

Social Power Facilitates the Effect of Prosocial Orientation on Empathic Accuracy

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Power increases the tendency to behave in a goal-congruent fashion. Guided by this theoretical notion, we hypothesized that elevated power would strengthen the positive association between prosocial orientation and empathic accuracy. In 3 studies with university and adult samples, prosocial orientation was more strongly associated with empathic accuracy when distinct forms of power were high than when power was low. In Study 1, a physiological indicator of prosocial orientation, respiratory sinus arrhythmia, exhibited a stronger positive association with empathic accuracy in a face-to-face interaction among dispositionally high-power individuals. In Study 2, experimentally induced prosocial orientation increased the ability to accurately judge the emotions of a stranger but only for individuals induced to feel powerful. In Study 3, a trait measure of prosocial orientation was more strongly related to scores on a standard test of empathic accuracy among employees who occupied high-power positions within an organization. Study 3 further showed a mediated relationship between prosocial orientation and career satisfaction through empathic accuracy among employees in high-power positions but not among employees in lower power positions. Discussion concentrates upon the implications of these findings for studies of prosociality, power, and social behavior.

*Keywords:* power, prosocial orientation, empathic accuracy, emotions

Emotions play numerous roles in regulating interpersonal interactions. Emotions communicate information about social intentions, orientations toward others, and attitudes about people and things (Frijda & Mesquita, 1994; Keltner & Haidt, 1999; Van

Kleef, 2009). As such, emotions influence the behavior of people who experience them and of those who perceive them (cf. Sy, Côté, & Saavedra, 2005; Van Kleef, De Dreu, & Manstead, 2004).

For these reasons, navigating social interactions smoothly requires empathic accuracy, the accurate identification of the emotions that others feel (Ickes, Stinson, Bissonnette, & Garcia, 1990; Levenson & Ruef, 1992). Empathic accuracy is associated with outcomes such as successful negotiations (Elfenbein, Foo, White, Tan, & Aik, 2007), high leadership effectiveness (Rubin, Munz, & Bommer, 2005), social adjustment (Gleason, Jensen-Campbell, & Ickes, 2009), and reduced cardiovascular activation during social interactions (Levenson & Ruef, 1992). These findings underscore the importance of understanding the factors related to empathic accuracy.

One factor that may have particularly important consequences for empathic accuracy is prosocial orientation, defined as a focus on the needs of others and an inclination to enhance the welfare of others (Batson & Shaw, 1991; Grant & Mayer, 2009). Prosocially oriented individuals naturally attend to the emotions of others to figure out how to enhance their welfare and to better attend to their

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needs (Batson & Shaw, 1991; Goetz, Keltner, & Simon-Thomas, 2010). Individuals who perceive others' emotions provide others with more helpful support because they detect opportunities to benefit others (Marsh, Kozak, & Ambady, 2007; Verhofstadt, Buysse, Ickes, Davis, & Devoldre, 2008). Because they attend closely to others' emotions, prosocially oriented individuals may identify others' emotions more accurately.

Studies that investigated whether various indexes of prosocial orientation predict elevated empathic accuracy have yielded mixed results. In one study, full-time workers' sociability, rated by peers, was associated with elevated empathic accuracy (Lopes, Grewal, Kadis, Gall, & Salovey, 2006). In a study of mixed-sex dyads, interest in the interaction partner predicted the ability to perceive the partner's emotions (Ickes et al., 1990). A meta-analysis of studies that assessed empathic accuracy with the relevant items from the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, & Caruso, 2002) revealed a significant correlation with the trait of Agreeableness (Mayer, Salovey, & Caruso, 2004).

Other studies, however, uncovered no association between various indexes of prosocial orientation and empathic accuracy. In one study, the Agreeableness scores of undergraduates were not correlated with their scores on the empathic accuracy subtest of the MSCEIT (Bastian, Burns, & Nettelbeck, 2005). In a study of married couples, perceived closeness to the other assessed before an interaction (using the Inclusion of Other in the Self measure; Aron, Aron, & Smollan, 1992) was unrelated to empathic accuracy during the interaction (Simpson, Oriña, & Ickes, 2003). In addition, meta-analytic research revealed that the prosocial personality traits of Agreeableness, warmth-prosociality, and trust were not related to elevated interpersonal sensitivity, a broad construct that includes empathic accuracy (assessed through judgments of others' emotions) as well as other constructs such as individuals' accuracy in judging others' behaviors and the appropriateness of individuals' behaviors with others (Hall, Andrzejewski, & Yopchick, 2009). Thus, although prosocial orientation was associated with higher empathic accuracy in some past studies, there was no association in several other studies. The mixed nature of these findings presents the possibility that although prosocial orientation motivates accuracy in emotion perception, situational and dispositional factors may prevent prosocially oriented individuals from being able to attend to others' emotions.

This puzzle motivated the present investigation: Why is the association between prosocial orientation and empathic accuracy inconsistent across studies? To reconcile these findings, we drew upon research showing that social power—and the elevated freedom that power allows—increases behavioral flexibility and propels behavior that is congruent with individuals' goals and motivations (e.g., Bargh, Raymond, Pryor, & Strack, 1995; Chen, Lee-Chai, & Bargh, 2001; Guinote, 2007a; Overbeck & Park, 2001, 2006). Guided by this research, we hypothesized that prosocial orientation would be more strongly associated with empathic accuracy when individuals are in higher power positions than when they are in lower power positions.

### Power Increases Goal Focus and Behavioral Flexibility

Social power is the relative capacity to modify the behaviors and outcomes of other individuals by providing or withholding re-

sources (Fiske, 1993; Keltner, Gruenfeld, & Anderson, 2003; Magee & Galinsky, 2008). Power has wide-reaching implications for how people process information, construe their social worlds, feel, and behave. In particular, the control over resources that characterizes power reduces dependence on others and increases the ability to think, feel, and behave freely and independently of others' wishes and aspirations (Fiske, 1993; Fiske & Dépret, 1996). Evidence suggests that the behavior of individuals in high-power positions depends less on group norms, leading to higher variability in the behaviors of members of high-power groups than of members of low-power groups (Guinote, Judd, & Brauer, 2002). When performing creative tasks (e.g., drawing an alien), power-primed participants are less likely to have their creative ideas influenced by outside information (Galinsky, Magee, Gruenfeld, Whitson, & Liljenquist, 2008, Studies 1 and 2). Power also increases emotional independence. In past research, low-power people in dating and roommate relationships tended to become more similar in their emotional experiences to the high-power person in the relationship over the course of several months. In contrast, the emotions of high-power people in these relationships remained constant over the same time period (Anderson, Keltner, & John, 2003; but see Hsee, Hatfield, Carlson, & Chemtob, 1990, for an opposite finding).

In increasing personal independence, power allows people to be guided by their preexisting dispositions; power reveals people's true nature. Individuals in high-power positions focus their thoughts and actions in a manner that is consistent with current goals and internal motives. On this, priming power enhances people's commitment to goals and persistence on goal-relevant tasks (Guinote, 2007c). In one study, power-primed participants were more likely than control participants to choose a candidate who matched the specific requirements of a job (Gruenfeld, Inesi, Magee, & Galinsky, 2008, Experiment 2). Other research found that power-primed male participants exhibited a close connection between their self-reported proneness to sexual harassment and the accessibility of sex-related concepts (Bargh et al., 1995). Other studies suggest that the processes that underlie these effects include enhanced attention on focal aspects of tasks and enhanced ability to inhibit peripheral, less relevant information (Guinote, 2007b; P. K. Smith & Trope, 2006). An emergent theme, then, in this research is that in elevated positions of power, individuals show greater associations between underlying dispositions, motivations, and goals and conceptually relevant behaviors.

### A Model of Power, Prosocial Orientation, and Empathic Accuracy

How might power influence the relationship between prosocial orientation and empathic accuracy? The theorizing offered in the preceding section suggests that power will moderate this association: Individuals in high-power positions vary their cognitive and behavioral style in a flexible manner, depending on salient goals, internal motivations, and traits. Thus, elevated power should allow more prosocially inclined individuals to focus on their prosocial goals and motivations and, in turn, attend to and identify others' emotions more accurately. Elevated power frees prosocially oriented individuals to attend to the salient motive of enhancing others' welfare, which involves paying attention to and correctly identifying what others feel.

