

When One Is Ostracized, Others Loom: Social Rejection Makes Other People Appear Closer

Shane Pitts, John Paul Wilson and Kurt Hugenberg

Social Psychological and Personality Science published online 11 November 2013

DOI: 10.1177/1948550613511502

The online version of this article can be found at:

<http://spp.sagepub.com/content/early/2013/11/08/1948550613511502>

Published by:



<http://www.sagepublications.com>

On behalf of:

Society for Personality and Social Psychology



Association for Research in Personality

ASSOCIATION FOR
RESEARCH IN PERSONALITY

European Association of Social Psychology



European Association
of Social Psychology

Society of Experimental and Social Psychology



Additional services and information for *Social Psychological and Personality Science* can be found at:

Email Alerts: <http://spp.sagepub.com/cgi/alerts>

Subscriptions: <http://spp.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

>> [OnlineFirst Version of Record](#) - Nov 11, 2013

[What is This?](#)

When One Is Ostracized, Others Loom: Social Rejection Makes Other People Appear Closer

Social Psychological and
Personality Science
XX(X) 1-8
© The Author(s) 2013
Reprints and permission:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/1948550613511502
spps.sagepub.com



Shane Pitts¹, John Paul Wilson², and Kurt Hugenberg³

Abstract

Social rejection causes a host of interpersonal consequences, including increases in reaffiliative behaviors. In two experiments, we show that reaffiliation motivation stemming from rejection biases perceptions of one's distance from a social target, making others seem closer than they are. In Experiment 1, participants who had written about rejection underthrew a beanbag when the goal was to land it at the feet of a new interaction partner, relative to control participants. In Experiment 2, rejected participants provided written underestimates of the distance to a person relative to control participants, but only when the target was a real person, and not a life-sized cardboard simulation of a person. Thus, using multiple manipulations of social rejection, and multiple measures of distance perception, this research demonstrates that rejection can bias basic perceptual processes, making actual sources of reaffiliation (actual people), but not mere images of people, loom toward the self.

Keywords

rejection, motivated perception, social exclusion, affiliation, distance perception

The human need to belong is a fundamental, pervasive motive, which fosters the formation and maintenance of long-lasting, positive social relationships (Baumeister & Leary, 1995). This motive is deeply embedded in our evolutionary history owing to our essential dependence on other people (Buss, 1990). So vital is this urge to belong, that experiences of social rejection can be acutely distressing, eliciting negative affect, lowered self-esteem, and a threatened sense of belonging (Williams, 2007). Indeed, the pain of social rejection may be so palpable because it relies on neural circuitry that has also been implicated in physical pain (Eisenberger, Lieberman, & Williams, 2003). Given the potential costs of social exclusion and the adaptive benefits of belonging, it is unsurprising that a thwarted sense of belonging can initiate a host of psychological processes directed at restoration of this need in the form of social reconnection. One way to assuage the pain of rejection is to restore one's sense of belonging by redoubling efforts to seek reaffiliation with others (see Williams & Nida, 2011). For example, rejection leads individuals to express more interest in making new friends and working with others (Maner, DeWall, Baumeister, & Schaller, 2007; see DeWall & Richman, 2011).

To be in a position to socially reconnect with others, it behooves us to be sensitive to and to readily perceive such affordances. However, despite the complex downstream consequences of rejection, only a handful of recent studies have investigated how social rejection influences basic perceptual processes. One theory that addresses this gap in the literature

posits that humans have a social monitoring system (Gardner, Pickett, & Brewer, 2000) that constantly monitors and regulates our level of social inclusion. This system is vigilant for the experience of rejection, and when activated, it redirects attention, cognitive resources, and memory to cues that may facilitate reaffiliation (Pickett, Gardner, & Knowles, 2004). For example, rejection causes perceivers to become more sensitive to signals of inclusion, with participants showing crisper distinctions between in-groups and out-groups (e.g., Sacco, Wirth, Hugenberg, Chen, & Williams, 2011), increased selective attention toward signals of acceptance (e.g., smiles; DeWall, Maner, & Rouby, 2009), and increased accuracy at discriminating between genuine and fake smiles (Bernstein, Young, Brown, Sacco, & Claypool, 2008). Other work has shown that rejection leads to a general activation of social bonds, such that group-related constructs become more accessible and the perceived entitativity and importance of groups is heightened (Knowles & Gardner, 2008). In sum, those with whom shared

¹ Birmingham-Southern College, Birmingham, AL, USA

² University of Toronto, Toronto, ON, Canada

³ Miami University, Oxford, OH, USA

Corresponding Author:

Shane Pitts, Department of Psychology, Birmingham-Southern College, 900 Arkadelphia Road, Birmingham, AL 35254, USA.
Email: spitts@bsc.edu

social interaction is possible become more important to those who have been rejected.

