumented immigrants. First, *direct online contact* with a gay person improved outgroup attitudes relative to the control condition, or reading the very same information but presented in an impersonal way. A person who opposed policies advancing the rights of gays and lesbians, saw that group as less threatening and felt more comfortable in hypothetical interactions with gays and lesbians after reading a personal comment written by a gay person. Parallel effects did not emerge from direct online contact with undocumented immigrants. Also, *extended online contact* – or reading a post of an ingroup member who has an outgroup friend – did not generate any changes in participants' attitudes toward the two outgroups studied.

Attending to the main effects only, however, does not reveal the full picture of the beneficial effects from online intergroup interactions. Our second notable result regards *how* online contact may improve attitudes. When it comes to direct online contact, reading a personal story delivered by an outgroup member enhances positive emotions to a greater extent than exposure to parallel, impersonal, information about both outgroups, and these emotions reduce threat and social distance toward gays and lesbians as well as undocumented immigrants. Direct online contact – but only with a gay person – also makes people feel less anxious or angry than the control condition, which – in turn – improves attitudes toward gays and lesbians. In other words, direct online contact works through enhancing positive emotions and – for one of our outgroups tested – minimizing negative emotions.

In turn, extended online contact works through negative emotions, improving attitudes toward undocumented immigrants, not gays and lesbians. This finding is noteworthy given that undocumented immigrants were seen as more threatening than gays and lesbians, and also our participants reported greater social distance toward this particular outgroup. In a related vein, it is also likely that fewer people have had prior contact with undocumented immigrants (who make up about 3% of the US population; Zong & Batalova, 2016) than with gays or lesbians (about 9%; Gates, 2010). For both reasons, encountering an undocumented immigrant through an ingroup member may emerge as the “safest” venue for intergroup contact, one most suitable to attenuating negative emotions that may be otherwise associated with interactions with this outgroup, especially among people negative toward the outgroup to begin with. Although we cannot determine the precise reasons behind the distinct effects for the two outgroups, we speculate that extended online contact may be especially effective for generally disliked or otherwise stigmatized social groups, such as the homeless or the HIV positive, whereas direct online contact may successfully reduce prejudice toward groups

that are more widely accepted within a society. Systematically examining differences in contact effect based on outgroup type is an interesting topic for future inquiry.

It also needs to be acknowledged that our design cannot speak to the longitudinal nature of the effects. The posttest was administered immediately after exposure, and it is plausible that the effects were short-lived. Nevertheless, finding that short-term exposure did attenuate perceived threat from and social distance toward one of the two outgroups, and that it exerted effects through elicited emotions, is important in and of itself. It is likely that – if repeated or prolonged – online intergroup contact could have cumulative and durable effects. After all, up to certain point, each additional exposure produces added benefits (Zajonc, 1968). Also, online intergroup communication over extended time periods reduces outgroup bias among participants in experimentally created virtual groups (Walther et al., 2015; White et al., 2015). Future designs should incorporate delayed posttests to identify whether the “minimalistic” way in which we conceptualize online contact is similarly effective in improving intergroup attitudes in the long term.

In a related vein, the small effect sizes should be taken into account when considering the real world impact of our findings. Online contact reduced intergroup threat and social distance through the emotional mechanisms examined but only to a certain degree. Even so, we see hope in these small effects; online comments are such a simple and prevalent form of expression that anyone can be exposed to such messages and – if repeated – this exposure could have stronger effects. It should be noted that we relied on manipulations of online contact that were brief, one-shot, and text-based. The relative simplicity of this type of online contact is what makes it flexible and easy, and thus potentially impactful on a wide scale. We also studied a challenging online contact situation, in which people read counter-attitudinal messages written by outgroup members and advocating group-based policies that they personally do not support. It is difficult to shift individual attitudes toward social groups in

general, and especially toward a group toward which people are not particularly favorable. Crucially, the control comments advanced a pro-group message with parallel facts and arguments. To the extent that information *per se* improved attitudes, the effects of online contact emerge *above and beyond* these baseline effects of comparable information.