This proposition is consistent with past studies showing that prosocial and self-serving goals exhibit stronger associations with concomitant decisions and behaviors when power is high than when it is low (Lammers, Stoker, & Stapel, 2009; Magee & Langner, 2008). For instance, among power-primed participants, those with a communal social orientation cooperated with others and those with an exchange social orientation acted selfishly (Chen et al., 2001). Among low-power participants, social orientation exhibited weaker associations with behavior. Other research has shown that prosocial tendencies predict cooperative behavior among high-power participants and that the cooperative behavior of lower power individuals depends more on contextual variables, such as the reputation of the counterpart (Galinsky et al., 2008, Study 4).

Other studies have specifically examined how the prosocial and self-serving goals of individuals in higher and lower power positions relate to how accurately they perceive others. In one study, participants in high-power positions paid closer attention to unique information about others when they prioritized the goal of creating a positive workplace atmosphere than when they prioritized the goal of maximizing productivity (Overbeck & Park, 2006, Study 2). In another study, participants who identified with an empathic leadership style received higher scores on the Profile of Nonverbal Sensitivity test, a general test of interpersonal sensitivity, than those who identified with an egoistic leadership style (Schmid Mast, Jonas, & Hall, 2009, Study 4). Another series of studies compared the effects of prosocial versus self-serving goals on the accuracy of individuals in high- versus low-power positions. Higher power participants recalled more unique information about others than did lower power participants when their role contained high responsibility for others (Overbeck & Park, 2001, Studies 1 and 2) but not when their role required attending primarily to concerns of their organization (Overbeck & Park, 2001, Study 3).

We extend this research by examining in three studies whether power moderates the association between prosocial orientation and empathic accuracy in particular, in an effort to reconcile the previous inconsistent results concerning this association. Our research extends past research on prosocial orientation and empathic accuracy by testing whether power influences the strength of the association. We also contribute to the literature on power by revealing whether it facilitates the effects of salient goals, internal motivations, and traits on the criterion of empathic accuracy. Our focus on empathic accuracy is particularly important, given that in some past studies, elevated power was associated with enhanced empathic accuracy (e.g., Schmid Mast et al., 2009, Studies 1–3) and in other studies, elevated power was associated with diminished empathic accuracy (e.g., Galinsky, Magee, Inesi, & Gruenfeld, 2006). In light of our theoretical development and past research findings, we hypothesized that elevated power does not directly elevate or diminish empathic accuracy but instead amplifies internal goals and motivations (e.g., prosocial orientation) and their associated outcomes, including empathic accuracy.

### The Operationalization of Prosocial Orientation

Researchers have used several measures of prosocial orientation. Some research used personality questionnaires, such as measures of trait Agreeableness (Graziano & Eisenberg, 1997; Graziano, Habashi, Sheese, & Tobin, 2007), trait compassion (Oveis,

Horberg, & Keltner, 2010, Study 1), and social value orientation (Balliet, Parks, & Joireman, 2009; Piff, Kraus, Côté, Cheng, & Keltner, 2010, Study 3; van Lange, 1999). Other research has primed prosocial orientation, for example, by eliciting feelings of compassion (Oveis et al., 2010, Studies 2 and 3; Piff et al., 2010, Study 4). Yet other research has captured prosocial orientation physiologically (Beauchaine, 2001; Kok & Fredrickson, 2010; Porges, 1998, 2007). The different indicators of prosocial orientation tend to correlate (Oveis et al., 2009, 2010) and show similar associations with criteria such as prosocial behavior (Graziano et al., 2007; Oveis et al., 2010; Piff et al., 2010). We employed different measures of prosocial orientation across three studies to triangulate the results and, in turn, strengthen our inferences (Campbell & Fiske, 1959). In particular, we used a physiological indicator of prosocial orientation, respiratory sinus arrhythmia, in Study 1; an experimental manipulation of compassion in Study 2; and a questionnaire measure of the trait of Agreeableness in Study 3.

### The Present Investigation

Guided by recent theorizing about power and goal-focused behavior, we tested in three studies the moderating effect of power on the association between prosocial orientation and empathic accuracy. In studies with both university and adult samples, we examined how self-reports of dispositional power moderate the relation between respiratory sinus arrhythmia and empathic accuracy during a face-to-face interaction (Study 1); how experimental manipulations of power and compassion combine to influence empathic accuracy while participants viewed a videotaped interview of a future interaction partner (Study 2); and how the degree of power in employees' jobs (positional or hierarchical power) moderates the relation between the trait of Agreeableness and empathic accuracy measured with a standardized test (Study 3). Throughout this investigation, we controlled for alternative explanations of the results concerned with demographic characteristics related to power (e.g., age, gender, work experience).

#### Study 1: Dispositional Power, Physiological Prosociality, and Perceiving Emotions in Face-to-Face Discussions of Painful Experiences

In our initial study, we examined whether power moderates the association between prosocial orientation and empathic accuracy in the context of dyadic interactions between individuals discussing an emotional event. We chose to study a dynamic, face-to-face, emotionally evocative interaction in which participants took turns describing an event that had caused them considerable suffering and pain. This setting ensured that participants felt and expressed emotions and, in turn, allowed us to measure empathic accuracy by comparing participants' judgments of their partners' emotions to their partners' reports of their own emotions.

We focused on the dispositional sense of power, individual differences in beliefs that one can control resources and influence the behaviors and outcomes of others (Anderson & Galinsky, 2006). Sense of power does not always correlate perfectly with objective power. High sense of power can lead individuals to overestimate the degree to which they can actually influence the behaviors and outcomes of others (Chen, Langner, & Mendoza-

Denton, 2009; Fast, Gruenfeld, Sivanathan, & Galinsky, 2009). Even so, in past research, sense of power had similar correlates to structural and priming manipulations of power (e.g., Anderson & Berdahl, 2002; Anderson & Galinsky, 2006). Thus, we expected sense of power to moderate the relationship between prosocial orientation and empathic accuracy.

We assessed respiratory sinus arrhythmia as a physiological indicator of prosocial orientation. Respiratory sinus arrhythmia (RSA) refers to respiration-related variation in heart rate and reflects the activation of the vagus nerve. RSA has served to index a prosocial orientation in past research on the basis of several findings (Beauchaine, 2001; Porges, 1998, 2001, 2007). The vagus nerve activates facial and vocal muscles involved in attentive responses to others, including sighs, head nods, affirmative vocalizations, and gaze orientation to the other (Porges, 1998, 2001, 2007). The vagus nerve slows the heart rate to facilitate soothing contact with others (Porges, 2001, 2007). In addition, vagus nerve activity is related to increased release of oxytocin, a neuropeptide linked to trust and warmth (Porges, 2001). Further evidence for the association between RSA and prosocial orientation includes associations between higher RSA and greater prosocial behavior and social connection in boys (Eisenberg et al., 1995); more sympathetic responses to distressed others in children (Fabes, Eisenberg, & Eisenbud, 1993); more social engagement (i.e., spontaneous eye contact) in children (Heilman, Bal, Bazhenova, & Porges, 2007); more flexible responding in challenging contexts (Gyurak & Ayduk, 2008); greater facial expressivity of emotion (Porges, 2007); increased positive moods (Geisler, Vennewald, Kubiak, & Weber, 2010; Oveis et al., 2009); increased marital quality (T. W. Smith et al., 2011); higher Agreeableness (Oveis et al., 2009); and more frequent experiences of positive emotions and increased feelings of social connection during interactions with others (Kok & Fredrickson, 2010). And consistent with this perspective, individuals who engage in social connections with others subsequently show increased levels of RSA (Kok & Fredrickson, 2010).

On the basis of our conceptual analysis and prior research, we hypothesized that sense of power would moderate the association between RSA and empathic accuracy, such that this association would become more positive as sense of power increases.

## Method

**Participants.** Participants were 118 undergraduate students (70 women and 48 men) at the University of California, Berkeley, between the ages of 18 and 56 ( $M = 20.89$  years,  $SD = 4.95$ ). Of participants, 56 (47%) were Asian, 34 (29%) were Caucasian, six (5%) were Hispanic, and five (4%) were African American; 17 (15%) reported another category. Participants received \$15 or credit toward a psychology course requirement.

**Procedure.** After providing informed consent, previously unacquainted partners were randomly paired into same-sex dyads, seated approximately two feet apart in comfortable chairs facing one another, and connected to physiological monitoring equipment while they received instructions. The experimenter left the room for the remaining duration of the experiment and communicated with the dyad via intercom. Before interacting with their partner, participants completed a demographic questionnaire and a measure of sense of power. Participants were then asked to think about an event that occurred during the past 5 years that had caused them

emotional suffering and pain. For 3 minutes, the participants wrote a summary of this event.