But could such perceptual sensitivity for reaffiliative cues actually bias perception of the physical world when experiencing social rejection? In the current research, we address just such a question. From the New Look perspective, perception is influenced not just by the objective qualities of the environment but also by one's mental representations of and motives toward the environment (see Dunning & Balcić, 2013). For instance, desired objects often appear to loom closer than they actually are, likely in service of goal pursuit. Impoverished children see coins as larger than do wealthy children (Bruner & Goodman, 1947), a bottle of water appears closer to the thirsty than to the satiated perceiver (Balcić & Dunning, 2010), and beloved locales seem closer than disliked locales (Alter & Balcić, 2011). Similarly, climbers who lack the physical stamina to climb estimate a hill's incline as steeper than do those with sufficient energy or capability (Proffitt, Stefanucci, Banton, & Epstein, 2003; Bhalla & Proffitt, 1999), whereas hills are seen as less steep when a socially supportive friend is nearby (or imagined) relative to those who are alone when making estimates (Schnall, Harber, Stefanucci, & Proffitt, 2008). Taken together, these numerous demonstrations reliably establish that our current motivational states and physical capacities can bias our perceptual experience.

Importantly, such motivated misperceptions of our environment appear to be functional. Perceiving a desired target as closer may potentiate approach behavior (acquiring the valued coin, grabbing the water bottle, visiting New York) in the service of goal fulfillment. Thus, our perceptual system may be biased in ways to regulate action in the service of goal fulfillment (see Cole, Balcić, & Dunning, 2013). Indeed, prior research has shown that bodies prepare for action to achieve rewards. Heart rates and galvanic skin conductance rates increase in anticipation of impending financial payoffs and escalate as sizable payoffs draw closer (Low, Lang, Smith, & Bradley, 2008). Further, as desirable objects loom closer, this physiological preparation triggers and intensifies actual approach behavior (Crespi, 1942; Dollard & Miller, 1950; McGinty, Lardeux, Taha, Kim, & Nicola, 2013; see Neumann, Förster, & Strack, 2003, for a review). However, demonstrating that this perceptual motivationally triggered distance distortion is in service of goal fulfillment, Balcić and Dunning (2010) demonstrated that only *attainable* desired objects loom. For example, money that can be gained (e.g., won in a contest) appears closer to the self than does physically identical but unattainable cash (Balcić & Dunning, 2010)—in short, desire alone is insufficient.

Based on the logic that perception is sensitive to activated motivations and is biased to promote beneficial action, we propose that socially rejected individuals will tend to act on the environment in order to reinstate a sense of belonging via social reconnection. Thus, it may behoove those excluded to perceive a person with whom they can affiliate as physically closer, thereby rendering more attainable means of restoring their frustrated sense of belonging. Just as water is a basic need for the

thirsty, so too is social connectedness a basic need for the ostracized (Baumeister & Leary, 1995). Misperceiving the environment in service of goal attainment, with achievable desiderata perceived as closer, is equally functional for both thirsty and rejected perceivers.

The Current Research

In the current research, we extend previous work on the social monitoring system to demonstrate that perceivers may experience distorted perceptions of the physical environment in service of reaffiliation. To do so, we leverage recent advances in the revitalized New Look perspective (Balcić & Dunning, 2007, 2010; Bruner & Goodman, 1947; Dunning & Balcić, 2013) to demonstrate that the need for reaffiliation in the aftermath of rejection can make other people, but only those who can fulfill the need for affiliation, appear closer. Ample research has demonstrated that the need to belong is a fundamental human motive (Baumeister & Leary, 1995; Williams, 2007) and that when this need is impeded, a strong desire to reinstate social connectedness can initiate basic, early-stage perceptual sensitivity to signals of social reconnection (e.g., Bernstein et al., 2008; Maner et al., 2007; Sacco et al., 2011). Given these findings, we suggest that the desire to seek social reaffiliation may also manifest in motivated distance perception in a manner consistent with achieving that goal. We hypothesized that rejected individuals would misperceive possible targets of reaffiliation—other people—as closer than would nonrejected individuals. In two experiments, we provide novel evidence supporting this hypothesis.

Experiment 1 tests this hypothesis directly by having both socially rejected and control participants toss a beanbag toward the feet of a future interaction partner. Past work has reliably demonstrated that motivated proximity effects in the literature do not appear to be mediated purely by a numeric error; embodied measures of proximity also demonstrate that the subjectively valued objects seem closer. For example, a beanbag is tossed shorter toward valued objects than toward nonvalued objects, indicating the subjective proximity of those valued objects (Balcić & Dunning, 2010; Slepian, Masicampo, Toosi, & Ambady, 2012). It was based on this research that we used a beanbag toss as the measure of distance perception in Experiment 1. As predicted, socially rejected participants undertossed the beanbag, relative to control participants. Critically, we also predicted that this rejection-driven distortion of the proximity of others would only be true for target persons who could *actually* provide reaffiliation (i.e., real people) but not for virtually identical targets who could not afford reaffiliation (i.e., life-size image of a real person). Experiment 2 tests this hypothesis by having both socially rejected and control participants make distance judgments to either a confederate or a life-sized “standee” of that same confederate. As predicted, rejected individuals judged another person, but not an inanimate representation of the same person, as closer than did nonrejected individuals.

