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Failure at the top: How power undermines collaborative performance

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Abstract

All too commonly, we see groups of leaders fail to accomplish their stated goals when working together – legislators who cannot agree on a bill, heads of state who cannot draft meaningful environmental policy, or boards of trustees who make disastrous decisions for their school. The current research examines whether groups of leaders fail as often as they do in part because of the power each leader is accustomed to possessing. Multiple studies found high power individuals, when working in groups, performed worse than did other groups: individuals randomly assigned power in an initial task were less creative when they then worked together in groups on a subsequent task (Study 1A). Individuals with higher power who worked together in groups were also less likely to reach agreement on a difficult negotiation task, whether these groups comprised actual executives from an extant organization (Study 2) or students randomly assigned power in the laboratory (Study 3). Mediation analyses suggest that groups of high power individuals performed worse because they fought over their relative status in the group, were less focused on the task, and shared information with each other less effectively.

Keywords: power, groups, status, conflict, performance, creativity, negotiation

Individuals in positions of leadership are given inordinate power. They have disproportionate control when they interact with those they lead and their ideas, decisions, and opinions hold more sway than those of others. But, what happens when leaders have to interact and work with other leaders? How does the power they are accustomed to possessing shape their effectiveness when working with others who also hold power? This question is critical because it is often the case that important decisions and problems are addressed not by individual leaders but by *groups* of leaders - in government legislatures, boards of directors, or meetings between heads of state, for example. If groups of leaders fail, the damage can be profound. Legislators who cannot agree on a fiscal budget risk severe economic costs, boards of trustees who set bad policies for their university can reduce the quality of their education, and leaders of disputing countries who cannot resolve their differences risk escalating their conflict into war.

The research literature has been surprisingly quiet on this question. Although a substantial body of research has examined how the possession of power can shape myriad cognitive, affective, and motivational processes (for reviews, see Keltner, Gruenfeld, & Anderson, 2003; Magee & Galinsky, 2008; Guinote & Vescio, 2010), this work has focused heavily on how the possession of power affects people in individual tasks or making individual decisions. Relatively little research has examined the effects of power in interactive or group contexts, let alone examined contexts in which powerholders interact and work with each other. The current research aimed to fill this lacuna.

On the one hand, one might hypothesize that power would help groups of leaders perform particularly effectively. The possession of power can improve individual cognitive functioning and performance, allowing people to focus on tasks more, generate more creative ideas, and persevere over obstacles (e.g., Galinsky, Magee, Gruenfeld, Whitson & Liljenquist, 2008;

Guinote, 2007). By simply adding the psychological advantages each leader possesses, groups of leaders would appear primed to perform at an especially high level.

However, this “sum of its individual parts” hypothesis ignores the critical role of *group processes* in determining overall group functioning and performance. We propose that when individuals with high power work with other high power individuals in groups, their power has a *negative* effect on their performance. We base this hypothesis on research suggesting the possession of power causes individuals to behave in ways that would hamper collaboration and effective interaction with others. More specifically, as outlined below, we predict that when individuals with power work together in groups, their power will lead them to engage in more conflict over status, employ less effective task processes, and engage in less positive interactions.

We conducted four studies to test these predictions. In Study 1A we placed randomly selected participants in positions of power on an initial task and had them work with a subordinate. We then had these high power participants work with other high power participants in groups on a subsequent creativity task. In Study 1B, to help rule out the possibility that power might have led individuals to be less creative in general (i.e., an individual-level cognitive effect), we replicated the design of Study 1A but had participants work on the creativity task alone. In Study 2 we addressed generalizability by examining “real world” power and employing a different group task. Specifically we examined groups of actual executives in a large organization who were tasked with reaching agreement on a difficult issue despite group members’ differences in opinion. Study 3 used the same negotiation task from Study 2 but experimentally manipulated power. In all studies we used objective measures of performance and independent judges to assess group processes from videotape of the group’s interactions, which allowed us to avoid some of the biases in self-reported group performance.

