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What is This?

See Your Friends Close and Your Enemies Closer: Social Identity and Identity Threat Shape the Representation of Physical Distance

Y. Jenny Xiao[1] and Jay J. Van Bavel[1]

Abstract

Three studies demonstrated that collective identity and identity threat shape representations of the physical world. In Study 1, New York Yankees fans estimated Fenway Park, the stadium of a threatening out-group (but not Camden Yards, the stadium of a neutral out-group) to be closer than did non-Yankees fans. In Study 2, the authors manipulated identity threat among people affiliated (or not) with New York University (NYU). When Columbia University was portrayed as threatening to NYU, NYU affiliates estimated Columbia as closer than did non-affiliates, compared with when Columbia was nonthreatening. In Study 3, Americans who perceived more symbolic threats from Mexican immigration estimated Mexico City as closer. Collective identification with the in-group moderated effects of threat on distance estimations. These studies suggest that social categorization, collective identification, and identity threat work in concert to shape the representations of the physical world.

Keep your friends close, and your enemies closer.

Sun Tzu (~400 BC)

Extensive research has shown that collective identities—self-categories that define the individual in terms of similarities with members of certain social categories in contrast to other social categories—have a profound influence on social perception (e.g., Hastorf & Cantril, 1954; Oakes, Haslam, & Turner, 1994; Van Bavel & Cunningham, 2011). For example, when certain identities are salient, people perceive themselves and others as interchangeable exemplars of a social category rather than as unique individuals (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987; Turner, Oakes, Haslam, & McGarty, 1994). This research aims to extend this line of inquiry beyond representations of the *social* world: We examine whether collective identities also shape people's representation of the *physical* world. For centuries, philosophers have suggested that our internal representation of the world may not be veridical, but rather may be a construction of our experiences, motivations, and identities. This research examines whether social concerns permeate our perception and representation of the physical world. Specifically, we present three studies demonstrating that social categorization, collective identification, and identity threat work in concert to shape our estimations of physical distance.

Social Categorization and Social Identity

Categorization is the process of grouping stimuli according to similarities and differences (Rosch, 1978). A person may categorize himself on the basis of an individual identity, a collective identity, or both, depending on the current social and motivational context—a process known as self-categorization (Turner et al., 1987). Self and social categorization entails grouping people in a manner that makes sense to the perceiver and structures the social environment (Tajfel, 1974). Indeed, self-categorization with a social group can influence representations

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of the social world, leading to biases in memory (Bernstein, Young, & Hugenberg, 2007; Van Bavel & Cunningham, 2012), evaluation (Otten & Wentura, 1999; Van Bavel & Cunningham, 2009), brain function (Van Bavel, Packer, & Cunningham, 2008), and behavior (Tajfel, Bundy, Billig, & Flament, 1971). There is much lesser research exploring effects of self-categorization on perception and representation of the physical world.

Categorical labels make people exaggerate perceived distance between arbitrary categories (Tajfel & Wilkes, 1963), and self-categories (*us* vs. *them*) may also distort representations of the physical world, accentuating perceived differences between social categories and similarities within a social category—what we term the *categorization hypothesis*. Research has shown, for example, that people overestimate distance on a map between a domestic and a foreign location, relative to distance between two domestic locations or two foreign locations (Burris & Branscombe, 2005). Thus, categorization enlarges on-line estimations of between-group physical distances. Here, we explore how collective identities and identity threat alter estimates of large-scale physical distances beyond immediate visual input. According to the categorization hypothesis, variables that enhance between-group categorizations, such as collective identification and relative status differences between groups, may make physical distances between two groups seem larger.

Motivated Perception and Representation

The *New Look* in perception suggested that values and needs organize people's visual representations of the world (Balcetis & Lassiter, 2010; Bruner & Goodman, 1947). More recently, researchers have demonstrated influence of other motivational factors, such as perceived effort (Proffitt, Stefanucci, Banton, & Epstein, 2003) and desirability (Balcetis & Dunning, 2010), on perceptions of physical aspects of stimuli, such as distance. Motivation also influences *representations* of large-scale physical distances beyond the immediate visual range. For instance, positivity decreases represented distance, making a desired location appear closer in the mind's eye— termed the *positivity-closeness hypothesis* (Alter & Balcetis, 2010). Although several studies support this hypothesis, there may be times when it is useful to represent *undesirable* stimuli as closer. For example, Alter and Balcetis (2010) suggested that it may be functionally adaptive to represent potentially threatening locations as closer than they actually are to trigger adaptive behavior. In this research, we directly examine whether threat—particularly identity threat—can make potentially aversive locations seem physically closer.

Identity Threat

People are motivated to maintain positive feelings about their in-group (Tajfel & Turner, 1979), especially in the presence of identity threats (Branscombe, Ellemers, Spears, & Doosje, 1999). Researchers have proposed different categories of threats to one's social identity, and have shown how they may differentially affect intergroup attitudes and behaviors (Branscombe et al., 1999). For instance, identity threat can include categorization threat, distinctive threat, acceptance threat, and/or threat to the value of one's social identity. In particular, threat to the value of one's social identity occurs when the group's value is undermined (Branscombe et al., 1999). Previous research has also distinguished between different types of intergroup threats (Stephan, Renfro, Esses, Stephan, & Martin, 2005; Stephan, Ybarra, & Bachman, 1999). For example, symbolic intergroup threats concern threats to the worldviews of the in-group, including its values, morals, cultures, and attitudes (Stephan et al., 2005). In this research, we manipulate and measure symbolic threats to the value of one's social identity, and examine the effects on perceived distance to the threatening group.

It is important to note that the motivation to maintain a positive collective identity may manifest in different consequences depending on the type of identity threat (Doosje, Branscombe, Spears, & Manstead, 1998) and the psychological significance of a particular collective identity (Ashmore, Deaux, & McLaughlin-Volpe, 2004). In general, threats to the value of people's collective identity lead high-identifiers to engage in group-level defensive action, but often do not influence low-identifiers (Branscombe et al., 1999). Here we explore how intergroup identity threats affect people's distance estimations as a function of strength of their collective identification.

According to biologists, it is usually more adaptive for organisms to respond to potential threats as if they were truly threatening than to fail to respond (Bradley, Codispoti, Cuthbert, & Lang, 2001). Error Management Theory (Haselton & Buss, 2000) proposes that when judgments are made under uncertainty, natural selection has favored decision rules biased toward committing errors that are less costly. As such, it may be adaptive to represent a potential threat as physically closer or more imminent, triggering the cascade of reactions that prepare the body for appropriate action (Blanchard, & Blanchard, 1989; Lang, Bradley, & Cuthbert, 1997). Indeed, fearful people are more likely to perceive spiders as moving rapidly ("looming") toward them compared with those less fearful of spiders (Riskind, Moore, & Bowley, 1995), and anxiety-prone people represent negative emotional stimuli as if seen from a closer perspective (Mathews & Mackintosh, 2004). These reactions to biological threats may also apply to social threats (Roelofs, Hagenaars, & Stins, 2010). Therefore, we propose that certain threats to people's collective identities may trigger similar defensive reactions, such as *reducing* estimations of physical distance between the in-group and a threatening out-group—what we term the *threat hypothesis*.