Experiment 1

In Experiment 1, we sought to provide an initial demonstration that socially rejected individuals perceive a seemingly objective aspect of the physical environment—distance—in a biased manner in the service of social reconnection. That is, socially rejected individuals may perceive potential sources of reaffiliation, in our case future interaction partners, as closer than do individuals who are not rejected. To test this hypothesis, participants were randomly assigned to a rejection or a control condition in which they wrote about a past rejection experience, or about their morning routine, respectively. All participants then completed an ostensibly unrelated task wherein they tossed a beanbag toward the location of a confederate—a possible source of reaffiliation. In actuality, this beanbag toss served as an action-based, behavioral measure of the perceived distance to the confederate. Just as participants tend to undertoss beanbags toward valued versus nonvalued stimuli, we predicted that socially rejected participants would undertoss a beanbag toward a potential outlet for reaffiliation (a confederate), relative to nonrejected participants (see Balcetis & Dunning, 2010; Rieser, Pick, Ashmead, & Garing, 1995).

Participants

A convenience sample of 35 female undergraduates participated for partial course credit.

Design and Procedure

Our methodology was adapted from Balcetis and Dunning (2010; study 3a). Participants arrived in the laboratory singly, supposedly for a memory study, and were randomly assigned to either the rejection or the control condition. In each condition, participants were asked to write for 5 min either about “a time that you have been rejected or excluded by someone else, and to describe the event and how it felt” (Rejection); or “what you did when you got up this morning, including what you did and how you felt” (Control Condition; see Sacco, Young, Brown, Bernstein, & Hugenberg, 2012 for a similar manipulation). All participants then completed this paper and pencil writing task alone.

Afterward, as participants were led to another room for an ostensibly unrelated study, the experimenter explained that participants would now have an opportunity to have a conversation with a fellow participant. Upon entering the new experimental room, a female confederate waited across the room from the entrance. The experimenter prompted the participant and the confederate to introduce themselves to one another from across the room, and then the participant was asked to stand with toes on a tape line on the floor. The confederate stood 1 ft. to the right of another tape line, 12 ft. from the participant. The experimenter handed the confederate a beanbag and said, “Before your interaction, I’d like you to do one thing for an unrelated study. Please toss this beanbag underhanded and try to land it as close to the tape beside your partner as possible.

That tape represents the distance between you and your partner.” The beanbag was coated with soft, sticky plastic to attenuate skidding.

After tossing the beanbag and while waiting for the pending interaction with the confederate, participants were led to the original experimental room to complete the Brief Mood Introspection Scale (BMIS; Mayer & Gaschke, 1988). Meanwhile, an experimenter measured the distance of the beanbag toss. Toss distance was measured in inches, only in the *y*-dimension relative to the target (i.e., bags landing 2 in. short but 8 in. wide were marked as 2 in. short), with positive numbers representing an overthrow and negative an underthrow. Both confederate and experimenter remained blind to condition until participants completed the study. We predicted that if rejected participants perceived their partner as physically closer, they should behave accordingly and throw the beanbag a shorter distance than would participants who did not experience social rejection.

Results and Discussion

As anticipated, rejected participants threw the beanbag a shorter distance ($M = -4.6$; $SD = 13.08$) than did control participants ($M = 9.27$; $SD = 21.46$), $t(33) = 2.29$, $p = .028$, $d = .78$. Although the current data provide prima facie evidence that rejected participants’ actions were biased in accord with the misperception of physical proximity to another person (Balcetis & Dunning, 2010), it is also important to consider other alternative explanations. For example, social exclusion can result in a deconstructed state, which is in part characterized by flat affect and lethargy (Twenge, Catanese, & Baumeister, 2003), and in the current context, lethargy could translate into a shorter bag toss. Alternately, it could be that acute rejection could elicit arousal, which could also influence performance (Henchy & Glass, 1968).

To examine whether the effects of social rejection on bag tossing can be explained by changes in mood or arousal, we submitted the bag tossing distances to an additional analysis of covariance (ANCOVA), with mood and arousal (as measured by the BMIS) entered as covariates, respectively. Rejected participants were descriptively, though not reliably, more aroused ($M = 27.94$; $SD = 3.51$) than were control participants ($M = 26.11$, $SD = 26.11$), $t(33) = 1.51$, $p = .14$. However, arousal did not serve as a significant covariate of the observed beanbag tossing effects, $F(1, 32) = 2.56$, $p = .147$. Further, mood was not influenced by rejection condition ($p = .724$) and was not a significant covariate ($p = .926$). Based on these data, there is no evidence that alterations in mood or arousal can account for the effect of rejection condition on perceived proximity, as measured via bag toss distance.