All in all, despite some limitations, our findings have important theoretical and methodological contributions. We advance the work on online intergroup contact by showing that online comments can, at times, produce contact effects. Conceptualizing online comments as a venue for intergroup contact, both direct and extended, can be advantageous as the focus shifts from overtime interactions between individuals to exposure to content. As such, our understanding of the core experience is less demanding, in that online contact does not require that people engage in prolonged or repeated contact, or develop a relationship with outgroup members. In fact, the communication need not be synchronous: comments left at any time can produce effects. This opens up more possibilities for contact to improve intergroup relations.

The second theoretical contribution lies in showing that emotional mechanisms underlie the effects from online intergroup contact, both direct and extended. Although often theorized, these mediators are rarely studied in general (see Pettigrew & Tropp, 2008), and especially in the increasingly important context of online intergroup contact. We have not only tested a range of emotions, but also juxtaposed positive and negative emotions as alternative mediators. Thus we were able to compare the mediational role of *both* positive and negative emotions in the same model controlling for each other, an improvement compared to past efforts that examined mediation via emotions in an online contact context (e.g., Abu-Rayya, 2017; White et al., 2015).

Methodologically, our design establishes that it is the online contact itself, not some other confounding factors, that matter. This is a substantial improvement over prior research,

which typically compares conditions with or without (or before or after) intergroup contact, either through mass media (Riggle, et al., 1996; Schiappa, et al., 2005 Study 2) or online (e.g., Walther et al., 2015). Because that work does not compare exposure to outgroup members with exposure to the same information about the outgroup, it cannot determine whether the effects are due to contact or information gain. Our study relied on comparable stimuli, equal in length and in the number of arguments provided, thus assuring that the results are not due to the information in the comment. Also, the stimuli for direct and extended contact only differed in terms of whether the source of the story was an outgroup or an ingroup member, respectively.

These findings are directly relevant for scholars and practitioners. Intergroup contact theory can be successfully applied to short online messages that convey counter-attitudinal information about outgroups, such as flyers, online campaign appeals or public service announcements. Finding that online comments are effective among those with negative outgroup attitudes could inform the design of campaign messages aiming to attenuate conflicts in diverse societies. Because for a cohesive and well-functioning democracy, citizens need to encounter people who are different from them, get to know their predicaments and develop mutual understanding (Mill, 1859/1993), research that further extends our findings is both timely and relevant.

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Table 1. Means and Standard Deviations by Condition

	General threat	Symbolic threat	Realistic threat	Social distance
<i>Gays and lesbians</i>				
Control	48.90	4.42	3.89	4.00
(<i>n</i> = 57)	(4.24)	(1.82)	(1.75)	(1.72)
Extended contact	51.59	4.50	3.94	4.01
(<i>n</i> = 56)	(4.27)	(1.71)	(1.70)	(1.77)
Direct contact	34.76	3.77	3.65	3.30
(<i>n</i> = 49)	(4.57)	(1.75)	(1.43)	(1.56)
<i>F</i> (2, 159)	4.10*	2.64†	.46	3.00*
Partial η^2	.05	.03	.01	.04
<i>Undocumented immigrants</i>				
Control	65.81	4.73	4.74	4.64
(<i>n</i> = 74)	(24.38)	(1.70)	(1.55)	(1.68)
Extended contact	64.96	4.77	4.85	4.21
(<i>n</i> = 79)	(29.27)	(1.82)	(1.76)	(1.94)
Direct contact	65.05	4.64	4.66	4.32
(<i>n</i> = 81)	(28.17)	(1.71)	(1.61)	(1.92)
<i>F</i> (2, 231)	.02	.13	.26	1.09
Partial η^2	.00	.00	.00	.01

* $p < .05$, † $p < .10$ *Note.* Cell entries represent group means and standard deviations unless stated otherwise.