Overview

In three studies we examined whether cognitive and motivational aspects of collective identity and identity threat could alter representations of physical aspects of stimuli. Specifically, we tested the hypothesis that motivation to maintain a positive collective identity, as enhanced by threats from a relevant out-group, could alter estimations of physical distance. Building on previous research demonstrating that material symbols can serve as representations of collective identity (Ledgerwood, Liviatan, & Carnevale, 2007), we had participants estimate physical distances between group-identity symbols (e.g., home stadium as the symbol of a baseball team). In three studies, we examined distance estimations in the context of different social identities (baseball teams, universities, and cities) and operationalized identity threat in several ways (examining threatening vs. nonthreatening out-groups, manipulating intergroup threat, and measuring subjective perceptions of threat).

According to the *categorization hypothesis*, if identity threats merely serve to enhance intergroup categorization, a threatening rival out-group should seem far away, especially among high-identifiers. Likewise, according to the *positivity-closeness hypothesis*, if identity threats make an out-group less positive, that group should seem far away, especially among high-identifiers. In contrast, according to the *threat hypothesis*, if it is more adaptive to represent a potential threat as closer or more imminent, a threatening out-group should seem close, especially among high-identifiers. In other words, the effect of particular identity threats may be qualitatively distinct from the mere accentuation of intergroup categorization.

Study 1: They Saw a Stadium

In 1951, the Dartmouth football team played Princeton in what turned out to be a controversial game. A classic article revealed that students from each university "saw" different versions of the same game, demonstrating how social identities can alter *social* perception (Hastorf & Cantril, 1954). In Study 1, we examined whether sports identities could likewise affect fans' representation of the *physical* world, in this case, their distance estimations. Specifically, we examined the relationship between identity and distance estimation among baseball fans at Yankee Stadium, the home stadium of the New York Yankees.

The New York Yankees and the Boston Red Sox have been rivals in Major League Baseball (MLB) for the past century—arguably the fiercest rivals in North American sports (e.g., Bauman, 2008). Although the Yankees have historically won more championships (27 vs. 7), the Red Sox have improved significantly in the past decade, posing a major threat to the Yankees. Previous research has shown that Yankees and Red Sox fans are more likely to display aggression toward a rival fan than toward a nonrival

Baltimore Orioles fan (Cikara, Botvinick, & Fiske, 2011). In Study 1, we examined whether Yankees fans would estimate the distance to Fenway Park (the home stadium of the Red Sox) versus Camden Yarks (the home stadium of the Orioles) differently than would fans of other teams.

Method

Participants. Spectators (46 Yankees fans and 27 non-Yankees fans)[1] outside Yankee Stadium (*N* = 73) participated in exchange for candy before the start of a series of games between the Yankees and Mets on June 18 to 19, 2010. At the time of data collection, the Yankees were in first place in the American League East, the Red Sox were in second place (1 game behind the Yankees), and the Orioles were in last place (23 games behind the Yankees).

Measures. Participants completed a questionnaire indicating their favorite MLB team, strength of collective identification with this team, and feelings toward several MLB teams. To assess participants' collective identification, we used a 12-item modified version of the collective identification scale (e.g., "In general, being a fan of this team is an important part of my self-image"; Leach, van Zomeren, Zebel, Vliek, Pennekamp, Doosje et al., 2008). Participants indicated their agreement with each statement on a 7-point scale (1 = *strongly disagree*, 4 = *neutral*, 7 = *strongly agree*). Half of the items were reverse coded (α = .85). We also used a modified feeling thermometer measure to assess feelings toward different MLB teams. Participants indicated how they felt toward each team (0 = *extremely cold or unfavorable*, 10 = *extremely warm or favorable*).

Participants then estimated distance from Yankee Stadium to Fenway Park (actual distance = 190 miles) and Camden Yards (170 miles). Camden Yards was chosen as the control location because it is the home of a nonthreaten out-group in the same division as the Yankees and Red Sox, and is a similar (albeit slightly shorter) distance from Yankee Stadium as Fenway Park. By random assignment, distance estimations were assessed by either a written report in miles, or a map measure, in which participants saw a map of Northeastern United States with a 500-mile-radius circle centered on Yankee Stadium and indicated the location of these two stadiums on two maps (see Figure 1 for stimuli). Two participants were excluded because they were not familiar with the measurement system, leaving 71 participants (45 Yankees fans and 26 non-Yankees fans). The reported effects were not moderated by the type of distance measure used, $F(1, 67) = 1.05$, $p = .31$, $\eta^2 = .02$. We therefore combined the two estimates (numerical and map) and transformed all map responses from millimeters to miles during analysis.[2]

After making distance estimations, participants indicated their familiarity with the three relevant areas (New York City, Boston, and Washington, D.C.), as well as their

Figure 1. Map response of distance estimation used in Study 1
Note: The circle represents a 500-mile radius with the Yankee Stadium at the center. Participants were instructed to put a dot where they thought Fenway Park/Camden Yards was on this map. 36 × 35 mm (300 × 300 DPI).
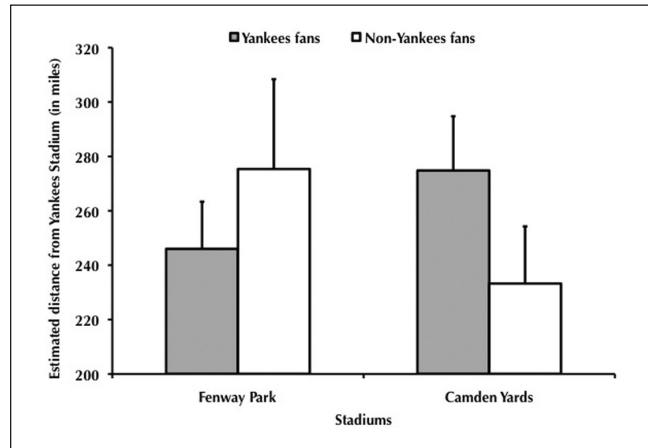

Figure 2. Mean distance from Yankee Stadium to Fenway Park of the Boston Red Sox and Camden Yards of the Baltimore Orioles, as estimated by both Yankees fans and non-Yankees fans
Note: Distance estimations from map responses were converted into miles prior to all analyses. Realistically, Fenway Park (~190 miles) is farther than Camden Yards (~180 miles) from Yankee Stadium. 202 × 144 mm (72 × 72 DPI).

confidence in their respective distance estimations. Participants' familiarity with Boston correlated with confidence with distance estimation to Fenway Park, $r = .34$, $p < .01$; familiarity with Washington correlated with confidence with distance estimation to Camden Yards, $r = .40$, $p < .01$. Therefore, confidence and familiarity were summed to create a composite index of *expertise* for each stadium. We used this expertise index as a covariate to ensure that the effect of identity on distance representation was not explained by differential expertise.