Experiment 2

In Experiment 2, we sought to conceptually replicate and extend the previous findings using a different manipulation of social rejection and measure of distance perception. In the

second study, participants were led to believe their partner left the experiment early (see DeWall et al., 2009). Rejection was manipulated by telling participants that their partner left because the partner did not want to work with the participant (rejection condition), or for an unrelated reason (irrelevant departure condition). In an ostensibly unrelated task, all participants then reported the distance that a confederate stood from them.

Experiment 2 was also designed to test the hypothesis that rejected individuals' misperception of others as closer would only occur for people who could actually provide reaffiliation. In Experiment 2, participants judged the distance to an actual confederate (social condition) or to a life-sized image (a standee) of the same confederate (nonsocial condition). Just as valued objects only loom when they are attainable (Balcetis & Dunning, 2010), we hypothesized that only the real confederate, but not a life-sized image of the confederate, would appear to loom toward the rejected perceivers.

Finally, including this manipulation of social versus nonsocial in the design of Experiment 2 also permitted us to directly address whether the effects observed in Experiment 1 are specific motivational effects in service of goal pursuit (Balcetis & Dunning, 2010) or whether they are more generalized effects of rejection (e.g., mood, arousal). Here, if rejection-related arousal or mood can account for altered distance estimates (or for altered bag tossing, as in Experiment 1), it should do so in both the social and nonsocial conditions. If our effects, however, are driven by motivated perceptions of a *social* target following rejection, altered distance estimates among rejected participants should only occur in the social condition.

Method

Participants

Eighty-four undergraduates (39 female) participated for partial course credit.

Design and procedure

The procedure was a 2×2 between-subjects factorial design adapted closely from DeWall, Maner, and Rouby (2009). Participants arrived at the laboratory individually for a study on perception. After providing informed consent, participants were informed that they would complete two separate experiments. In the first experiment, all participants were to work with a partner, first exchanging video messages and then working face-to-face. Participants were informed that the partner had arrived early and would send the first video message. While the experimenter was presumably recording the partner's message, participants completed a "perception task," finding 3D illusions embedded in "Magic Eye" images (Magic Eye, 2004). After 5 min, the experimenter returned with the "partner's" recording, which was a 3-min clip of a same-sex, similar age confederate responding to three questions regarding his or her personal and career goals, and describing his or her performance on the illusion task.

The experimenter left the room while the participant watched the video. The experimenter then returned and recorded a video response to the partner using the same questions. While the experimenter ostensibly took the participant-made video to the partner to watch, the participant continued working on the illusion task. Approximately 5 min later, the experimenter, who was previously blind to condition, returned and delivered the manipulation. Participants randomly assigned to the irrelevant departure condition (not rejected) were told:

I am not sure what happened, but your partner won't be able to meet you . . . I guess s/he has to leave suddenly to go do something s/he forgot about . . . well, hmm, I guess you won't be meeting each other.

Participants in the rejection condition were told:

I am not sure what happened but your partner doesn't want to meet you . . . Um, do you know each other or something? (after participant says 'no') . . . well, hmm, I guess we won't be doing the task where you meet each other, because I can't ask a participant to do something that s/he isn't comfortable with.

All participants then completed the BMIS and were then led to the ostensibly unrelated additional study by a second experimenter who was blind to experimental condition.

In the second phase of the study, we manipulated between subjects the presence of an actual confederate (social condition) versus the presence of a life-sized image (i.e., a standee) of the same confederate (nonsocial condition). Participants in the social condition were told that another participant had arrived to take part in the second study, and this person (a same-sex confederate) would be their new partner. The experimenter introduced the participant to the confederate as she led both to an adjacent room to complete their final task. Participants and confederates stood behind predetermined lines 10 ft. away from one another. Participants and confederates were then given 1 in. reference lines and asked to record the distance to their new partner in inches, feet, or a combination.

Participants in the nonsocial condition were also informed that another partner had arrived for a subsequent task (holding constant the expectation of a subsequent interaction) but were asked first to judge the distance to a standee for an unrelated study. Participants were led to a room where a life-sized, cardboard cutout of a person (a standee picture of the confederate) was standing 10 ft. away. Participants then judged the distance to this life-sized picture. Finally, participants were debriefed and dismissed. Due to the time needed to construct the standee, nonsocial condition data collection began only after social condition data were collected.