Table 2. Estimated Coefficients for Multicategorical Mediation Model Using Indicator Coding for Same-sex Issue

	Positive emotions	Negative emotions	General threat		Symbolic threat		Realistic threat		Social distance	
<i>Gays and lesbians</i>										
Constant	2.66** (.23)	2.43** (.20)	48.90** (4.24)	46.75** (5.66)	4.42** (.23)	4.82** (.31)	3.89** (.22)	3.70** (.30)	4.00** (.22)	4.09* (.30)
D_1 (control v. extended)	.42 (.33)	.07 (.29)	2.70 (6.02)	5.20 (4.89)	.09 (.33)	.27 (.27)	.05 (.31)	.16 (.26)	.01 (.32)	.09 (.26)
D_2 (control v. direct)	.91** (.34)	-.70* (.30)	-14.14* (6.23)	-.93 (5.24)	-.65** ^a (.34)	.08 (.29)	-.24 (.32)	.39 (.28)	-.70* (.33)	-.09 (.28)
M_1				-7.52** (1.17)		-.50** (.06)		-.34** (.06)		-.41** (.06)
M_2				9.12** (1.35)		.38** (.07)		.45** (.07)		.43** (.07)
<i>Undocumented immigrants</i>										
Constant	2.92** (.19)	2.45** (.18)	65.81** (3.19)	69.47** (5.09)	4.73** (.20)	4.72** (.33)	4.74** (.19)	5.15** (.31)	4.64** (.22)	4.65** (.34)
D_1 (control v. extended)	.16 (.27)	-.52* (.25)	-.85 (4.44)	2.07 (4.16)	.04 (.28)	.23 (.27)	.11 (.27)	.26 (.25)	-.43 (.30)	-.20 (.28)
D_2 (control v. direct)	.57* (.26)	.31 (.24)	-.76 (4.41)	.65 (4.15)	-.10 (.28)	-.05 (.27)	-.08 (.26)	.03 (.25)	-.32 (.30)	-.26 (.28)
M_1				-4.78** (1.02)		-.25** (.07)		-.32** (.06)		-.30** (.06)
M_2				4.21** (1.11)		.30** (.07)		.21** (.06)		.35** (.07)

Note. Cell centres are regression coefficients with standard error in parentheses. D_1 denotes the group mean difference between control group and extended contact group under indicator coding. D_2 denotes the mean difference between the control group and the direct contact group under indicator coding (see Hayes & Preacher, 2014).

** $p < .01$, * $p < .05$, *^a one-tailed $p < .05$

Table 3. Bootstrapped Confidence Intervals for Indirect Effects of Direct (D_2) and Extended (D_1) Contact Through Positive and Negative Emotions

	Positive emotion (M_1)	Negative emotion (M_1)
<i>Gays and lesbians</i>		
General threat		
D_1 (control v. extended)	[-8.65, 1.41]	[-4.99, 6.41]
D_2 (control v. direct)	[-.12.99, -2.04]	[-12.34, -1.49]
Symbolic threat		
D_1 (control v. extended)	[-.55, .10]	[-.22, .25]
D_2 (control v. direct)	[-.85, -.15]	[-.55, -.06]
Realistic threat		
D_1 (control v. extended)	[-.41, .05]	[-.26, .29]
D_2 (control v. direct)	[-.62, -.11]	[-.63, -.07]
Social distance		
D_1 (control v. extended)	[-.45, .09]	[-.25, .28]
D_2 (control v. direct)	[-.66, -.10]	[-.59, -.08]
<i>Undocumented immigrants</i>		
General threat		
D_1 (control v. extended)	[-3.61, 1.56]	[-4.84, -.43]
D_2 (control v. direct)	[-6.33, -.43]	[-.77, 4.03]
Symbolic threat		
D_1 (control v. extended)	[-.19, .08]	[-.34, -.03]
D_2 (control v. direct)	[-.33, -.03]	[-.05, .27]
Realistic threat		
D_1 (control v. extended)	[-.23, .10]	[-.25, -.03]
D_2 (control v. direct)	[-.37, -.03]	[-.03, .21]
Social distance		
D_1 (control v. extended)	[-.22, .10]	[-.37, -.04]
D_2 (control v. direct)	[-.37, -.03]	[-.06, .33]

Note. 95% confidence intervals calculated from 5000 bootstrap samples.

Figure 1. Theoretical model of the indirect effects of direct and extended online contact on threat perceptions through emotions

(a) Gays and lesbians

(b) Undocumented immigrants

Note. Direct contact denotes the difference between the direct contact and control condition; extended contact denotes the difference between the extended contact and control condition. The numbers represent regression coefficients. Dotted lines indicate non-significant pathways. $^{**}p < .01$

Figure 2.