Results

Manipulation Check. To ensure that Yankees fans indeed felt positive toward the Yankees, negative toward the Red Sox, and relatively neutral toward the Baltimore Orioles, we examined feelings toward the three teams. A 2 (baseball identity: Yankees vs. non-Yankees fans) × 3 (team: Yankees, Red Sox, Orioles) mixed-model ANOVA revealed a significant interaction, $F(2, 65) = 38.48$, $p < .01$, $\eta^2 = .54$. As predicted, Yankees fans reported feeling warmer toward the Yankees ($M = 9.70$) than did non-Yankees fans ($M = 4.08$), $t(69) = 9.58$, $p < .01$, $d = 2.36$; similarly neutral toward the Orioles ($M = 4.16$), as non-Yankees fans ($M = 4.04$), $t(66) = .28$, $p = .78$, $d = .07$; and colder toward the Red Sox ($M = 1.58$), compared with non-Yankees fans ($M = 3.77$), $t(67) = 3.50$, $p < .01$, $d = .87$.

Distance Estimations. Based on the *threat hypothesis*, we predicted that Yankees fans would estimate the home stadium of a threatening out-group (Red Sox) to be physically closer compared with the home stadium of a nonthreatening out-group (Orioles), whereas non-Yankees fans should not show this pattern. Because Fenway Park (190 miles) is slightly farther than Camden Yards (170 miles), our hypotheses are framed in terms of interaction effects in which the differential estimated distance between Fenway Park and Camden Yards is either exaggerated (*categorization* and *positivity-closeness hypotheses*) or attenuated (*threat hypothesis*) among Yankees fans relative to non-Yankees fans.

Distance estimations in this study were skewed and were therefore log transformed before the following analyses. Transformed distance estimations were subjected to a 2 (stadium: Fenway Park vs. Camden Yards) × 2 (baseball identity: Yankees vs. non-Yankees) mixed-model ANOVA. As predicted, a significant stadium × baseball identity interaction emerged, $F(1, 67) = 5.27$, $p = .03$, $\eta^2 = .07$ (Figure 2). Non-Yankees fans correctly estimated that Fenway Park ($M = 277$ miles) was marginally *farther* than Camden Yards ($M = 233$ miles), $t(25) = 1.77$, $p = .089$, $d = .35$. In contrast, Yankees fans estimated that Fenway Park ($M = 247$ miles), the home stadium of a threatening out-group, was marginally *closer* than Camden Yards ($M = 275$ miles), the home stadium of a nonthreatening out-group, $t(44) = -1.80$, $p = .079$, $d = -.27$. Therefore, the relative difference in distance estimations to the two stadiums (Fenway Park and Camden Yards) differed as a function of the perceivers' baseball identity—being a fan of the Yankees or not.

Controlling for Expertise. To ensure that the effect of identity on distance estimation was not explained by differential expertise, we analyzed distance estimations using a 2 (stadium: Fenway Park vs. Camden Yards) × 2 (baseball identity: Yankees vs. non-Yankees) mixed-model ANCOVA in which expertise was entered as a covariate. Importantly, the interaction between stadium and baseball identity remained significant after controlling for expertise with Boston and D.C., $F(1, 65) = 4.93$, $p = .03$, $\eta^2 = .07$,[3] indicating that the effects of social identity on distance estimation could not be explained by differential familiarity or confidence.

Discussion

This study is consistent with our hypothesis that cognitive and motivational aspects of collective identity can alter representations of the physical world, and that locations imbued with threat (vs. no threat) to one's social identity are estimated as closer to oneself. Yankees fans estimated the stadium of a threatening team to be physically closer, relative to the stadium of a nonthreatening team, compared with non-Yankees fans.

Nevertheless, we acknowledged two limitations. First, we utilized a historically salient intergroup threat (the Red Sox vs. the Yankees), which was heightened in the context in which we collected data—at Yankee Stadium when the teams were in a close fight for first place in the division. Although the results of the feeling thermometers were consistent with the threat hypothesis, showing that Yankees fans (vs. non-Yankees fans) felt positive toward the Yankees, negative toward the Red Sox, and neutral toward the Orioles, we decided to experimentally manipulate threat (Study 2) and measure subjective feelings of threat (Study 3). Second, although we gained confidence in the presence of strong intergroup threats by using an in-group with which most participants (ticket-buying Yankees fans) were highly identified, we lacked the ability to capture variation in strength of collective identification with the in-group (the Yankees) and examine whether it would moderate the effect of identity threat on distance estimation. Therefore, in the following studies we examined groups with which participants' collective identification was less extreme.

Study 2: Threat to University Identity

We made two major changes in Study 2. First, to strengthen our confidence in the construct of identity threat, we experimentally manipulated threat. Instead of using a chronically threatening out-group, we presented participants (mostly New York University [NYU] students and staff) with a *potentially* threatening out-group (Columbia University) and experimentally manipulated the salience of intergroup threat. Columbia University and NYU are both prominent universities in New York City, and compete in a variety of domains (e.g., admissions, collegiate sports). Although both universities have strong reputations, Columbia is older, more selective, and consistently ranked higher than NYU on measures of institutional prestige. Based on the threat hypothesis, we predicted that NYU-affiliated (vs. non-NYU) participants would estimate Columbia to be relatively closer when they were under identity threat from a negative comparison with Columbia, and these effects would be attenuated when Columbia was not portrayed as threatening. Moreover, we predicted that the effect of identity threat would be specific to distance estimation to Columbia, and not other, nonthreatening universities in New York City (e.g., Hunter College).

Second, we examined whether the degree to which people identified with their in-group would moderate effects of identity threat on distance estimation. People vary in the extent to which they identify with different groups, and the strength and significance of their collective identification moderate attitudes and behaviors toward in-group and out-group members (Ashmore et al., 2004; Hirt, Zillmann, Erickson, & Kennedy, 1992; Tajfel, 1974; Wann & Branscombe, 1990). We reasoned that identity threat would be relevant to participants to the extent that they identified with the threatened group. In Study 2, we examined whether effects of identity threat on distance estimation among NYU affiliates were moderated by strength of their collective identification with the in-group (NYU).

Method

Participants and Location. NYU-affiliated ($n = 54$; M age = 23.35, $SD = 7.53$) and unaffiliated ($n = 79$; M age = 30.78, $SD = 12.11$) individuals were recruited from several locations around NYU.[4]

Measures. Participants were randomly assigned to either identity threat or control condition. Participants first read an ostensible news article from *US News and World Report*, which either portrayed Columbia as a superior rival to NYU (threat condition), or focused equally on the positive aspects of both universities (control condition). Similar manipulations have proven effective in altering perceptions of interuniversity threats (Morrison, Fast, & Ybarra, 2009).