Results and Discussion

To assess whether the effect of social rejection on distance perception is unique to social targets, we conducted a between-subjects 2 (rejected/not rejected) \times 2 (social/nonsocial Target) analysis of variance (ANOVA) on distance estimates. We observed a marginally significant main effect of rejection

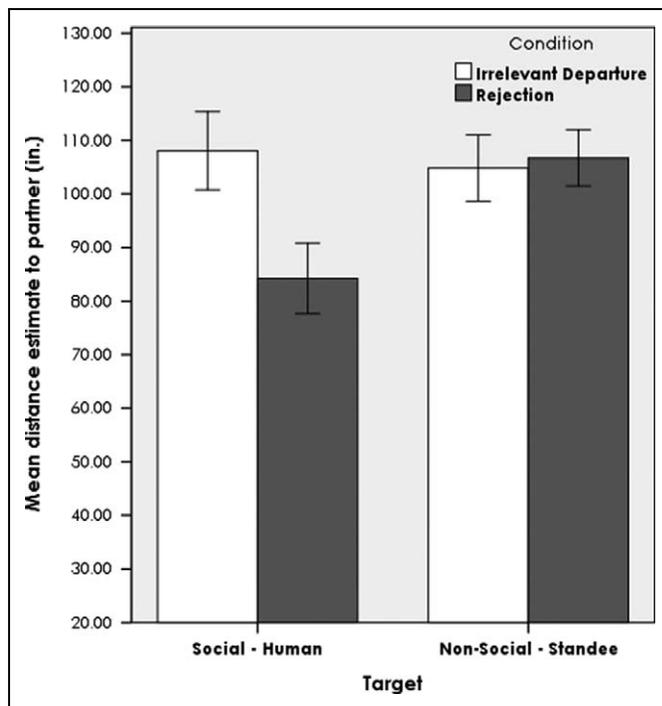


Figure 1. Mean distance estimates as a function of rejection condition and target condition demonstrate that rejection can cause other people, but not otherwise identical images of people to loom toward perceivers. Error bars represent ± 1 standard error.

condition, $F(1, 80) = 2.95, p = .09$, which was qualified by the predicted Rejection \times Target type interaction, $F(1, 80) = 4.05, p = .047$.

Decomposing the interaction, we conducted planned comparisons within each target type. As predicted, within the social target condition, rejected participants estimated their new partner as significantly closer ($M = 84.25; SD = 29.42$) than did participants in the irrelevant departure condition ($M = 108.05; SD = 33.59$), $t(39) = 2.41, p = .021, d = 0.75$ (see Figure 1). However, rejection had no effect on distance estimates to the nonsocial target, $t(41) = .23, p = .817, d = .07$. Consistent with the social reconnection hypothesis, the effect of rejection on distance estimates was limited to entities that afford an opportunity for social affiliation. Rejected participants estimated their partner (but not a cardboard facsimile of the same partner) as nearly 2 ft. (23.8 in.) closer than nonrejected participants.

To rule out arousal and mood as potential influences on distance estimates, we also analyzed the data via an ANCOVA, entering mood and arousal as indexed by the BMIS as covariates. Although mood scores on the pleasant–unpleasant subscale of the BMIS differed on average between those rejected ($M = 42.72; SD = 6.57$) and those not rejected ($M = 46.95; SD = 5.67$), $t(82) = 3.17; p = .002$, mood did not serve as a significant covariate for the effects, $p = .587$. Arousal did not differ as a function of whether participants were rejected, ($M = 26.40; SD = 3.95$) or not ($M = 26.70; SD = 3.10$), $t(82) = .382; p = .703$, nor did arousal serve

as a significant covariate for the observed effects, $p = .763$. Again, there is no evidence that alteration in mood or arousal accounts for the substantial perceived closer proximity to social targets among those rejected relative to those not rejected.

General Discussion

Social rejection triggers reaffiliative needs in a variety of contexts (Williams, 2009; Williams & Nida, 2011). However, though some work has shown that rejection leads to improvement in extracting social cues signaling affiliative intent (e.g., Bernstein et al., 2008), the current research is the first to demonstrate that these needs distort basic distance perceptions of the environment. Potential sources of reaffiliation—other people—seem closer to the self after rejection. Further, this distance distortion is in a functional direction; when others seem more proximate to us, this may facilitate the onset of reaffiliative behavior (Festinger, Schachter, & Back, 1950).

Although its roots remain in the classic New Look perspective, using one's current energetic or motivational state as an embodied means by which to judge the distances in the world has become an increasingly important theme in perception (see Dunning & Balciotis, 2013; Proffitt, 2006, for reviews). Indeed, the motivational and the perceptual systems appear deeply interconnected, with current bioenergetic states (Schnall, Zadra, & Proffitt, 2010), physical capacities (e.g., Lessard, Linkenauger, & Proffitt, 2009; Linkenauger, Witt, Stefanucci, Bakdash, & Proffitt, 2009), fears (Cole et al., 2013; Teachman, Stefanucci, Clerkin, Cody, & Proffitt, 2008; Vagnoni, Lourenco, & Longo, 2012), and desires (Alter & Balciotis, 2011; Balciotis & Dunning, 2010), all influencing our perceptions of the physical world. In this vein, the current work also makes a unique theoretical contribution by bridging the well-established tendency to seek reaffiliation with this burgeoning literature on motivated perception. The abiding human need for social affiliation can make desired others appear closer than when this need is not activated. Indeed, given the central role of social affiliation to human survival, it may well behoove rejected individuals to see a genuine source of reaffiliation as physically closer, in order to prioritize reaffiliation after rejection (see Brown, Young, Sacco, Bernstein, & Claypool, 2009). Perception potentiates behavior, and one will be more likely to engage with a social target that is closer than one that is farther away (see Festinger et al., 1950).