Participants then took turns, randomly determined by a coin flip, discussing their event (as “talker”) with the other participant (as “listener”) for about five minutes each. As talker, participants were instructed to convey the feelings evoked by the event and its impact on their life. As listener, participants were allowed to ask questions to attempt to gain a better understanding of the other’s experience. The most often discussed topics were mortality (30%), conflict with a romantic partner (20%), and conflict with family members (18%). After each turn, participants rated their own emotions and those of their partner.

### Measures.

**Sense of power.** We measured sense of power with the eight-item Capacity for Power Scale (Anderson & Galinsky, 2006). Examples of items were “I think I have a great deal of power” and “Even if I voice them, my views have little sway” (reverse scored), rated on a scale of 1 (*strongly disagree*) to 7 (*strongly agree*). In past research, scores on this scale correlated with people’s actual standing in power hierarchies and predicted the same behaviors as did structural manipulations of power (Anderson & Berdahl, 2002; Anderson & Galinsky, 2006). The mean score was 5.19 ( $SD = 0.93$ ;  $\alpha = .89$ ).

**RSA.** We assessed RSA by measuring the degree of respiration-linked variability in heart rate, as in past research (e.g., Oveis et al., 2009). Electrocardiogram (ECG) recordings, sampled at 1,000 Hz, were obtained from leads placed on the torso in a Lead II configuration using ambulatory monitoring systems (Free University, Amsterdam, the Netherlands). All data were hand inspected for artifacts; no artifacts were present in this sample. We calculated RSA via power spectral analysis with the high-frequency .12 Hz–.40 Hz band of the R–R interbeat interval series, using CMet cardiac metric software (Allen, Chambers, & Towers, 2007; software available from <http://apsychoserver.psych.arizona.edu>). Participants’ baseline RSA was calculated from 2 min of ECG data acquired 15 min after the start of the experiment, during the time when participants were quietly filling out questionnaires before interacting. In this sample, RSA correlated with two other indicators of prosocial orientation: participants’ ratings of how much they would like to get to know the other participant better,  $r(115) = .19$ ,  $p < .05$ , and how much they believed that they could have a satisfying friendship with the other participant,  $r(115) = .25$ ,  $p < .01$ , made immediately after the interaction.

**Experienced emotions.** In their role as talker, participants rated the degree to which they felt 36 emotions during the interaction on a scale of 1 (*did not feel at all*) to 7 (*felt very strongly*): achieved, amazed, angry, anxious, appreciative, ashamed, awe, compassion, concerned, contempt, courage, disgusted, distressed, disturbed, embarrassed, empowered, grateful, guilt, happy, hopeful, inspired, moved, pain, pity, powerful, proud, relieved, sad, sympathy, touched, troubled, uplifted, upset, warm, weak, and worried.

**Perceptions of the partner’s emotions.** In their role as listener, participants indicated how much they thought their partner (the talker) felt the same 36 emotions on the same scale.

**Empathic accuracy.** We generated empathic accuracy scores by calculating absolute deviation scores.<sup>1</sup> For each participant, we first calculated empathic accuracy for each emotion by calculating the absolute value of the difference between the perception of the partner's emotion (as listener) and the partner's reported emotion (as talker). We then generated one empathic accuracy score by averaging absolute deviation scores for the 36 emotions ( $\alpha = .89$ ). The scores in this sample ranged from 0.25 (reflecting higher accuracy) to 3.39 (reflecting lower accuracy), and the mean score was 1.74 ( $SD = 0.73$ ). To aid in the interpretation of the findings, we multiplied the scores by  $-1$ , so that a higher value reflects more empathic accuracy (Kraus, Côté, & Keltner, 2010).

**Emotional expressivity during the discussions.** Within interactions, empathic accuracy may depend on how clearly the talker is expressing emotion while discussing an emotional event, because talkers who are emotionally expressive may be perceived more accurately. In addition, how clearly individuals express emotions may depend on power (Hall, Coates, & Smith LeBeau, 2005; Hall, Rosip, Smith LeBeau, Horgan, & Carter, 2006; Snodgrass, 1992; Snodgrass, Hecht, & Ploutz-Snyder, 1998). To control for the possibility that the results were confounded by the clarity of emotional expressions, we measured and controlled for participants' emotional expressivity, as in past research (Kraus et al., 2010). Three coders watched video recordings of each participant during the interactions while the partner was obstructed from view and rated each participant's emotional expressivity on a 4-point Likert scale of 0 (*not at all expressive*) to 3 (*extremely expressive*). Coders were instructed to let both the verbal and the nonverbal behavior of participants guide their expressivity codes. Coders' expressivity codes were internally consistent ( $\alpha = .80$ ). The emotional expressivity of the talker was indexed as the average of the coder ratings ( $M = 1.64$ ,  $SD = 0.55$ ). For the analyses using the actor-partner interdependence model, we also used the expressivity of the listener ( $M = 1.11$ ,  $SD = 0.42$ ;  $\alpha = .76$ ).

## Results

To test the hypothesis that sense of power moderates the association between RSA and empathic accuracy, we used multilevel modeling with nondistinguishable dyads within an actor-partner interdependence model framework (Campbell & Kashy, 2002; Kenny, Kashy, & Cook, 2006). Both discussions held by each dyad were included in the analysis. We predicted the actor's empathic accuracy with variables concerning the actor (as listener) and other variables concerning the partner (as talker). In particular, we predicted the actor's empathic accuracy with actor RSA, actor power, partner RSA, partner power, and two interaction terms: the interaction between actor RSA and actor power and the interaction between partner RSA and partner power. All predictors were centered around their grand means.

Empathic accuracy was not associated with actor RSA,  $\gamma = .05$ ,  $t(52) = 0.91$ ,  $p = .37$ ; actor power,  $\gamma = .04$ ,  $t(52) = 0.53$ ,  $p = .60$ ; partner RSA,  $\gamma = -.05$ ,  $t(52) = -0.84$ ,  $p = .40$ ; or partner power,  $\gamma = .04$ ,  $t(52) = 0.52$ ,  $p = .61$ . The interaction between partner RSA and partner power was also not significant,  $\gamma = -.02$ ,  $t(52) = -0.23$ ,  $p = .82$ . As expected, there was a significant interaction between actor RSA and actor power,  $\gamma = .16$ ,  $t(52) = 2.23$ ,  $p < .05$ . The interaction, displayed in Figure 1, is consistent with the hypothesis. As sense of power increased, the slope relat-

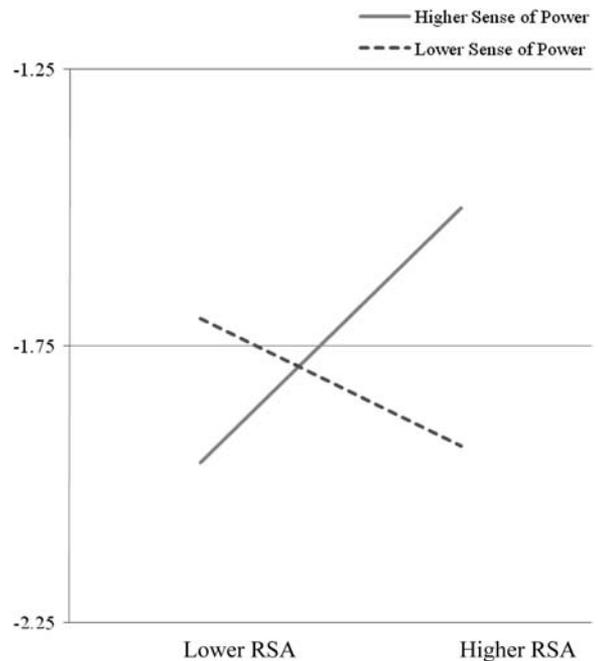


Figure 1. Empathic accuracy as a function of respiratory sinus arrhythmia (RSA) and sense of power (Study 1). Less negative values represent higher empathic accuracy.

ing RSA and empathic accuracy became more strongly positive. We tested the simple slopes using the computational tool for two-way interactions in hierarchical linear models developed by Preacher, Curran, and Bauer (2006). At one standard deviation in power above the mean, the simple slope estimate was .23, and it was significant ( $z = 3.00$ ,  $p < .01$ ). The simple slope was not significant at the mean level of power (estimate = .08,  $z = 1.52$ ,  $p = .13$ ) and at one standard deviation in power below the mean