Therefore, in our three key studies – Studies 1A, 2, and 3 – we examined groups and our unit of analysis was the group. Our main proposition was that groups of individuals who had held power in a prior setting would perform worse than would other groups because their group processes would suffer. Our focus was specifically on the relative functioning and performance of groups of individuals who had held power compared to other groups.

Power and its carryover effects

Power is an individual's capacity to modify others' states by providing or withholding resources or administering punishments (Emerson, 1962; Fiske 1993; Keltner et al., 2003). Power is a relational construct in that it can only be understood with reference to a particular relationship or group (e.g. Blau, 1964, 1977; Magee & Galinsky, 2008; Thibaut & Kelley, 1959). Therefore, to address how the possession of power affects leaders' ability to work with other leaders in groups, one must understand how leaders' power in the social group they lead – for example, in their own team, organization, or country – affects their ability to work with other leaders who have power in their own respective social groups.

The null hypothesis would suggest power will have no effect on individuals' ability to work with others who possess power. After all, when leaders work together as a group, they leave behind the social environment in which they have power and enter a new social context in which they might have no more power than anyone else. For example, although North Korean Supreme Leader Kim Jong-un enjoys enormous power within his own country, he does not necessarily possess that same power when dealing with other world leaders, such as the People's Republic of China President Xi Jinping. Therefore, it is possible that the power leaders possess over those they lead (e.g., their country) will not influence how they work with other leaders.

However, research suggests that the effects of power do carry over from one social context to another. Power transforms psychological states, shaping social perception and cognition (Copeland, 1994; Guinote, 2010), the experience and display of affect (Anderson & Berdahl, 2002; Keltner, Gruenfeld, Galinsky & Kraus, 2010) and individual behavior (Overbeck & Park, 2006; Galinsky et al., 2008). Further, an abundance of studies have shown that asking individuals to recall a previous time in which they possessed power leads them to behave in powerful ways in subsequent, unrelated settings (e.g., Galinsky, Gruenfeld, & Magee, 2003). Indeed, these effects can endure for a considerable amount of time (Kilduff & Galinsky, 2013). Moreover, individuals who feel powerful in one context tend to feel powerful in other contexts as well (Anderson, John, & Keltner, 2012). Therefore, it is likely that individuals' power in one context will affect their behavior in subsequent contexts.

In the current research we studied these carryover effects of power in both experimental (Studies 1A and 3) and field designs (Study 2). We expected that when individuals have been given power in one context come together to work as a group, their initial power would affect their subsequent group performance. In the following sections we outline more specifically how we believe power will affect group performance. For the sake of simplicity, we will use the term “high power individuals” to refer to individuals who possess high power in one setting (e.g., in a prior task or social context) and who come together to work in a subsequent group, and “low power individuals” to refer to individuals who possess low power in one setting and come together to work as a group; “neutral” or “control” individuals possess neither high nor low power in a subsequent setting.

A “sum of its parts” account of group performance

Much research has shown that the possession of power can boost individual performance. When given power, individuals become more task-focused and goal-orientated, and more effective information processors (Guinote, 2007; Whitson, Liljequist, Galinsky, Magee, Gruenfeld & Cadena, 2012). Power broadly influences an individual's goal system, which "affects motivation and information processing in ways that promote more situated judgment and behavior [allowing] individuals to attain desired outcomes more easily" (Guinote, 2010, p.142). Further, power leads to greater task persistence and creativity (Galinsky et al., 2008; Smith & Trope, 2006). For example, Gervais, Guinote, Allen & Slabu (2013) found that powerful people engaged in more creative thinking when creativity facilitated (rather than hindered) contextual goals.

If power enhances individual performance as this evidence suggests, then by simple extension, one might assume that groups comprised of individuals with high power will perform better than groups of neutral or low power individuals. By a simple summation of their parts, groups of high power individuals should benefit from the additive effects of each individual's cognitive, affective and motivational advantages.