Critically, although rejection motivates reaffiliative responses, it will do so only to the extent that others are perceived as realistic sources of renewed connection (Maner et al., 2007). In fact, much previous research has shown that people who are rejected can be more aggressive (Twenge, Baumeister, Tice, & Stucke, 2001) and less prosocial (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007); however, such aggression is typically reserved for the perpetrators of social rejection, or for people who will not afford future reaffiliation (Maner et al., 2007).

Further, we believe that one potential benefit of the current research is that it demonstrates that reaffiliative behavior may have its initial roots in lower level perceptions of the environment. That is, if another person seems physically closer, reaffiliation may seem easier. The current research is also congruent with recent studies demonstrating the specificity of biases in favor of reaffiliation. For example, the threat of social rejection is associated with increased attention to signs of social positivity, such as smiling faces in a crowd, but not to disapproving faces or positive nonsocial stimuli (DeWall et al., 2009). In our Experiment 2, we found that only targets that could afford an authentic source of social reconnection (an actual person) would bias distance perception, whereas a nonsocial target (a cardboard standee of the person) had no motivated perceptual effects on distance estimates. This also mirrors Balcetis and Dunning's (2010) findings that only valuable targets perceived to be attainable loomed toward to the self. This is important, as it speaks against the possibility that rejection merely causes our perceptions of the world to be indiscriminately warped or distorted by negative affect or arousal. Rather, the motivated perceptual consequences of rejection are adaptive and selective.

Moreover, the current work also links well to the recent findings in the embodiment literature demonstrating that our perception of the physical world is intimately linked with our motives. For example, Ijzerman and Semin (2010) found evidence that the concept of warmth is linked with the experience of physical proximity, with warmer objects seeming more proximate to the self (and vice versa). Further, recent work by Fay and Maner (2012) has demonstrated that even being primed with warmth can trigger affiliative goals and that warm objects appear closer to the self (again, presumably because of their link with affiliative goals). Although the current work did not directly test an embodiment hypothesis, it is certainly congruent with the broader perspective that biases in the perceptual system can emerge from activated goals and concepts.

Taken together, the experiments reported in this article provide consistent, albeit initial evidence that social exclusion causes basic perceptual properties of the environment to shift in a manner that may facilitate goal attainment. There are, however, remaining questions to be considered. First, one limitation of these studies is that, while we have made a case that social reaffiliation was a driving motive in the misperceptions of physical proximity, we manipulated rather than measured the desire to affiliate. For instance, it may bolster future studies to attempt to correlate distance estimates with a more direct measure of the desire to reaffiliate (e.g., desire to work further with the partner on a task). Nevertheless, given the extensive and compelling evidence that rejection can powerfully trigger the need to affiliate (e.g., Baumeister & Leary, 1995; Maner et al., 2007; Williams, 2007, 2009; Williams & Nida, 2011), it seems quite likely that the motive to affiliate is implicated in the current studies. Further, the results of Experiment 2 also comport closely with the activation of a reaffiliation motive. The robust bias in distance estimates toward social targets that could offer a social connection, along with no such bias in

estimates to the similar inanimate target strongly implicates a social reaffiliation motive.

Second, we also think it is important to consider carefully our dependent measures across the two experiments. In Experiment 1, we employed a bag toss measure, which is typically interpreted as an embodied measure of distance perception (Balcetis & Dunning, 2010; Slepian et al., 2012). Although we favor this interpretation of our results, it is possible that the rejection-driven shorter tosses observed here were not due to motivated distance perception, but instead to hesitation to accidentally strike confederates with an errant beanbag toss. Although this is possible, it does not comport easily with the verbal distance measure employed in Experiment 2. Further, by employing multiple measures across the two studies, this work is less vulnerable to recent methodological critiques of similar studies of distance perception (e.g., Woods, Philbeck, & Danoff, 2009).

In closing, the current work demonstrates that interpersonal rejection, in addition to enhancing acuity for important social signals, has consequences even for basic distance perception. Valued social targets loom closer, and to the rejected perceiver, there is great value in social reconnection, and in those who can provide it.