<sup>1</sup> Past research identified two broad categories of measures of interpersonal accuracy: deviation scores and profile correlations (Epley & Dunning, 2006; Fletcher & Kerr, 2010; Gagné & Lydon, 2004; Kenny & Albright, 1987). Absolute deviation scores reflect the degree to which a person's judgments of a target's absolute level of emotion match the absolute level of emotion that the target reports feeling. We adopted this measure because it corresponds to our conceptual definition of empathic accuracy and how we operationally defined empathic accuracy in Studies 2 and 3. In contrast, profile correlations assess whether a person evaluates a target's level of emotion relative to other emotions. It is possible for a perceiver to obtain a perfect profile correlation score yet fail to identify the target's absolute level of each emotion (Fletcher & Kerr, 2010). We did not adopt the profile correlation measure because it does not reflect an individual's ability to accurately perceive the absolute levels of others' emotions and, as such, does not match our conceptual definition of empathic accuracy. Meta-analytic research found a correlation of  $r = -.11$  between absolute deviation scores and profile correlation scores (Fletcher & Kerr, 2010). In Study 1, the correlation was similar,  $r(116) = -.04$ ,  $p = .68$ . In addition, in past research, absolute deviation and profile correlation scores predicted different characteristics of social relationships (Fletcher & Kerr, 2010; Gagné & Lydon, 2004). In Study 1, power and prosocial orientation did not interact to predict profile correlations,  $\gamma = -.71$ ,  $t(52) = -0.45$ ,  $p = .66$ .

(estimate =  $-.08$ ,  $z = 1.14$ ,  $p = .26$ ). Intraclass correlations revealed no significant nonindependence on power, RSA, felt emotions, or perceived emotions (ICCs  $< .16$ ,  $ps > .09$ ), and traditional regression analyses revealed the same substantive conclusions.<sup>2</sup>

Further analyses showed that age was not correlated with power,  $r(116) = .06$ ,  $p = .51$ ; RSA,  $r(116) = -.18$ ,  $p = .06$ ; or empathic accuracy,  $r(114) = -.07$ ,  $p = .45$ . Gender was also not correlated with power,  $r(111) = .13$ ,  $p = .16$ ; RSA,  $r(112) = -.08$ ,  $p = .38$ ; or empathic accuracy,  $r(110) = -.04$ ,  $p = .66$ . The interaction between power and RSA predicting empathic accuracy remained significant,  $\gamma = .18$ ,  $t(38) = 2.01$ ,  $p = .05$ , after controlling for actor and partner age and gender and their respective interactions with actor and partner power.

In addition, the interaction between actor RSA and actor power predicting empathic accuracy remained significant,  $\gamma = .16$ ,  $t(49) = 2.10$ ,  $p < .05$ , after controlling for actor and partner emotional expressivity during the interaction.

## Discussion

The findings of Study 1 provide initial evidence that power moderates the association between prosocial orientation and empathic accuracy. As expected, individuals with high sense of power exhibited a positive association between RSA, a physiological indicator of prosocial orientation, and empathic accuracy. This association was not significant among their counterparts with lower sense of power. These relations were independent of age, gender, and emotional expressivity. These findings represent some of the first evidence relating RSA to empathic accuracy (among some individuals), a theme we take up in the General Discussion.

The inferences to be drawn from the evidence in Study 1 are limited, because both power and prosocial orientation were measured rather than manipulated (Schmid Mast et al., 2009). In particular, power was assessed as a disposition to believe that one has control over resources and influence over others. Although sense of power and actual power exhibited similar associations with behavior in past research, they are not always perfectly correlated (Chen et al., 2009; Fast et al., 2009), which invites questions about the role of more objectively determined power. In light of these concerns, we explored in Study 2 the causal relationship between power, prosocial orientation, and empathic accuracy by manipulating participants' control over others' resources and participants' prosocial emotional states.

### Study 2: Experimentally Induced Power and Compassion and the Identification of Another's Emotions in the Laboratory

In Study 2, we manipulated power and prosocial orientation to alleviate concerns about the role of unmeasured variables and the causal order of the constructs. To more precisely ascertain how power shapes the effects of prosocial orientation on empathic accuracy, we examined situations in which high-power participants actually controlled the resources of others and, conversely, situations in which low-power participants' resources were determined by others (Anderson & Berdahl, 2002; Overbeck & Park, 2001). With this operationalization, we sought to address the limitation that participants' sense of power in Study 1 may not

have always corresponded perfectly to participants' actual power (Chen et al., 2009; Fast et al., 2009).

In our efforts at triangulation, we also operationalized prosocial orientation and empathic accuracy differently in Study 2. We manipulated compassion as a facet of prosocial orientation. Compassion is an affective experience that is founded on a concern for the well-being of others and that motivates nurturance toward others in need (Eisenberg, 2002; Goetz et al., 2010; Haidt, 2003; Lazarus, 1991; Oveis et al., 2010). Compassion evolved as part of a caretaking system designed to help those who are in need (Goetz et al., 2010; Mikulincer & Shaver, 2005; Oveis et al., 2010). We operationalized empathic accuracy by adapting the well-validated paradigm developed by Ickes and his colleagues (cf. Ickes, 2001; Ickes et al., 1990; Simpson et al., 2003). This paradigm allowed us to use the same stimuli for participants and, in turn, ensure that participants in the high- and low-power conditions viewed expressive displays of emotion that had the same degree of expressivity and clarity.

We predicted that compassion would increase empathic accuracy to a greater extent among participants in the high-power condition than among those in the low power condition. When power is high, participants in the compassion condition should be more accurate than those in the neutral condition. When power is low, there should be a smaller difference in accuracy between participants in the compassion and neutral conditions.

## Method

**Participants and experimental design.** A total of 124 participants (80 women and 44 men) were recruited from a paid research participation system that includes students and adults from the general public in a large city (Toronto). Participants were between the ages of 18 and 50 ( $M = 21.76$  years,  $SD = 4.29$ ). Seventy-seven (62%) were Asian; 25 (20%) were Caucasian; 12 (10%) were Indian; and 25 (15%) reported another category. The sum of these percentages exceeds 100% because some participants endorsed more than one ethnic category. The experimental design was a 2 (power: high vs. low)  $\times$  2 (emotion: compassion vs. neutral) factorial design, with empathic accuracy as the dependent variable. Participants were randomly assigned to experimental conditions.

**Procedure.** When participants arrived at the laboratory, two experimenters explained that the study was being conducted in two separate rooms and that they had been randomly assigned to one of the rooms. Each participant was then guided by one of the experimenters to one of the two rooms. Participants learned that the study was divided into three parts that consisted of individual and joint tasks with a partner with whom they were randomly paired and who was assigned to the other room. In reality, their partner was a confederate pretending to be a participant of the study; all

<sup>2</sup> In addition to empathic accuracy (the actor's judgment of the partner's emotions and vice versa), other judgmental congruencies exist, including projection (the correspondence between the actor's emotions and the actor's judgment of the partner's emotions) and synchrony (the correspondence between the actor's emotions and the partner's emotions). Subsidiary analyses revealed that power and prosocial orientation did not interactively predict projection,  $\gamma = -.01$ ,  $t(52) = -0.18$ ,  $p = .86$ , or synchrony,  $\gamma = .12$ ,  $t(52) = 1.69$ ,  $p = .10$ .

participants saw the confederate in the waiting area while waiting for the experimenters to assign them to one of the two rooms. Participants learned that in the first part, they would complete a series of individual tasks and that participants in separate rooms would be completing different individual tasks. In the second part, participants would form a first impression of their assigned partner. In the third and final part, participants would complete a task with their partner. Participants indicated their consent by signing a form.

The experimenter began the first part, which consisted of individual tasks. The first individual task consisted of the assignment to the high- and low-power roles. We created high- and low-power roles by assigning participants to the positions of supervisor and employee. This procedure has been shown to successfully manipulate power in past research (cf. Anderson & Berdahl, 2002; Hall, Carter, & Horgan, 2001; Snodgrass, 1992). Participants were told that they would be completing a face-to-face joint task with their partner later in the study. Participants answered questions about their work and leadership experiences and their experiences as group members. After they answered the questions, participants were told that their responses would be compared to their partner's responses by the experimenters to determine whether they would play the role of boss or subordinate for the joint task. In actuality, the assignment to roles was done randomly prior to the experiment. While experimenters ostensibly determined the roles, participants answered demographic questions on the computer. Participants learned their role after a few minutes.