Participants then indicated their university affiliation. NYU-affiliated participants filled out the collective NYU identification scale, and non-NYU individuals were asked to skip this section because it did not apply to them. To assess participants' identification with their university, we used a 12-item modified version of the collective identification scale (e.g., "In general, being a member of this university is an important part of my self-image"; Leach et al., 2008). Participants indicated the extent to which they agreed or disagreed with each statement on a 7-point scale (−3 = *strongly*

disagree, 0 = *neutral*, 3 = *strongly agree*). Half of the items were reverse-coded (α = .84). We also used a feeling thermometer measure to control for participants' feelings toward different universities in New York. Participants rated how cold or warm they felt toward each university (−5 = *extremely cold or unfavorable*, 5 = *extremely warm or favorable*).

Participants then estimated the distance from NYU to Columbia University (actual distance = 6 miles) and Hunter College (actual distance = 3 miles) by marking a dot on a line representing 10 miles. We selected Hunter College because it is a nonthreatening and relatively well-known university in New York City. Individuals who marked outside of the line (*n* = 2) were excluded from data analysis, leaving 131 participants (53 NYU-affiliated and 78 non-NYU participants).

After making distance estimations, participants indicated familiarity with three relevant areas associated with the universities (Greenwich Village of NYU, Morningside Heights of Columbia, and Upper East Side of Hunter College), and confidence in the respective distance estimations. Participants' familiarity with each neighborhood (e.g., Morningside Heights) was correlated with their confidence in distance estimation of each university (e.g., Columbia), mean r = .31, p < .01. Therefore, confidence and familiarity measures were summed to create an expertise index, which we used as a covariate for all analyses, to ensure the effect of identity threat on distance estimation was not explained by differential expertise.

Results

Manipulation Check. We assessed whether NYU-affiliated participants felt less positive toward Columbia University than did non-affiliates, and whether our threat manipulation made Columbia seem more positive relative to the control condition.[5] As predicted, NYU-affiliated participants felt less positively toward Columbia (*M* = 1.31), compared with non-NYU participants (*M* = 2.02), $t(126)$ = 1.90, p = .06, d = .34.

According to the *positivity-closeness hypothesis* (Alter & Balcetis, 2010), more desirable locations should be represented as physically closer. Because our manipulation in the "threat" condition focused on the positive aspects of Columbia, this manipulation should make Columbia threatening in the eyes of NYU-affiliated individuals. However, one may argue that it also makes Columbia seem more positive, which would provide an alternative mechanism for the closeness in distance perception—namely, the *positivity-closeness hypothesis.* Therefore, it was important to confirm that our threat manipulation, relative to the control condition, did not make Columbia seem more positive to participants. Because we counterbalanced the order in which participants read the threat manipulation article and completed the feeling thermometer, we conducted a 2 (university affiliation: NYU vs. non-NYU) × 2 (condition: identity threat vs. no threat) ANOVA on only those participants who read the manipulation article before completing the feeling thermometer

(*n* = 62). As reported previously, we found that overall NYU-affiliated participants felt less positive toward Columbia (*M* = 1.00) than did non-NYU participants (*M* = 2.36), $F(1, 58)$ = 5.50, p = .02, η^2 = .09. More important, the threat manipulation did not have a significant effect on participants' feelings toward Columbia, $F(1, 58)$ = .03, p = .62, η^2 = .00. If anything, participants who read the threat article felt *less* positive toward Columbia (*M* = 1.65) compared with those in the control condition (*M* = 2.09). The effect of university affiliation on feelings toward Columbia was not qualified by an interaction between university affiliation and condition, $F(1, 58)$ = .03, p = .87, η^2 = .00. In sum, our threat manipulation did *not* make NYU affiliates feel more positive toward Columbia; if anything, it made them feel more negative. Thus, positivity-closeness hypothesis could not have accounted for closeness in distance estimations.

University Affiliation and Identity Threat. This study was designed to test the effect of social identity (i.e., university affiliation) and identity threat on estimation of physical distance, by experimentally manipulating the salience of identity threat. Because our threat manipulation emphasized aspects in which Columbia was superior to NYU, it should have heightened the categorization effect for non-NYU participants, while serving as an identity threat for NYU-affiliated participants. Based on the categorization hypothesis, we expected non-NYU participants to estimate that Columbia was farther away when it was threatening. In addition, based on the threat hypothesis, we expected NYU affiliates to estimate that Columbia was closer when it was portrayed as threatening, compared with when threat was absent.

We conducted a 2 (university affiliation: NYU vs. non-NYU) × 2 (condition: identity threat vs. no threat) ANOVA on distance estimations to Columbia University and Hunter College. As predicted, the interaction between university affiliation and the identity threat manipulation had a significant effect on estimated distance to Columbia University, $F(1, 127)$ = 4.05, p < .05, η^2 = .03. As shown in Figure 3, among people who were *not* affiliated with NYU, the distance between Columbia and NYU was estimated to be larger when Columbia was portrayed as a threat to NYU (*M* = 6.27 miles),[6] compared with when it was portrayed as an equivalently good school (*M* = 5.18 miles), $t(76)$ = −2.02, p < .05, d = −.53. This is consistent with the idea that the identity threat manipulation accentuated effects of categorization between NYU and Columbia for individuals unaffiliated with NYU by making the interuniversity differences salient (see Harnad, 1987; Tajfel & Wilkes, 1963, for *categorical perception effect*). When the identity threat manipulation was self-relevant, it attenuated the categorization effect.[7] These results are consistent with previous research showing that social categorization affects distance estimations differently depending on whether the social categories were relevant to the *self* (Burris & Branscombe, 2005). Taken together,
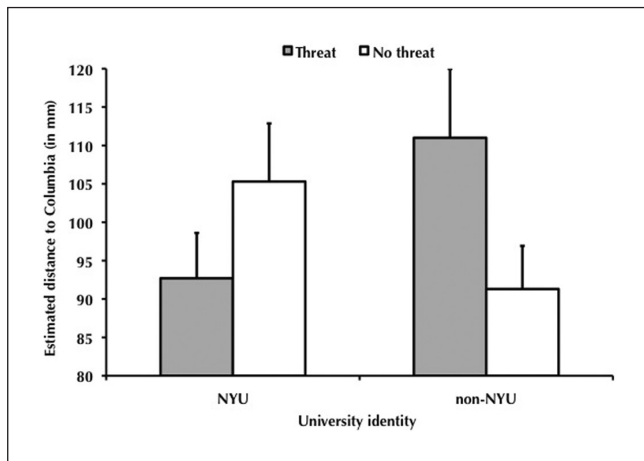
Figure 3. Mean distance from NYU campus to Columbia University campus estimated by NYU-affiliated and non-NYU individuals, as a function of whether they were under identity threat or not

Note: NYU = New York University. Non-NYU individuals perceived Columbia to be farther away when they read the threat (vs., equal status) article, whereas this pattern was not observed for NYU-affiliated individuals. 197 × 136 mm (72 × 72 DPI).