Acknowledgment

The authors wish to thank Caitlin Moran for her assistance with stimulus construction and data collection.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

References

- Alter, A., & Balcetis, E. (2011). Fondness makes the distance grow shorter: Desired locations seem closer because they seem more vivid. *Journal of Experimental Social Psychology, 47*, 16–21.
- Balcetis, E., & Dunning, D. (2007). Cognitive dissonance reduction and perception of the physical world. *Psychological Science, 18*, 917–921.
- Balcetis, E., & Dunning, D. (2010). Wishful seeing: More desired objects are seen as closer. *Psychological Science, 21*, 147–152. doi:10.1177/0956797609356283
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*, 497–529.
- Bernstein, M. J., Young, S. G., Brown, C. M., Sacco, D. F., & Claypool, H. M. (2008). Adaptive responses to social exclusion: Social rejection improves detection of real and fake smiles. *Psychological Science, 19*, 981–983.
- Bhalla, M., & Proffitt, D. R. (1999). Visual-motor recalibration in geographical slant perception. *Journal of Experimental Psychology: Human Perception & Performance, 25*, 1076–1096. doi:10.1037/0096-1523.25.4.1076

- Brown, C. M., Young, S. G., Sacco, D. F., Bernstein, M. J., & Claypool, H. M. (2009). Social inclusion facilitates interest in mating. *Evolutionary Psychology, 7*, 11–27.
- Bruner, J. S., & Goodman, C. C. (1947). Value and need as organizing factors in perception. *Journal of Abnormal and Social Psychology, 42*, 33–44. doi:10.1037/h0058484
- Buss, D. M. (1990). The evolution of anxiety and social exclusion. *Journal of Social and Clinical Psychology, 9*, 196–201.
- Cole, S., Balcetis, E., & Dunning, D. (2013). Affective signals of threat increase perceived proximity. *Psychological Science, 24*, 34–40.
- Crespi, L. P. (1942). Quantitative variation of incentive and performance in the white rat. *The American Journal of Psychology, 55*, 467–517.
- DeWall, C. N., Maner, J. K., & Rouby, D. A. (2009). Social exclusion and early-stage interpersonal perception: Selective attention to signs of acceptance. *Journal of Personality and Social Psychology, 96*, 729–741. doi:10.1037/a0014634
- DeWall, C. N., & Richman, S. B. (2011). Social exclusion and the desire to reconnect. *Social and Personality Psychology Compass, 5*, 919–932.
- Dollard, J., & Miller, N. E. (1950). *Personality and psychotherapy*. New York, NY: McGraw-Hill.
- Dunning, D., & Balcetis, E. (2013). Wishful seeing: How preferences shape visual perception. *Current Directions in Psychological Science, 22*, 33–37. doi:10.1177/0963721412463693
- Eisenberger, N. I., Lieberman, M. D., & Williams, K. D. (2003). Does rejection hurt? An fMRI study of social exclusion. *Science, 302*, 290–292.
- Fay, A. J., & Maner, J. K. (2012). Warmth, proximity, and social attachment: The embodied perception of a social metaphor. *Journal of Experimental Social Psychology, 48*, 1369–1372. doi:10.1016/j.jesp.2012.05.017
- Festinger, L., Schachter, S., & Back, K. (1950). The spatial ecology of group formation. In L. Festinger, S. Schachter, & K. Back (Eds.), *Social pressure in informal groups* (pp. 141–161). Palo Alto, CA: Stanford University Press.
- Gardner, W. L., Pickett, C. L., & Brewer, M. B. (2000). Social exclusion and selective memory: How the need to belong influences memory for social events. *Personality and Social Psychology Bulletin, 26*, 486–496.
- Henchy, T., & Glass, D. C. (1968). Evaluation apprehension and the social facilitation of dominant and subordinate responses. *Journal of Personality and Social Psychology, 10*, 446–454.
- Ijzerman, H., & Semin, G. R. (2010). Temperature perceptions as a ground for social proximity. *Journal of Experimental Social Psychology, 46*, 867–873.
- Knowles, M. L., & Gardner, W. L. (2008). Benefits of membership: The activation and amplification of group identities in response to social rejection. *Personality and Social Psychology Bulletin, 34*, 1200–1213.
- Lessard, D. A., Linkenauger, S. A., & Proffitt, D. R. (2009). Look before you leap: Jumping ability affects distance perception. *Perception, 38*, 1863–1866.
- Linkenauger, S. A., Witt, J. K., Stefanucci, J. K., Bakdash, J. Z., & Proffitt, D. R. (2009). The effects of handedness and reachability on perceived distance. *Journal of Experimental Psychology: Human Perception and Performance, 35*, 1649–1660.
- Low, A., Lang, P. J., Smith, J. C., & Bradley, M. W. (2008). Both predator and prey: Emotional arousal in threat and reward. *Psychological Science, 19*, 865–873.
- Magic Eye Inc. (2004). *Magic eye 3D hidden treasures: A collection of 3D illusions*. Kansas City, MI: Andrews McMeel Publishing.
- Maner, J. K., DeWall, C. N., Baumeister, R. F., & Schaller, M. (2007). Does social exclusion motivate interpersonal reconnection? Resolving the “porcupine problem”. *Journal of Personality and Social Psychology, 92*, 42–55.
- Mayer, J. D., & Gaschke, Y. N. (1988). The experience and meta-experience of mood. *Journal of Personality and Social Psychology, 55*, 102–111.
- McGinty, V. B., Lardeux, S., Taha, S. A., Kim, J. J., & Nicola, S. M. (2013). Invigoration of reward seeking by cue and proximity encoding in the nucleus accumbens. *Neuron, 78*, 910–922.
- Neumann, R., Förster, J., & Strack, F. (2003). Motor compatibility: The bidirectional link between behavior and evaluation. In J. Musch & K. C. Klauer (Eds.), *The psychology of evaluation* (pp. 371–391). London, England: Earlbaum.
- Pickett, C. L., Gardner, W. L., & Knowles, M. (2004). Getting a cue: The need to belong and enhanced sensitivity to social cues. *Personality and Social Psychology Bulletin, 30*, 1095–1107.
- Proffitt, D. R. (2006). Embodied perception and the economy of action. *Perspectives on Psychological Science, 1*, 110–122.
- Proffitt, D. R., Stefanucci, J., Banton, T., & Epstein, W. (2003). The role of effort in perceiving distance. *Psychological Science, 14*, 106–112. doi:10.1111/1467-9280.t01-1-01427
- Rieser, J. J., Pick, H. L., Ashmead, D. H., & Garing, A. E. (1995). Calibration of human locomotion and models of perceptual-motor organization. *Journal of Experimental Psychology: Human Perception and Performance, 21*, 480–497.
- Sacco, D. F., Wirth, J. H., Hugenberg, K., Chen, Z., & Williams, K. D. (2011). The world in black and white: Ostracism enhances the categorical perception of social information. *Journal of Experimental Social Psychology, 47*, 836–842.
- Sacco, D. F., Young, S. G., Brown, C. M., Bernstein, M. J., & Hugenberg, K. (2012). Social exclusion and female mating behavior: Rejected women show strategic enhancement of short-term mating interest. *Evolutionary Psychology, 10*, 573–587.
- Schnall, S., Harber, K. D., Stefanucci, J., & Proffitt, D. R. (2008). Social support and the perception of geographical slant. *Journal of Experimental Social Psychology, 44*, 1246–1255.
- Schnall, S., Zadra, J. R., & Proffitt, D. R. (2010). Direct evidence for the economy of action: Glucose and the perception of geographical slant. *Perception, 39*, 464–482.
- Slepian, M. L., Masicampo, E. J., Toosi, N. R., & Ambady, N. (2012). The physical burdens of secrecy. *Journal of Experimental Psychology: General, 141*, 619–624.
- Teachman, B. A., Stefanucci, J. K., Clerkin, E. M., Cody, M. W., & Proffitt, D. R. (2008). A new mode of fear expression: Perceptual bias in height fear. *Emotion, 8*, 296–301.
- Twenge, J. M., Baumeister, R. F., DeWall, C. N., Ciarocco, N. J., & Bartels, J. M. (2007). Social exclusion decreases prosocial behavior. *Journal of Personality and Social Psychology, 92*, 56–66.