Manipulations that give high-power participants the ability to influence real outcomes of others match the conceptual definition of power and are more externally valid (Anderson & Berdahl, 2002; Overbeck & Park, 2001). Thus, we gave high-power participants control of resources by telling them that they would decide how to divide (a) a fixed \$20 amount and (b) a potential \$50 amount from an experiment-wide lottery (involving all teams that completed the joint task) between them and the subordinate based on their evaluation of the subordinate's performance during the joint task. Low-power participants' resources were controlled by high-power others, who would decide how much they would get paid. To reinforce these roles, participants were asked to put on a name tag with the word *BOSS* or the word *STAFF* printed on it and to sign a declaration form that listed the characteristics of their role.

The next individual task contained the manipulation of compassion. This task was ostensibly an individual memory task in which participants were asked to view slides and a video clip closely and to remember their content for a memory test. Participants in the high-compassion condition viewed five slides depicting helplessness and vulnerability created and validated by Oveis et al. (2010) and then watched a 46-s clip about child poverty. Participants in the control condition viewed five neutral slides from the International Affective Picture System (Lang, Bradley, & Cuthbert, 2008) and then watched a clip of the same duration (46 s) from the movie *All the President's Men* of two men quietly talking in a courtroom. This clip has been shown to elicit a neutral emotional state in past research (Hewig et al., 2005). In a sample of 20 individuals collected prior to the study, ratings of compassion using the five-item Compassion scale from the Dispositional Positive Emotions Scale (Shiota, Keltner, & John, 2006) on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) were

significantly higher after seeing the compassion video ( $M = 5.28$ ,  $SD = 1.05$ ) than the neutral video ( $M = 4.06$ ,  $SD = 1.13$ ),  $t(18) = 2.51$ ,  $p < .05$ .

Participants were then informed that they would begin the second part of the experiment, which consisted of forming a first impression of their partner. Participants were told that their partner was currently conducting an individual task that consisted of being interviewed by an experimenter in a separate room. Participants were told that they would view parts of their partner's interview live and that the live interview would stop at random moments to ask participants questions about their partner. These questions included judgments of the partner's emotions. In reality, participants viewed excerpts from a prerecorded interview with the confederate, described below. Participants had seen the confederate as they arrived at the laboratory, wearing the same clothes as in the clip. The computer interface was designed so that it seemed realistic that participants were watching their partner live in another room.

After they had finished the first impression task, participants were asked to follow the experimenter to another room for the third part of the study, which consisted of a joint task. Once out of the room, the experimenter indicated that the study was over. Participants were debriefed with the funnel-debriefing format (Aronson & Carlsmith, 1968). All participants received \$10, regardless of condition.

**Creation of empathic accuracy stimuli.** We adapted the established empathic accuracy paradigm to create the video stimuli to assess empathic accuracy (Ickes, 2001; Ickes et al., 1990; Levenson & Ruef, 1992; Schmid Mast et al., 2009, Studies 1 and 2). Our goal was to create clips of expressed emotions by the confederate to be identified by participants. One of the authors (B.H.C.) interviewed the confederate about events that had caused her stress at school and with family and friends. We chose this topic because it ensured that the confederate felt and expressed genuine emotions, allowing us to assess participants' ability to identify these emotions. When appropriate, the interviewer asked follow-up questions to gather more detail about the events. The confederate then watched the video of her interview and stopped it when she remembered feeling an emotion. It was emphasized that she should stop the video when she had a feeling during the interview and not while watching the interview (Ickes, 2001). Each time she stopped the video, the confederate rated the degree to which she felt afraid, nervous, and scared (Lerner & Keltner, 2001) at that point in time on a scale of 1 (*not at all*) to 7 (*extremely*). We chose these three emotions because they were most likely to be felt in this context. The criterion for selecting video excerpts was that the confederate expressed sufficient levels of emotion for participants to identify. Using this criterion, we selected four video excerpts and discarded the video excerpts in which the confederate did not express sufficient levels of emotion.

#### Measures.

**Power manipulation check.** We measured experienced power using an adapted version of the eight-item Capacity for Power Scale that we used in Study 1 (Anderson & Galinsky, 2006;  $\alpha = .90$ ). We instructed participants to think about their partner at the present time when completing the scale ("Right now, at this moment, I feel that with my partner for this study, I can get my partner to listen to what I say"). Participants rated their agreement

with each item on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

**Compassion manipulation check.** To measure compassion, we used the three-item scale from Oveis et al. (2010;  $\alpha = .93$ ). Participants rated the degree to which they felt “compassion,” “sympathy,” and “moved” while viewing the video and slides on a scale of 1 (*strongly disagree*) to 7 (*strongly agree*).

**Empathic accuracy.** Participants viewed parts of their partner’s interview. The interview was stopped four times to ask participants the degree to which the partner felt “afraid,” “nervous,” and “scared” (Lerner & Keltner, 2001) at that point in time on the same 1 (*not at all*) to 7 (*extremely*) scale used by the confederate.

To calculate empathic accuracy, we first identified the target score for each of the four excerpts for each emotion item on the 1–7 scale. Second, we identified the perceived score for each of the four excerpts for each emotion item on that scale. Third, we calculated the absolute value of the difference between the perceived score and the target score for each of the four excerpts for each emotion item. Fourth, we averaged the absolute deviation scores across the four excerpts to generate an empathic accuracy score for each of the three emotions. Finally, we averaged the absolute deviation scores across the three emotions to generate overall empathic accuracy scores for each participant. The scores in this sample ranged from 1.08 (reflecting the highest empathic accuracy among the participants) to 3.75 (reflecting the lowest empathic accuracy), and the mean score was 2.61 ( $SD = 0.69$ ;  $\alpha = .80$ ). As in Study 1, we multiplied the score by  $-1$  so that a higher value reflects more empathic accuracy.

## Results

**Manipulation checks.** As expected, participants in the high-power condition reported feeling more powerful ( $M = 5.11$ ,  $SD = 0.82$ ) than did those in the low-power condition ( $M = 4.30$ ,  $SD = 0.98$ ),  $t(122) = 4.94$ ,  $p < .001$ . The means in both conditions were higher than the midpoint of the scale, and, thus, below, we refer to the conditions in relative rather than absolute terms (i.e., we refer to the higher power and lower power conditions). In addition, as expected, participants in the compassion condition felt more compassion ( $M = 5.93$ ,  $SD = 0.86$ ) than did those in the neutral condition ( $M = 2.95$ ,  $SD = 1.07$ ),  $t(122) = 16.98$ ,  $p < .001$ .

**Joint effect of power and compassion on empathic accuracy.** We predicted that compassion would increase empathic accuracy to a greater extent among individuals in the higher power condition than among those in the lower power condition. A general linear model predicting empathic accuracy revealed no main effect of power,  $F(1, 120) = 0.73$ ,  $p = .40$ , or of compassion,  $F(1, 120) = 0.61$ ,  $p = .43$ . As predicted, however, there was a significant interaction,  $F(1, 120) = 4.23$ ,  $p < .05$ . We decomposed this interaction by examining the effect of compassion on empathic accuracy among higher power and lower power participants separately (see Table 1). Among participants in the higher power condition, those in the compassion condition exhibited significantly higher empathic accuracy than those in the neutral condition,  $t(120) = 2.05$ ,  $p < .05$ . Among participants in the lower power condition, there was no difference in the empathic accuracy of those in the compassion condition and those in the neutral condition,  $t(120) = 0.82$ ,  $p = .41$ . The interaction between power

Table 1  
*Empathic Accuracy Across Experimental Conditions (Study 2)*

Condition	Higher power condition		Lower power condition	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Compassion	−2.36	0.69	−2.73	0.74
Neutral	−2.73	0.58	−2.60	0.72

*Note.* Less negative values represent higher empathic accuracy.

and compassion remained significant when controlling for age and gender and their interactions with power,  $F(1, 116) = 4.47$ ,  $p < .05$ .