Figure 4. Mean distance from NYU campus to Columbia University campus estimated by NYU-affiliated individuals in the presence or absence of identity threat, as a function of differential strength of collective identification with NYU

Note: NYU = New York University. In the absence of identity threat, highly identified individuals perceived the out-group to be farther away, compared with low-identifiers, whereas identity threat eliminated this difference. 176 × 125 mm (72 × 72 DPI).

these results suggest that identity threat may alter the effect of categorization, making the threatening out-group seem relatively closer.

Specificity of Identity Threat. Previous research has shown that the effects of threat are usually specific to the groups posing the threat, and do not generalize to other out-groups (Branscombe & Wann, 1994). To determine whether the effect of identity and identity threat on distance estimation in our study was specific to the threatening group, we analyzed distance estimations to Hunter College with a 2 (university affiliation: NYU vs. non-NYU) × 2 (condition: identity threat vs. no threat) ANOVA. As predicted, there was no main effect of university affiliation, $F(1, 127) = .42$, $p = .52$, $\eta^2 = .00$, or threat manipulation, $F(1, 127) = .48$, $p = .49$, $\eta^2 = .00$, on distance estimations to Hunter College. More important, there was no interaction between university affiliation and identity threat on distance estimations to Hunter College, $F(1, 127) = .11$, $p = .74$, $\eta^2 = .01$. This suggests that the effect of identity threat was specific to the out-group posing the salient threat (i.e., Columbia) and did not generalize to other out-groups.

Controlling for Expertise. To ensure the effect of identity threat on distance estimation was not explained by differential expertise, we analyzed distance estimations using a 2 (university affiliation: NYU, non-NYU) × 2 (condition: identity threat, no threat) mixed-model ANCOVA with expertise as a covariate. The interaction between university affiliation and identity threat condition remained marginally significant
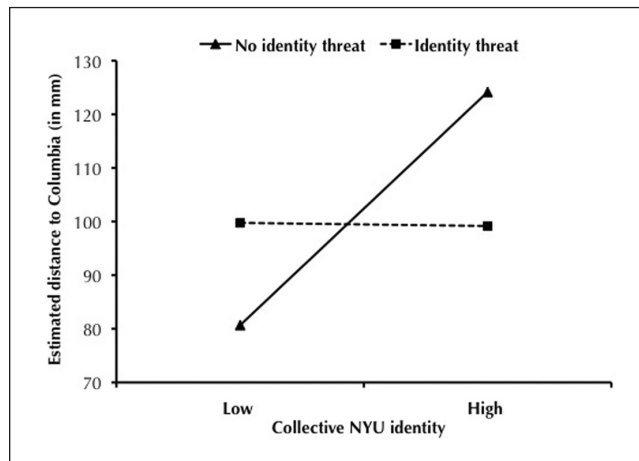
after controlling for participants' expertise with Columbia, $F(1, 125) = 3.39$, $p = .068$, $\eta^2 = .03$.[8] This suggests that the effect of identity threat could not be explained by participants' expertise with the area.

Collective Identification and Identity Threat. To examine whether identity threat affects distance estimation differently as a function of collective identification, we conducted a multiple regression analysis. A collective identification score was calculated for each NYU-affiliate who completed the collective identification scale ($n = 51$). We dummy-coded identity threat condition (*identity threat* = 1, *no threat* = 0), mean-centered collective identification, and computed an interaction term between these variables (Aiken & West, 1991). As predicted, collective identification with NYU moderated the effect of identity threat on distance estimations to Columbia, $t(47) = 2.37$, $p = .02$, $\beta = -.66$ (see Figure 4). Among high-identifiers, NYU affiliates under identity threat estimated Columbia as significantly closer, compared with those in the control condition, $t(47) = -2.34$, $p = .02$, $\beta = -.53$. However, there was no effect of identity threat on low-identifiers, $t(47) = 1.18$, $p = .24$, $\beta = .23$. These results support our hypotheses (the *categorization hypothesis* and the *threat hypothesis*): Identity threat serves as mere categorization enhancer for *low-identifiers* to whom the intergroup threat bears little or no subjective relevance, increasing distance estimations; but has an opposite impact on *high-identifiers*, affecting their distance estimation to the threatening out-group in the opposite direction—making it seem physically closer to themselves.

Moreover, among all NYU-affiliated individuals, when Columbia was portrayed as nonthreatening, stronger collective identification with NYU was associated with larger estimated distance to Columbia, $r = .58$, $p = .01$. Consistent with the categorization hypothesis, in the absence of identity threat, the more identified a person is with the in-group, the farther away the out-group seems. More importantly, when Columbia was portrayed as a threat to in-group identity, this categorization effect was overridden by the effect of identity threat. In sum, identity threat affected distance estimations as a function of the strength of perceivers' in-group identification.

Discussion

The first two studies demonstrate that the interaction between participants' social identity and intergroup threat affected distance estimation to a potentially threatening out-group. In Study 2, reading about the superior status of Columbia University relative to NYU functioned as a categorization enhancement for non-NYU participants, making Columbia seem farther away from NYU, whereas the same manipulation constituted an identity threat to NYU-affiliated participants, making Columbia seem relatively closer to NYU. The fact that the categorization effect *appears* to be absent for NYU-affiliated individuals is in accordance with our argument that there is an additional force—identity threat—at play for NYU individuals, but not for non-NYU individuals. In other words, our manipulation functioned as a category enhancer for everybody (NYU and non-NYU), but *only* an identity threat for NYU individuals. This should also explain why among NYU individuals, distance estimation to Columbia in the two conditions did not differ significantly—the "threat" manipulation served to both enhance between-group categorization (which should increase distance estimations) and also act as an identity threat (which should decrease distance estimations). These two opposing forces work against each other in affecting distance perception, and therefore it is with the non-NYU individuals that we can see the categorization effects operate in a more straightforward manner.

We also made a conceptual advance from Study 1 by showing that collective identification moderated the effect of identity threat on distance estimation. Previous research has shown that threats to the value of one's social identity lead to different behavioral manifestations in high versus low identifiers (Branscombe et al., 1999). Our findings add that identity threat also has a distinct impact on estimates of physical distance in high versus low identifiers of the threatened group. Study 3 measured *subjective* feelings of threat to provide direct evidence for the relationship between identity threat and distance estimations.

Study 3: Perceived Threat From Mexican Immigration

We had three major goals in Study 3. First, we attempted to further clarify the findings from the previous two studies by providing evidence that identity threat interacted with collective in-group identification to predict estimations of physical distance. Although we examined real groups with chronic identity threat in Study 1 and manipulated the salience of identity threat in Study 2, we did not directly measure perceived threat in either study. Therefore, in Study 3 we directly measured participants' *subjective perception* of threat from another social group and examined the linear relationship between subjective threat and distance estimates.