The effects of power on group processes

However, as scholars have long known, a group is not merely the sum of its parts. A crucial component of group performance is how well group members work with each other – that is, its *group processes*. Above and beyond having talented individuals, a group's performance depends on whether its members cooperate with each other, communicate effectively, and put selfish interests aside for the good of the collective (Hackman, 1990; Levine & Moreland, 1990; McGrath, 1964). Merely having superior talent is not enough for groups to be effective (Groysberg, Polzer, & Elfenbein, 2011).

We propose that when high power individuals work with other high power individuals, their *group processes* are likely to undermine their collective performance and foster dysfunction and failure. When given power, individuals become more self-focused and less concerned about others' welfare (Piff, Kraus, Côté, Cheng & Keltner, 2010; van Kleef & Côté, 2007), less empathetic (Galinsky, Magee, Inesi & Gruenfeld, 2006; Hogeveen, Inzlicht & Obhi, 2014) and less compassionate (van Kleef, Oveis, van der Lowe, LuoKogan, Goetz & Keltner, 2008). Power causes individuals to devalue the performance of others and take credit for others' contributions (Kipnis, 1972), become overconfident in their own ideas (Sivanathan & Galinsky, 2007; Fast, Sivanathan, Mayer & Galinsky, 2012) and take others' opinions into account less (Galinsky et al., 2003; Brinol, Petty, Valle, Rucker & Becerra et al., 2007). The possession of power also leads individuals to develop an interaction style detrimental to collaborative work: power leads to behavior that is more impulsive (Keltner et al., 2003), aggressive (Baumeister, Campbell, Krueger & Vohs, 2003; Zimbardo, Haney, Banks & Jaffe, 1974; McClelland, 1987), and less polite (Keltner, Ellsworth & Edwards, 1993). Individuals with power tend to interrupt and speak out of turn (DePaulo & Friedman, 1998) and are more likely to display anger (Tiedens, Ellsworth & Messquita, 2000).

Based on this evidence, we suggest that in spite of the performance benefits power can provide when individuals work alone, at the group level, the possession of power will disrupt group processes and thus dampen collective performance. That is, the way in which high power individuals interact with each other will undermine their collective effectiveness and create a more dysfunctional, ineffective group. Specifically, prior research points to three kinds of group processes that would likely suffer in groups of high power individuals: intragroup conflict over

status, less effective task processes, and less positivity in inter-member interactions. We outline each of these processes below.

Status conflict. Prior research suggests status hierarchies emerge in all social groups, in that some members attain more respect, admiration, and influence than others (Bales, Strodtbeck, Mills & Roseborough, 1951; Leavitt, 2005). Although status differences tend to emerge cooperatively, with group members implicitly agreeing on who has higher status than others, sometimes disagreements can emerge (Ridgeway & Diekema, 1989). Such *status conflict* involves “disputes over people’s relative status positions in the group’s hierarchy” (Bendersky & Hayes, 2010, p.323), and not surprisingly, status conflicts can severely harm group performance, damaging both task-related contributions and the relationships between group members (Bendersky & Hays, 2010; Kilduff, Anderson, & Willer, 2013).

Based on many of the effects of power described above, we believe status conflicts are particularly likely to emerge in groups of high power individuals. As already mentioned, power engenders overconfidence in one’s abilities (Fast et al., 2012, Sivanathan & Galinsky, 2007), which leads individuals to feel entitled to higher status (Anderson, Willer, Kilduff, & Brown, 2012). However, power also causes individuals to afford little status to others: they give less credit to others’ contributions (Kipnis, 1972) and are more rude and disrespectful (Keltner et al., 1993). Therefore, when high power individuals work with other high power individuals, they would likely feel entitled to higher status than they would be given. To make matters worse, research on humans and non-human animals suggests that individuals with more power react more strongly to any potential threats to their own status (Fast & Chen, 2009; Hellhammer, Buchtal, Gutberlet, & Kirschbaum, 1997; McGuire, Brammer, & Raleigh, 1986), which would create a more volatile group environment.