**Subsidiary analysis of goal-consistent responses among high-power individuals.** To illuminate the process by which power exerts its effects, we examined whether participants in the higher and lower power conditions responded differently to the compassion induction. If power enhances individuals’ goal-consistent responses, as we have argued, power should lead participants to respond with more compassion to the manipulation, in line with the situation-specific goals activated in this context. Thus, we predicted an interaction between the participants’ power condition and the compassion manipulation on participants’ self-reports of compassion. We expected that the compassion manipulation would have a stronger effect on the self-reported compassion manipulation check items when power was higher than when power was lower. A general linear model predicting the compassion manipulation check revealed a main effect of compassion,  $F(1, 120) = 295.32$ ,  $p < .001$ ; no main effect of power,  $F(1, 120) = 0.13$ ,  $p = .72$ ; and a significant interaction,  $F(1, 120) = 4.90$ ,  $p < .05$ . Further analysis on participants in the compassion condition indicated that the compassion induction had a marginally stronger effect on participants with higher power ( $M = 6.19$ ,  $SD = 0.77$ ) than those with lower power ( $M = 5.72$ ,  $SD = 0.88$ ),  $t(120) = 1.85$ ,  $p = .07$ . This analysis provides some evidence, albeit in the form of a statistical trend, that elevated power increases responses that are congruent with situation-specific prosocial goals, the mechanism that we invoked in our theoretical arguments. In addition, the interaction between power and compassion remained significant when controlling for the compassion manipulation check,  $F(1, 119) = 4.40$ ,  $p < .05$ . This result suggests that in enhancing empathic accuracy, high power increases sensitivity to an induction of compassion (relative to no compassion) rather than to the magnitude of compassion.

## Discussion

The results of Study 2 extend those of the first study in four key ways. First, the experimental design of Study 2 increases our confidence that power and prosocial orientation, in combination, have causal effects on empathic accuracy. Second, Study 2 showed that the association between prosocial orientation and empathic accuracy varies depending on power operationalized as control over resources in ways that are similar to power operationalized as individuals’ beliefs about such control (Fiske, 1993; Keltner, Gruenfeld, & Anderson, 2003; Magee & Galinsky, 2008). Third, the use of different operationalizations of power, prosocial orientation,

and empathic accuracy across Studies 1 and 2 increases our confidence in the observed associations. Finally, we found that power increases individuals' responses to a compassion induction, with more goal-consistent responding demonstrated among individuals in high-power positions.

In the last study of this investigation, we verified the generalizability of our model to a sample of adults with different levels of power in a naturalistic context, the workplace. We also examined whether the enhanced empathic accuracy of prosocially oriented individuals in high-power positions is, in turn, associated with satisfaction with career progression. We again varied the operationalizations of power, prosocial orientation, and empathic accuracy.

### Study 3: Power, Trait Prosociality, and Empathic Accuracy Among Employees of an Organization

We conducted a third study to replicate and extend the findings of Studies 1 and 2. First, we examined the generalizability of the findings of Studies 1 and 2 to a sample that is more diverse in terms of age, educational background, and work experience. We were also interested in examining the effects in a context other than the laboratory. It is possible that aspects of established hierarchies, such as the stability and legitimacy of power, play a role in how power, prosocial orientation, and empathic accuracy are interrelated (Schmid Mast et al., 2009). To ensure that our results were not specific to the behavior of undergraduate students in the laboratory, in Study 3, we tested our model in a sample of employees of an organization with varying levels of power in their jobs.

Second, to more fully understand the scope of the phenomenon, we explored whether the effects of prosocial orientation are limited to empathic accuracy, or whether they extend to other outcomes of individuals in high-power conditions. We examined whether power and prosocial orientation were associated with individuals' satisfaction with their career progression (Greenhaus, Parasuraman, & Wormley, 1990) through empathic accuracy. Accurately inferring emotions may lead individuals to evaluate their unfolding career experiences favorably, because identifying emotions should help individuals effectively navigate relationships with others. On this, meta-analytic research found that empathic accuracy is positively related to interpersonal aspects of performance, such as counseling others and managing conflict (Elfenbein et al., 2007). We thus proposed a moderated mediation model of power, prosocial orientation, empathic accuracy, and career satisfaction. Moderated mediation occurs when a mediated relationship depends on the level of a moderating variable (James & Brett, 1984; Muller, Judd, & Yzerbyt, 2005; Preacher, Rucker, & Hayes, 2007). In our model, depicted in Figure 2, empathic accuracy mediates the association between prosocial orientation and career satisfaction, and the strength of this mediated relationship varies depending on power. Prosocial orientation leads to career satisfaction through empathic accuracy among individuals in higher power positions, we reason, but not among those in lower power positions.

In Study 3, we again varied the operationalizations of the key constructs. We examined power that stems from the social structure that defines an individual's rank (Fiske, 1993; Hall & Halberstadt, 1994) by measuring the amount of power in the jobs of employees. We indexed prosocial orientation with a measure of

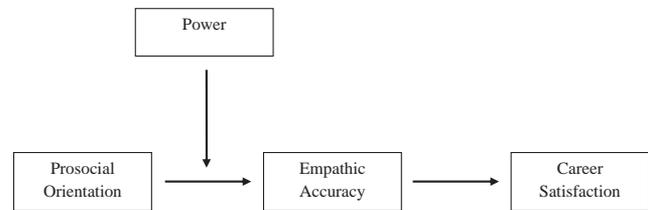


Figure 2. Visual depiction of moderated mediation model tested in Study 3.

Agreeableness, a trait of personality from the Big Five model that encompasses the qualities of warmth, generosity, forgiveness, cooperation, and helpfulness (Goldberg, 1992; Graziano, Jensen-Campbell, & Hair, 1996). Agreeable individuals tend to enjoy friendly social interactions (Côté & Moskowitz, 1998), cooperate with others in social dilemmas (Koole, Jager, van den Berg, Vlek, & Hofstee, 2001), and develop and maintain positive relationships (Graziano & Eisenberg, 1997). We measured empathic accuracy with a standardized test that presents respondents with photographs of human faces and asks them to identify the emotions expressed in the photographs.

Consistent with our theoretical development and Studies 1 and 2, we predicted that the amount of power in individuals' jobs would moderate the association between Agreeableness and empathic accuracy, such that the association would become more positive as the amount of power in the job increases. We further predicted that higher empathic accuracy would relate, in turn, to more favorable assessments of career satisfaction. Because age, years of work experience, tenure in the organization, gender, and education can covary with job status, we controlled for the effects of these demographic variables in the analyses.

### Method

**Participants.** Participants were 175 full-time employees (116 women, 58 men, and one unreported) of the University of Toronto. Because of missing data, one participant was not included in the analyses. Participants were between the ages of 22 and 65 ( $M = 42.50$  years,  $SD = 11.14$ ), with an average of 20.58 years of work experience ( $SD = 11.17$ ) and 10.29 years of tenure in the organization ( $SD = 9.58$ ). Three participants (2%) had a PhD; 21 (12%) had a master's degree; 100 (58%) had a university education; nine (5%) had started but not completed university; 10 (6%) had a diploma; and 30 (17%) had completed high school. Participants held a variety of jobs, including office and administrative support (28% of the sample), education and training (23%), management (21%), and computing (15%).

**Procedure.** We recruited participants via an e-mail message about a study of work outcomes sent to the managerial, administrative, and professional staff of the organization. We invited potential participants to a laboratory room. They provided informed consent and completed a series of tests and questionnaires that included the test of empathic accuracy and the measure of Agreeableness. They also answered a series of demographic ques-

tions that included job title and job description, which we used to generate the scores for power, as described below.

#### Measures.

**Power.** We assessed power by obtaining information about the jobs held by the participants. There were two steps in the calculation of power. In the first step, we coded the participants' jobs using codes from the Occupational Information Network (O\*NET; United States Department of Labor, 2001). The O\*NET is a classification system that covers all occupations in which work is performed for pay or profit. Two coders (the first author and a PhD student) read the participant's job title and description of the participant's occupation and work tasks and assigned one of the O\*NET codes. They agreed on 123 out of 174 jobs (71%) and resolved disagreements through discussion.

In the second step, we obtained the O\*NET database that contains scores for each job on a large number of job descriptors on which they can be compared, including some job descriptors that reflect power. We used six items to construct a score for the degree of power in each job. Two of the items reflected values that are reinforced by the job: "Workers on this job give directions and instructions to others" and "Workers on this job make decisions on their own." The other items covered behaviors that occur in the job: "Getting members of a group to work together to accomplish tasks"; "Identifying the educational needs of others, developing formal educational or training programs or classes, and teaching or instructing others"; "Providing guidance and direction to subordinates, including setting performance standards and monitoring performance"; and "Identifying the developmental needs of others and coaching, mentoring, or otherwise helping others to improve their knowledge or skills." We standardized and averaged the scores on the items to create a power score for each job. Then, we assigned power scores to each participant ( $M = 0$ ,  $SD = 0.86$ ;  $\alpha = .93$ ).

**Agreeableness.** We administered the 10-item Agreeableness scale from the International Personality Item Pool (Goldberg, 1999). Two sample items are "I make people feel at ease" and "I feel little concern for others" (reverse-scored), and the scale is anchored at 1 (*very inaccurate*) and 5 (*very accurate*). The mean was 4.27 ( $SD = 0.49$ ;  $\alpha = .75$ ).