Second, we sought to replicate and extend our previous findings to an intergroup context with important implications for social policy: Mexican immigration. Although immigration has been a major source of population and economic growth in America, Americans have a history of intolerance and hostility toward immigrants (Deaux, 2006; Morganthau, 1993). Recently, several U.S. states have erected a partial fence along the U.S.–Mexico border and enacted a series of controversial immigration laws to help prevent illegal immigration from Mexico (e.g., Lacey, 2010). In this study, we examined whether American participants' subjective feeling of threat from Mexican immigration were associated with their distance estimations to Mexico City. Moreover, we predicted that the effects of identity threat would be specific to distance estimation to Mexico City, and would not generalize to other, nonthreatening cities in North America (e.g., Los Angeles and Vancouver).

Third, we measured two types of threats. According to previous research, different types of intergroup threats may engender qualitatively distinct behavioral consequences (Stephan et al., 1999; Stephan et al., 2005). In Study 3, we examined the effects of perceived *symbolic threat* and *realistic threat* from a potentially threatening immigrant group, on distance estimations to the target location, and whether this relationship would vary as a function of the strength of people's collective identity (Stephan et al., 1999). Symbolic threat concerns threats to the worldviews of the in-group, including values, beliefs, morals, cultures, and attitudes, whereas realistic threat concerns threats to the political and economic power of the in-group, as well as threats to the welfare of its members (Stephan et al., 2005). These two forms of threat were not empirically distinguished in the previous two studies, so it was unclear whether symbolic, realistic or both forms of threat moderated distance estimations.

Method

Participants. American undergraduate students ($N = 329$; M age $= 18.8$, $SD = 1.1$) at NYU completed our questionnaire as part of a larger testing session for partial course credit.

Measures. Participants first completed a measure of their collective American identification. To assess participants' identification with America, we used a 3-item modified version of the collective identification scale (Van Bavel &

Cunningham, 2012), which included items such as "I am proud to be an American." Participants indicated the extent to which they agreed or disagreed with each statement on a 7-point scale (1 = *strongly disagree*, 4 = *neutral*, 7 = *strongly agree*). One of the three items was reverse coded (α = .81).

Participants then reported their levels of perceived symbolic and realistic threats from Mexican immigration on a 4-item modified version of the perceived Symbolic Threat scale and a 4-item modified version of the perceived Realistic Threat scale (Stephan et al., 1999). Our Symbolic Threat scale included items such as "Immigration from Mexico is undermining American culture" (α = .55). Our Realistic Threat scale included items such as "Mexican immigration has increased tax burden on Americans" (α = .64). Participants indicated the extent to which they agreed or disagreed with each statement on a 7-point scale (1 = *strongly disagree*, 4 = *neutral*, 7 = *strongly agree*). Half of the items on each scale were reverse coded.

Participants then estimated the distance in a straight line from New York City to Mexico City, Mexico (actual distance = 2,086 miles), Los Angeles, USA (actual distance = 2,443 miles), and Vancouver, Canada (actual distance = 2,425 miles). We included Los Angeles as a domestic control city and Vancouver as a nonthreatening foreign control city. All three cities are major metropolitan areas of similar distance from New York City. Participants were instructed to estimate these distances by indicating a number between zero and five thousand miles.

Results

Symbolic and Realistic Threat. To examine whether symbolic and realistic threat predicted decreases in estimated distance to the threatening group, we conducted a multiple regression analysis. We calculated a composite symbolic threat score and a composite realistic threat score for each participant ($n = 328$).[9] We mean centered both threat scores and computed an interaction term between them (Aiken & West, 1991). We regressed estimated distance to Mexico City on perceived symbolic threat, perceived realistic threat, and the interaction term. As predicted, perceived symbolic threat significantly predicted estimated distance to Mexico City, $t(325) = -2.14$, $p = .03$, β = −.14. Specifically, greater perceived symbolic threat from Mexican immigrants was associated with *shorter* estimated distance to Mexico City (from New York City). Perceived realistic threat, "however," $t(325) = -2.66$, $p = .79$, β = −.02, and the interaction between perceived symbolic and realistic threat, $t(325) = -1.42$, $p = .16$, β = −.08, however, did not predict estimated distance to Mexico City.

Specificity of Identity Threat. To determine whether the effect of symbolic threat on distance estimation was specific to the threatening out-group (Mexico City), we independently regressed estimated distance to Los Angeles and Vancouver on perceived symbolic threat, perceived realistic threat, and the interaction term. As a result, perceived symbolic threat, perceived realistic threat, and the interaction were not related to distance estimations to Los Angeles ($ps < .30$) or Vancouver ($ps < .21$). This suggests that the effects of perceived symbolic threat on distance estimation were specific to the locations imbued with the relevant intergroup identity threat, and did not generalize to other, nonthreatening in-group or out-group locations.

Perceived Symbolic Threat and Collective American Identity. Results from Study 2 suggested that collective identification with the in-group could moderate the effect of identity threat on estimated distance to the threatening out-group. In this study, we conducted a multiple regression analysis to examine the effects of perceived symbolic threat from Mexican immigrants on distance estimation as a function of participants' collective American identification. We mean centered collective American identity and perceived symbolic threat, and computed an interaction term between these variables (Aiken & West, 1991). We regressed estimated distance to Mexico City on perceived symbolic threat, collective American identity, and the interaction term. Replicating the results from Study 2, the interaction between collective American identity and perceived symbolic threat was marginally associated with estimated distance to Mexico City, $t(326) = -1.90$, $p = .058$, β = −.11 (see Figure 5). Specifically, among high U.S. identifiers, higher levels of perceived symbolic threat from Mexican immigration were marginally associated with closer estimated distance to Mexico City, $t(326) = -1.66$, $p = .097$, β = −.13. However, among low-identifiers, perceived symbolic threat from Mexican immigrants was not significantly associated with estimated distance to Mexico City, $t(326) = .92$, $p = .36$, β = .67. More importantly, the interaction between collective American identity and perceived symbolic threat did not predict estimated distance to Los Angeles ($p = .38$) or Vancouver ($p = .70$), indicating that the effects of perceived symbolic threat on distance estimation as a function of collective identification were specific to the group posing the symbolic identity threat, and not other nonthreatening out-groups.[10]