Task processes. The quality of a group's task processes is critical to its effectiveness (Kozlowski & Bell, 2003; McGrath, 1964; Steiner, 1972). In particular, *task focus* is an important predictor of group performance: the less time or attention group members apply to a specific task the more likely their performance will be impaired (Karau & Kelly, 1992; Locke & Latham, 1990). We believe groups comprised of high power individuals are more likely to be distracted from the task at hand than other groups. As mentioned above, powerful individuals are more likely to pursue their own desires (van Kleef & Côté, 2007) at the expense of those of the group (e.g. completing their shared tasks).

Information exchange among members is also a critical component of group effectiveness. Group members must communicate their ideas and also integrate others' ideas into their own to generate optimal solutions to problems and reach agreement on difficult issues (Levine & Moreland, 1990; Shaw, 1971; Stasser, 1999). Previous research has shown that group performance suffers when group members fail to fully share or integrate the information available in a group (Argote, Ingram, Levine & Moreland, 2000; Gruenfeld, Mannix, Williams & Neale, 1996). We believe groups of high power individuals will fail to exchange information as effectively when they work together in groups. As noted above, high power individuals are ruder to others and attend less to others' opinions (DePaulo & Friedman, 1998; Galinsky et al., 2003). This pattern of behavior is likely to stifle both the motivation to share information with others and the integration of members' ideas synergistically.

Positive interactions. Above and beyond avoiding conflict over status and employing more effective task processes, groups whose members express positive sentiments toward each other tend to perform better (Barsade 2002; Carnevale & Isen, 1986; Bramesfeld & Gasper, 2008; George & Zhou, 2007; Gibson, 2003). Positive interactions are seen to build trust and

communication and motivate members to contribute more to the group (Cunningham, 1988; Isen, Rosenzweig & Young, 1991; Mason & Griffin, 2005). However, we believe groups of high power individuals are less likely to engage in positive interactions with each other. High power individuals' propensity to interrupt more often and speak out of turn (DePaulo & Friedman, 1998), ignore others' perspectives (Galinsky et al., 2006; Overbeck & Park, 2001; 2006), and devalue others' contributions (Kipnis, 1972; Pfeffer & Cialdini, 1998) implies groups of high power individuals would be less likely to positively reinforce each other's ideas, thereby hampering collaboration, cohesion and performance.

Prior research

Our primary aim in the current research was to examine how the possession of power affects leaders' ability to work in a group with others leaders. This question is distinct from the effects of power *dispersion* on group performance (for reviews, see Anderson & Brown, 2010; Halevy, Chou, & Galinsky, 2011). Specifically, research on power dispersion aims to understand how power *differences* between individuals affect their ability to work together (e.g., Halevy, Chou, Galinsky & Murnighan, 2012; Ronay, Greenaway, Anicich & Galinsky, 2012). For example, Halevy and colleagues (2012) found that basketball teams whose members were more hierarchically differentiated performed better. The current research thus asks a very different question, namely, how the possession of high power across all group members affects their collective performance; speaking in statistical terms, we are interested in the effects of average levels of power across group members, rather than the effects of differences between group members' power.

A study more germane to our focus was conducted by Groysberg and colleagues (2011), which found that teams of financial analysts with a high proportion of "stars" (i.e., individuals

who had been publicly recognized as high-performers) performed worse than teams with a moderate proportion of stars. However, their study measured group members' peer-perceived competence rather than power, and it did not examine mediating mechanisms. Further, their research did not use an experimental design and thus did not allow for causal inferences. In short the design makes it difficult for us to know whether the power of the individual members caused the effects observed and why those effects emerged.