**Empathic accuracy.** We administered the MSCEIT (Mayer et al., 2002) and used the 20-item subscale score that reflects the ability to identify emotions in a series of photographs of human faces. Each item asks respondents to identify the degree to which a specific emotion is expressed by the person in the photograph. Respondents receive credit to the extent that their answers match the answers provided by expert emotion researchers. Total raw scores are converted to standard scores, with a mean of 100 and a standard deviation of 15. In past research, this specific branch of the MSCEIT exhibited adequate internal reliability (above .80; Mayer et al., 2002) and appropriate discriminant validity with personality traits (Mayer et al., 2004) and criterion validity with the quality of social interactions and contribution to a positive workplace environment (Lopes et al., 2006). The average score was 100.56 ( $SD = 17.85$ ;  $\alpha = .88$ ).

**Career satisfaction.** We administered Greenhaus et al.'s (1990) measure. Participants indicated their agreement with five statements on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*). Sample items include "I am satisfied with the success I have achieved in my career" and "I am satisfied with the progress I have

made toward meeting my overall career goals." Validity evidence for this measure includes correlations with various indices of job quality and performance (Greenhaus et al., 1990). The mean was 3.49 ( $SD = 0.85$ ;  $\alpha = .89$ ).

## Results

**Power, Agreeableness, and empathic accuracy.** We predicted that the degree of power in participants' jobs would moderate the association between Agreeableness and empathic accuracy. A regression analysis with centered variables revealed a positive effect of Agreeableness,  $b = 11.92$ ,  $t(170) = 4.22$ ,  $p < .001$ ; no main effect of power,  $b = -2.05$ ,  $t(170) = -1.35$ ,  $p = .18$ ; and a significant interaction between power and Agreeableness,  $b = 5.95$ ,  $t(170) = 2.02$ ,  $p < .05$ , on empathic accuracy. We decomposed this interaction by examining how Agreeableness is associated with empathic accuracy at both higher and lower levels of power. The interaction is displayed in Figure 3. Agreeableness was positively associated with empathic accuracy at one standard deviation in power above the mean,  $b = 8.27$ ,  $t(170) = 3.94$ ,  $p < .001$ . The association between Agreeableness and empathic accuracy was also positive and significant at one standard deviation in power below the mean,  $b = 3.30$ ,  $t(170) = 2.14$ ,  $p < .05$ . This association, however, was weaker, as indicated by the significant interaction term.

To ensure that results were not due to potential confounds, we entered age, years of work experience, tenure in the organization (in years), gender, and education as well as their interaction terms with Agreeableness (to verify that our power measure was not a proxy for any of them) in the regression analysis. The interaction between power and Agreeableness remained a significant predictor of empathic accuracy,  $b = 6.78$ ,  $t(156) = 2.19$ ,  $p < .05$ . No other interaction term was significant,  $|rs(156)| < 0.90$ ,  $ps > .37$ , in this secondary analysis.

**Test of moderated mediation.** We used regression analysis and bootstrapping procedures to estimate the significance of the

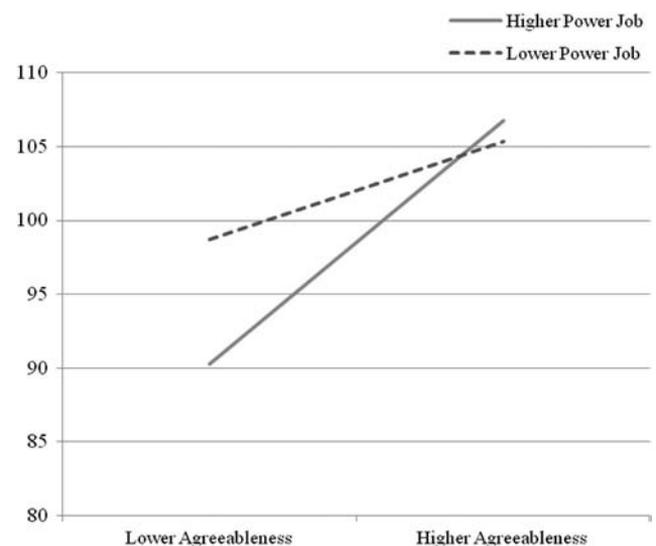


Figure 3. Empathic accuracy as a function of Agreeableness and the degree of power in the job (Study 3).

indirect effect of Agreeableness on career satisfaction via empathic accuracy at different levels of power (Edwards & Lambert, 2007; Muller et al., 2005; Preacher et al., 2007). Support for a moderating effect of power on the mediated relationship between Agreeableness, empathic accuracy, and career satisfaction is inferred if there is a Power  $\times$  Agreeableness interaction predicting career satisfaction (Criterion 1); if there is a Power  $\times$  Agreeableness interaction predicting empathic accuracy (Criterion 2); if empathic accuracy correlates with career satisfaction (Criterion 3); and if how much the Power  $\times$  Agreeableness interaction predicts career satisfaction decreases when empathic accuracy is entered in the model, suggesting that empathic accuracy explains why agreeable employees in high-power jobs are more satisfied with their career (Criterion 4).

A regression of career satisfaction on power, Agreeableness, and their interaction revealed a significant interaction,  $b = 0.30$ ,  $t(169) = 2.05$ ,  $p < .05$ . The form of the interaction was similar to that of predicting empathic accuracy. The simple slope representing the association between Agreeableness and career satisfaction at one standard deviation in power above the mean was positive and marginally significant,  $b = 0.18$ ,  $t(169) = 1.75$ ,  $p = .08$ . The simple slope representing the association at one standard deviation in power below the mean was not significant,  $b = -0.07$ ,  $t(169) = -0.89$ ,  $p = .37$ . Thus, Criterion 1 was met. The analyses described above indicate that Criterion 2 was also met. Empathic accuracy was positively correlated with career satisfaction,  $r(171) = .18$ ,  $p < .05$ , meeting Criterion 3. The effect of the Power  $\times$  Agreeableness interaction on career satisfaction was reduced,  $b = 0.25$ ,  $t(168) = 1.70$ ,  $p = .09$ , when we added empathic accuracy in the model, suggesting that empathic accuracy explains why power and Agreeableness are jointly associated with career satisfaction and meeting Criterion 4.

We probed the significance of the mediated relationship between prosocial orientation, empathic accuracy, and career satisfaction at specific levels of power. We used a macro developed by Preacher et al. (2007) that used a bootstrapping procedure to estimate the conditional indirect effects between prosocial orientation, empathic accuracy, and career satisfaction at the mean level of power and at one standard deviation above and below the mean in power. The indirect effect was significant at one standard deviation above the mean in power (bootstrap indirect effect = .15, bootstrap  $z = 2.02$ ,  $p < .05$ ) and at the mean level of power (bootstrap indirect effect = .11, bootstrap  $z = 2.05$ ,  $p < .05$ ). The indirect effect was not significant at one standard deviation below the mean in power (bootstrap indirect effect = .06, bootstrap  $z = 1.57$ ,  $p = .12$ ). Among employees in higher and average-power jobs, Agreeableness was associated with more career satisfaction through higher empathic accuracy. There was no mediated relationship between Agreeableness, empathic accuracy, and career satisfaction among employees in lower power jobs.

## Discussion

Study 3 made three contributions toward an understanding of how power moderates the relationship between prosocial orientation and empathic accuracy. First, the results support the generalizability of the hypothesized effect. In Studies 1 and 2, we tested our model with samples of undergraduate students interacting with strangers in the laboratory. Study 3 yielded the same pattern of

results in an established hierarchy with full-time workers who varied widely in age, education, gender, amount of work experience, and tenure in the organization. Second, we examined a potential consequence of enhanced empathic accuracy: evaluations of satisfaction with one's career progress (Greenhaus et al., 1990). Our moderated mediation analyses showed that as power enhances the association between prosocial orientation and empathic accuracy, power also facilitates the effect of prosocial orientation on career satisfaction. Finally, in Study 3, the effect generalized to new operationalizations of power (position within an established organization), prosocial orientation (trait Agreeableness), and empathic accuracy (the ability to discern emotion from photographs of facial expressions).

## General Discussion

In three studies, we found that prosocial orientation predicts empathic accuracy more strongly when individuals are in positions of high rather than low power. In Study 1, individuals with a higher dispositional sense of power exhibited a stronger relationship between respiratory sinus arrhythmia (RSA)—a physiological indicator of prosocial orientation—and empathic accuracy than those with a lower sense of power. In Study 2, an experimental induction of compassion had a stronger impact on the empathic accuracy of participants assigned to a higher power condition than those assigned to a lower power condition. In Study 3, employees in higher power jobs exhibited a stronger association between trait Agreeableness and empathic accuracy than employees in lower power jobs.