Discussion

In Study 3, we accomplished three major goals. First, we directly measured participants' subjective perception of threat, and examined its effect on estimations of distance to the threatening out-group. Second, we extended findings from the previous two studies to a new target group—Mexican immigrants, and examined real-world threats that may be particularly salient in current times. Last, we conceptually replicated our findings from Study 2 with a subjective measure of symbolic threat. American participants' subjective feeling of symbolic threat from Mexican immigrants predicted their estimated distance to Mexico City, as a function of the strength of their American identity. This pattern of results is also conceptually consistent with the results of Study 2 showing that identity threat—particularly
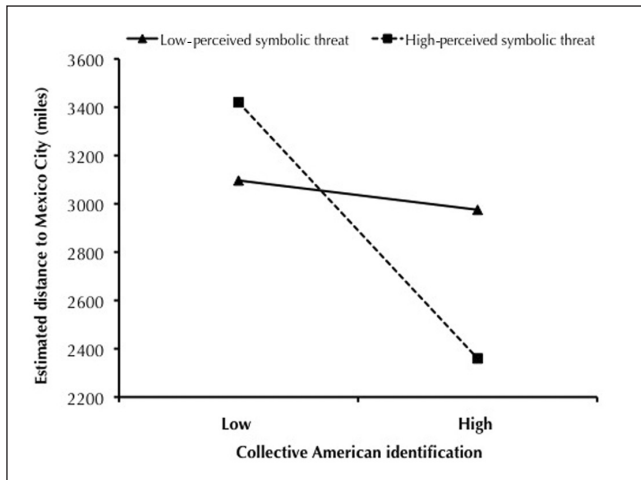
Figure 5. Mean distance from New York City to Mexico City estimated by participants who reported varying degrees of symbolic threat from Mexican immigrants, as a function of the strength of their collective American identity
Note: Perceived symbolic threat from Mexican immigrants predicted estimated distance to Mexico City for high-identifiers, but not for low-identifiers. 181 × 136 mm (72 × 72 DPI).

threats to the value of one's in-group—exerts a significant impact on high-identifiers of the threatened group, and not on low-identifiers (see also Branscombe et al., 1999). Moreover, we demonstrated that these effects were specific to the target out-group location imbued with the threat, and did not generalize to other, nonthreatening in-group or out-group cities.

As previous research indicates, intergroup threat is a multidimensional construct, and different types of threat may engender distinct consequences (Stephan et al., 1999; Stephan et al., 2005). In this study, participants' perceived symbolic threat interacted with their collective American identity to influence distance estimation to the threatening out-group. This is not surprising given that symbolic threat best captures the type of identity threat (i.e., threat to value) employed in Studies 1 and 2. Moreover, concepts of social identity and identity threat have largely built on abstract and symbolic values of the in-group (Branscombe et al., 1999; Tajfel & Turner, 1979), which corresponds well to symbolic threat (Stephan et al., 2005).[11] We included both symbolic threat and realistic threat in our analyses because it provides empirical evidence of the specificity of symbolic threat in this research.

General Discussion

Cognitive and motivational aspects of social identity and identity threat may shape our representations of the physical world. According to the categorization hypothesis,

constructs and processes that enhance between-group categorization may make the physical distance between two groups seem larger. In contrast, according to the threat hypothesis, if it is adaptive to represent a potential threat as closer or more imminent, a threatening out-group should seem close, especially among high-identifiers. To address this issue, we investigated the effects of the chronic threat experienced by baseball fans, experimentally manipulated the salience of intergroup identity threat between two universities, and directly measured subjective perceptions of identity threat associated with immigration. Across three diverse paradigms, we found consistent evidence that social categorization, collective identification, and identity threat work in concert to shape our representations of the physical world, particularly distance estimation. We showed that the relationship between identity threat and distance estimation held even when controlling for expertise with the specific locations. In addition, these effects did not extend to people who were unaffiliated with the threatened group or to nonthreatening in-groups or out-groups.

Specifically, results from Study 1 indicated that non-Yankees fans estimated Fenway Park as farther away than Camden Yards—consistent with the actual relative distances. In contrast, Yankees fans estimated Fenway Park as relatively closer than Camden Yards. We theorized that this pattern resulted from the identity threat experienced by Yankees fans, given the fierce rivalry between the Yankees and Red Sox, as well as their strong identification with the Yankees. To directly test this hypothesis, we experimentally manipulated the salience of identity threat in Study 2. Among non-NYU affiliates, Columbia was estimated to be relatively farther away from NYU when it was portrayed as a threat (vs. no threat) to NYU, which is consistent with the notion that our threat manipulation enhanced the intergroup categorization for individuals *not* affiliated with the threatened group—the categorization hypothesis. In contrast, the opposite pattern was observed among NYU affiliates—they estimated Columbia to be relatively closer when it posed an identity threat—the threat hypothesis. More importantly, identity threat did not affect estimations of distance to Hunter College, a neutral out-group. In Study 3, individuals' subjective perception of symbolic threat from Mexican immigrants predicted decreased distance estimation to Mexico City among those who identify strongly as Americans, but not among low-identifiers. As predicted, none of these patterns emerged for control cities–Los Angeles or Vancouver–indicating that the effects of identity threat on distance estimation were specific to the out-group posing the symbolic threat.

Taken together, these studies support our hypothesis that when intergroup threat is irrelevant to the perceiver, the effect of categorization dominates, making the intergroup distance seem larger, but when identity threat is motivationally relevant, the pattern appears to reverse: People estimate the

threatening out-group to be physically closer. In particular, the perceivers' *subjective* feeling of symbolic threat from an out-group affects their estimations of physical distance, as a function of their collective identification with the threatened in-group.

Categorization and Motivational Influences

This research extends previous findings on motivated perception and representation. Consistent with positivity-closeness hypothesis, people report that desired objects are closer (Balcetis & Dunning, 2010), even when they are outside the immediate perceptual range (Alter & Balcetis, 2010). Consistent with the positive-closeness hypothesis, when Columbia was *not* portrayed as a threat (Study 2), the more positively NYU affiliates regarded their in-group (NYU) identity, the farther away the less positive out-group (Columbia) seemed. More interestingly, this pattern was reversed under identity threat: When identity threat was present, NYU-affiliated participants estimated the threatening out-group to be physically closer.

This research also extends previous findings on the effect of categorization on distance estimation (e.g., Burris & Branscombe, 2005, Tajfel & Wilkes, 1963). Burris and Branscombe (2005) showed that the categorization of us versus them accentuated estimation of between-category distances, compared with within-category distances. We showed that when identity threat was absent, distance estimations were consistent with the categorization hypothesis. More importantly, this effect was attenuated or reversed when a valued collective identity was under threat and was moderated by collective identification with the threatened in-group (Studies 2 and 3). Specifically, identity threat had different effects on high-identifiers versus low-identifiers. When experiencing identity threat from an out-group, high-identifiers estimated the threatening out-group (Columbia in Study 2; Mexico City in Study 3) as closer, whereas low-identifiers did not estimate the intergroup distance differently under identity threat.