- Twenge, J. M., Baumeister, R. F., Tice, D. M., & Stucke, T. S. (2001). If you can't join them, beat them: Effects of social exclusion on aggressive behavior. *Journal of Personality and Social Psychology, 81*, 1058–1069.
- Twenge, J. M., Catanese, K. R., & Baumeister, R. F. (2003). Social exclusion and the deconstructed state: Time perception, meaninglessness, lethargy, lack of emotion, and self-awareness. *Journal of Personality and Social Psychology, 85*, 409–423.
- Vagnoni, E., Lourenco, S. F., & Longo, M. R. (2012). Threat modulates perception of looming visual stimuli. *Current Biology, 22*, R826–R827.
- Williams, K. D. (2007). Ostracism. *Annual Review of Psychology, 58*, 425–452.
- Williams, K. D. (2009). Ostracism: A temporal need-threat model. In M. Zanna (Ed.), *Advances in Experimental Social Psychology* (Vol. 41, pp. 279–314). New York, NY: Academic Press.
- Williams, K. D., & Nida, S. A. (2011). Ostracism: Consequences and coping. *Current Directions in Psychological Science, 20*, 71–75. doi:10.1177/0963721411402480
- Woods, A. J., Philbeck, J. W., & Danoff, J. V. (2009). The various perceptions of distance: An alternative view of how effort affects distance judgments. *Journal of Experimental Psychology: Human Perception and Performance, 35*, 1104–1117.

Author Biographies

Shane Pitts is a Professor in the Department of Psychology at Birmingham-Southern College in Birmingham, AL. His research interests include motivated social cognition, stereotyping and prejudice, social rejection, and face perception.

John Paul Wilson is a postdoctoral fellow in the Department of Psychology at the University of Toronto. He received his PhD from Miami University in 2013. His research interests include person perception and social cognition.

Kurt Hugenberg is a Professor in the Psychology Department at Miami University in Oxford, Ohio. He received his PhD from Northwestern in 2003. His research interests include face perception, stereotyping and prejudice, and motivated cognition.