Several features of the designs of these three studies increase our confidence in the conclusions to be drawn from their findings. The results generalized across samples of undergraduate students and full-time workers within an established hierarchy. Power was assessed in several different ways, including as a trait (Study 1), an experimental manipulation (Study 2), and a structural feature of an individual's position within an organization (Study 3). Prosocial orientation was likewise instantiated in different ways, including as a physiological marker (Study 1), an experimental manipulation of compassion (Study 2), and a personality trait (Study 3). Finally, we assessed the outcome of interest, empathic accuracy, in different ways, capturing this construct in dyadic interactions (Study 1), in judgments of dynamic but controlled behavior (Study 2), and from a standardized test of emotion recognition with static photos (Study 3). The consistency with which the predicted Power  $\times$  Prosocial Orientation interaction upon empathic accuracy was observed is all the more impressive in light of the tendency for measures of empathic accuracy to not correlate highly with each other (cf. Roberts et al., 2006).

## Theoretical Implications

The results from these three studies help reconcile conflicting findings related to a central question: Does a stronger prosocial orientation relate to more accurate judgments of others' emotions? Previous studies yielded contrasting findings. Sometimes a stronger prosocial orientation was associated with elevated empathic accuracy, but in some studies, there was no association. Our results suggest that the individual's power helps clarify the association between prosocial orientation and empathic accuracy. Elevated

power allows individuals to behave in ways that are consistent with goals and motivations that are a part of their preexisting dispositions (Studies 1 and 3) or that are activated by the context (Study 2). Future studies of prosocial orientation and empathic accuracy (and, we suggest, prosocial orientation and any behavioral or cognitive outcome) would be well served to include measures of the individual's power. Our studies suggest further that prosocial orientation can be operationalized in terms of stable factors (i.e., the physiological factor of RSA in Study 1 and the trait measure in Study 3) or transient mind-sets (i.e., the experimental manipulation of compassion in Study 2).

The results corroborate an emerging theme in the study of power, that elevated power increases the likelihood that people will express their own dispositions, goals, and motivations (e.g., Chen et al., 2001; Galinsky et al., 2008; Guinote, 2007a). In addition, the findings, in particular those of Study 2, raise interesting questions about a widespread claim about power: that it inevitably corrupts, yielding a focus on self-interest over the concerns of others. Our studies, like others (e.g., Chen et al., 2001; Overbeck & Park, 2001, 2006), suggest the story is not so simple. In fact, individuals in higher power positions act more prosocially (in our studies, by being attuned to others' emotions) when prosocial tendencies or concerns are salient.

The findings of Study 2 offer particularly germane insights about shaping the behavior of individuals with power: Individuals in higher power positions who were prompted to experience compassion exhibited greater empathic accuracy. Compassion seems to diminish in general as people experience greater power (e.g., Piff et al., 2010; Van Kleef et al., 2008). Even so, when individuals have power, prosocial interventions appear to lead them to benefit the greater good. For example, it would be interesting to examine whether policymakers and leaders can create climates that increase the prosocial orientation of individuals in high-power positions. On this theme, Grant (2008) found that lifeguards whose impact on the lives of others was salient in their jobs helped their coworkers more because they had higher perceptions of social impact and self-worth. Similarly, policymakers and leaders may highlight the impact that people have on others to increase prosocial orientation and, in turn, modify the actions of those holding power.

The findings provide a potential explanation of the mixed findings from past literature on how power is related to empathic accuracy. These studies positioned power as a predictor of accuracy and found some positive, negative, and null associations (e.g., Galinsky et al., 2006; Schmid Mast et al., 2009; Van Kleef et al., 2008). Our model may explain these mixed findings by showing that power amplifies individual tendencies. In particular, when individuals are in high-power positions, those who are prosocially oriented will show empathic accuracy, relative to their counterparts. It is also possible that when power is high, there will be a relatively strong association between a higher self-serving orientation and reduced empathic accuracy. This hypothesis could be examined in future research.

The results of Study 1 enhance our understanding of how physiological factors are linked to empathy (e.g., Porges, 1998; Preston & de Waal, 2002; Singer & Lamm, 2009). Past research has linked RSA to prosocial feelings and behaviors in children and adults. For instance, young boys' RSA was associated with reduced aggression and enhanced prosocial behavior, assessed by teachers, and reduced problem behaviors, assessed by parents

(Eisenberg et al., 1995). So far, no research had examined how RSA is associated with the ability to correctly identify others' emotions. In this regard, the findings of Study 1 are informative to those searching for the biological bases of empathy (e.g., Levenson & Ruef, 1992): Our results suggest that the physiological bases of empathy will be clearest in contexts of elevated power.

The findings of Study 3 show that empathic accuracy was associated with greater satisfaction judgments of career progress among high-power individuals. This result dovetails with several studies finding associations between empathic accuracy and various indices of performance in social and organizational settings (Elfenbein et al., 2007; Rubin et al., 2005). It also suggests that power may give individuals the flexibility to allow their prosocial orientation to shape a host of proximal outcomes (e.g., empathic accuracy) and distal outcomes (e.g., satisfaction with life and work).

### Caveats and Future Directions

Across studies, prosocial orientation exhibited a stronger association with empathic accuracy in higher than in lower power conditions. There was a difference across the studies, however, in the absolute levels of empathic accuracy in the various conditions. In Studies 1 and 2, higher power, prosocially oriented individuals evidenced the highest levels of empathic accuracy, relative to those in the other conditions. In contrast, in Study 3, higher power individuals with lower levels of prosocial orientation were particularly inaccurate in their emotion perceptions. One potential reason for this difference concerns the source of power in Study 3 (i.e., employees' position in the organization). Holding a position of power in an organization may limit attention, increase cognitive load, and, in turn, reduce overall levels of empathic accuracy. Conversely, in actual organizations, it may be important for employees in lower power positions to identify superiors' emotions accurately to predict what superiors will do, causing employees in lower power positions to show empathic accuracy. One last possibility is that empathic accuracy levels may have been generally higher in Studies 1 and 2 because the contexts may have called for specific emotions (e.g., sadness while describing a painful experience in Study 1 and anxiety while describing a stressful experience in Study 2). Knowing the context in which targets felt and expressed emotions may have raised participants' mean levels of empathic accuracy in these studies, relative to Study 3. These possibilities suggest potentially more nuanced ways in which power and prosocial orientation may jointly shape empathic accuracy that should be tested in future research.

In Study 3, we documented an association between empathic accuracy and career satisfaction, but we did not show experimentally that empathic accuracy leads individuals to judge their career progress more favorably. This, too, is a limitation, because it is possible that evaluating one's career favorably helps individuals develop higher empathic accuracy. Individuals who perceive that their careers are successful may become exposed to similarly successful others (Kalmijn, 1991), and this exposure may, in turn, provide opportunities to learn effective ways to detect emotions. Future intervention studies are needed to test whether training empathic accuracy provides advantages for people at home and at work.

In our conceptual analysis, we proposed that power provides the behavioral flexibility for prosocially oriented individuals to accurately detect displays of any emotion. Therefore, we did not examine power-related differences in empathic accuracy for discrete emotions. It might be more important for prosocially oriented individuals to detect others' displays of sadness and anxiety, which signal a need for help (Keltner, Ekman, Gonzaga, & Beer, 2003), than other emotions such as anger. Prosocially oriented individuals may also be most attuned to the emotions of individuals who are particularly likely to be in need. Compassion increases feelings of similarity to members of vulnerable groups to a greater extent than to members of powerful groups (Oveis et al., 2010). Prosocially oriented individuals may similarly identify the emotions of members of vulnerable groups most accurately. Future research should explore whether the effects of power and prosocial orientation generalize across emotions and targets or whether they vary for separate emotions and separate targets.

## Conclusion

Power is central to all social relationships and exerts deep influences upon how people think, feel, and act. In extending previous studies (Chen et al., 2001; Magee & Langner, 2008; Overbeck & Park, 2006), our studies reveal that the effects of prosocial orientation are variable and depend critically upon the power of the individual. Our research identifies when—rather than whether—higher prosocial orientation is associated with an enhanced ability to detect emotions accurately. Power provides the flexibility for prosocially oriented individuals to accurately detect the emotions of other people.

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