More importantly, in the Burris and Branscombe (2005) work, locations were between American and Canadian cities—the presence of a border led to greater perceived distance to out-group cities compared with in-group locations. In their work, "threat" was not immediately present—Canadians should in no way be perceived as a threatening out-group that would motivate closeness in perception. In other words, the *threat hypothesis* we propose in this research should not be applicable in their research. The key difference between this research and that presented by Burris and Branscombe is adding identity threat to the categorization effect in influencing distance estimation. Burris and Branscombe, thus, established major theoretical background for our current research by demonstrating the *categorization hypothesis* in intergroup distance perception.

Our findings extend previous work on categorization (Burris & Branscombe, 2005) and motivated perception/representation (Alter & Balcetis, 2010) by showing that the established relationship between categorization and distance representation can be modified or even reversed under threat. Future research should explore the cognitive mechanisms underlying the effect of identity threat on distance representation, such as vividness (Alter & Balcetis, 2010).

Social, Physical, and Psychological Distance

Seeking to measure the perceived "social distance" from racial groups, Bogardus developed the Social Distance Scale (Bogardus, 1925, 1933). On this scale, social distance scores ranged along a choice continuum, serving as an indication of respondents' willingness to engage in contact of varying degrees of social closeness with members of a particular racial or ethnic group. The Bogardus Social Distance Scale helped investigate intergroup social distance and attitudes toward various social groups. In this research, we focus on people's representation of physical aspects of stimuli, particularly estimation of physical distance between symbolic representations of different groups (e.g., stadium of sports teams, university campus). Building on previous research showing that collective identities can affect perceptions of the social world (e.g., Hastorf & Cantril, 1954; Van Bavel & Cunningham, 2009), we demonstrated that these inherently social constructs and processes could shape our perception and representation of physical distance. Thus, our research suggests that social concerns permeate our perception and representation of the physical world, and may even influence our basic sensations (Coppin et al., 2012).

Identity Threat and Discrimination

Researchers have proposed different categories of threats to one's social identity, and shown how they may differentially affect intergroup attitudes and behaviors (Branscombe et al., 1999). In particular, threats to the value of one's social identity occur when the group's value is undermined. In this research, we manipulated and measured threats to the value of one's social identity, and showed that this type of identity threat is associated with closer estimated distance to the threatening group. Our findings are consistent with previous research showing that threats to the value of one's group act on high-identifiers and low-identifiers in qualitatively different ways (Branscombe et al., 1999). Although it is not the main focus of this research, we predict that these effects of threats to the value of social identity should not generalize to all types of identity threat. Distinctive threat, for instance, occurs when group distinctiveness is prevented or undermined (Branscombe et al., 1999). We do not necessarily expect people to estimate out-groups to be particularly close

in the presence of a distinctive threat; in fact, they may be motivated to see the other group as further away. Future research could explore these empirical distinctions among different types of identity threat in relation to their effect on our representation of the physical world. Previous research has also distinguished between different types of threat from out-groups, especially regarding racial groups and immigrants (e.g., Stephan et al., 1999; Stephan et al., 2005). In this research, we showed that subjective feelings of symbolic threat predicted perceivers' estimation of physical distance to threatening out-groups, whereas realistic threat did not. We suspect that this is because the concepts of social identity and identity threat have been largely built on abstract and symbolic values of the in-group (Branscombe et al., 1999; Tajfel & Turner, 1979). However, there may be cases where other forms of threat modulate perceptions of distance.

Group-level identity threats have various evaluative and behavioral consequences. Extensive research has shown that identity threat can lead to reactions in the forms of in-group favoritism (Bourhis, Giles, Leyens, & Tajfel, 1979), out-group derogation (Crocker, Thompson, McGraw, & Ingerman, 1987), increased intergroup competition (Ellemers, Wilke, & Knippenberg, 1993), and exclusion and/or rejection of out-group members (Branscombe, Schmitt, & Harvey, 1999). These group-level defensive strategies may serve as psychological protective mechanisms under identity threat, particularly for highly identified individuals (Branscombe & Wann, 1994). This research suggests that changing representations of the physical world may be one mechanism through which identity threat affects attitudes and behaviors. We speculate that the altered distance estimations we observed may lead to compensatory behaviors to counteract this reduction in estimated distance between the in-group and a threatening out-group (e.g., building a barrier). Future research should examine whether changes in estimation of physical intergroup distance may partially mediate the effects of identity threat on various group-level defensive attitudes and behaviors.

Conclusion

Sun Tzu, the Chinese military general, philosopher, and author of what is arguably the most famous book on military strategy, reportedly coined the famous phrase "Keep your friends close, but your enemies closer." This phrase, which has been adopted by strategists from Niccolò Machiavelli to Michael Corleone, reflects the adaptive value of attending very closely to one's enemies. In the same way, our participants appeared to be doing something quite similar—they reported that their "enemies" were closer, but only when they posed a potential threat. Thus, our research suggests that we keep our enemies psychologically closer by changing our representation of the physical world, in this case, physical distance.

Notes

1. The non-Yankees fans ($n = 27$) included 58% New York Mets fans, 4% Pittsburgh Pirates fans, 23% fans of other unspecified teams, and 15% who did not claim to be fans of any MLB team. More important, none of the non-Yankees fans reported being Red Sox fans.
2. We performed a linear transformation to convert map responses (in millimeters) into miles, based on the correspondence between map distances and actual distances between Yankees Stadium and Fenway Park/Camden Yards. Specifically, we multiplied all map responses by 4.8 to get the proportional values in miles.
3. One participant failed to report familiarity and confidence, leaving 70 participants for this analysis.
4. NYU's relatively open campus, which is well integrated into the local community, allowed us to recruit both NYU-affiliated and NYU-unaffiliated individuals. When we entered Age as a covariate, it did not change the significance level of any results.
5. Three participants failed to report feelings toward Columbia, leaving 128 (51 NYU affiliated and 77 unaffiliated) participants for this analysis.
6. Distances are converted into miles for ease of conceptualization. Analyses were conducted on raw distance estimates in millimeters. As in Study 1, we performed a linear transformation to convert the line responses (in millimeters) into miles. Unlike in Study 1, distance estimations in Studies 2 and 3 were not skewed and thus not log transformed for analyses.
7. Indeed, the pattern of means was reversed among NYU affiliates ($M = 5.87$ miles in no threat condition; $M = 5.37$ miles in the threat condition), $t(51) = .93$, $p = .36$, $d = .26$, suggesting that the identity threat manipulation affected NYU-affiliated and non-NYU individuals in conceptually distinct ways.
8. One participant failed to report familiarity and confidence measures, leaving 130 participants for this analysis.

9. One participant failed to fill out the realistic threat scale, leaving 328 participants for this analysis.
10. We conducted the identical regression analysis as above with perceived realistic threat. None of the predictors significantly predicted estimated distance to Mexico City.
11. One other potential reason is the nature of our participant sample. The level of realistic threat (i.e., threats to welfare) from Mexican immigrants experienced by undergraduates in New York City may not be the major source of identity threat engendered by this particular immigrant group. This possibility could be tested in the future by using different immigrant groups and/or with participants with different demographics.

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