Another study, which aimed to study power dispersion in groups, constructed groups of uniformly high, uniformly low, or mixed-power individuals (Ronay, Greenaway, Anicich & Galinsky, 2012). That study found no performance difference between groups of uniformly high and low power members. While it is difficult to say exactly why that study obtained a null effect, it is possible the manipulations and measures of power used – a recall priming task and a measurement of testosterone – were too mild to drive a significant effect across the two conditions. In the current research, we employ a stronger power manipulation that involved placing participants in an actual position of power (or powerlessness).

Finally, Greer, Caruso and Jehn (2011) found that groups with higher in power in an organization performed worse than groups lower in power, both in a laboratory task and as measured by supervisor ratings. However, it was again unclear whether the observed effects were due to individual power. Their focus was on powerful teams, or teams that had control over important decisions or other teams. Individual members' power was not measured. These are two distinct constructs, as members of a very powerful team (e.g., a university tenure committee) might have little power individually (e.g., in their own department). Moreover, individuals were not randomly assigned to groups; existing teams in the organization were studied, making it difficult to rule out other potential structural or relational variables that may have driven the

effects. For example, members of powerful teams often have more tenure in the organization and thus might have had a greater accumulation of negative experiences with each other, introducing a potential confound. Finally, while Greer and colleagues (2011) found some mixed evidence suggesting task and/or process conflict as playing a role, the mediating mechanisms in the study were unclear.

The current research extends beyond prior related work in four critical ways. First, it focuses on individual power per se, rather than on other variables such as perceived competence, and rather than on group power. Second, it experimentally manipulated power of the individual members (Studies 1A and 3), which helps control for possible third variables and allows for causal inference. Third, it examined why individual members' power would debilitate group performance by focusing on status conflict, task processes, and interactional tone as potential mediators. Finally, it used measures of group process derived from videotape of the group's interactions.

Study 1A: Group Creativity

Creativity and innovative thinking are becoming increasingly recognized as critical life skills (Runco, 2014; Simonton & Damian, 2013; Sternberg & Lubart, 1996), and particularly important skills leaders must possess (e.g., Sternberg, 2013). It is often the case that groups of high power individuals must think creatively to solve important problems and overcome challenges – whether they are trying to build an international treaty to restrict greenhouse gases, generate a new strategy for their firm, or agree on a fiscal budget for their state. Therefore, in Study 1A we examined groups that worked on creativity tasks.

We tested the hypothesis that groups of high power individuals (that is, individuals who held power in another context) would be less creative than groups of low power and neutral

individuals (that is, individuals who held low power in another context or who did not hold high or low power in another context). To test this hypothesis we gave participants high, low, or neutral power in an initial task, and then had them work together in groups with other participants who had similarly possess high, low, or neutral power in an initial task.

We also tested our hypothesis that high power participants would perform worse in groups because of the way they work together – that is, because of the processes that emerge in their groups. Specifically, as outlined in the Introduction we focused on the level of status conflict among group members, the quality of the processes they used to accomplish their task, and how positive was the tone of members' interactions with each other. Greer et al. (2011) examined task, relationship, and process conflict (De Dreu & Weinghart, 2003; Jehn, 1994; 1995) and found some inconsistent effects on group performance, so we also measured those forms of conflict to establish whether status conflict mediated the effect of power above and beyond those forms of conflict.

Method

Participants. One hundred seventy-four participants (81 female, $M_{age} = 20.39$, $SD = 1.83$) from a large West Coast University participated in the study for either class credit or cash payment (\$15). All participants had the opportunity to earn additional money as outlined below. In total participants comprised 58 three-person groups (18 High Power, 22 Control, 18 Low Power).

Procedure. Participants completed an online survey before the laboratory session that included measures ostensibly used in the laboratory power role assignments (see Anderson & Berdahl, 2002; Galinsky et al., 2003). Six participants were then scheduled for each laboratory session. Upon arrival to the laboratory, participants were told they would be completing three

tasks during the session including (1) a tower-building task in pairs, (2) a creativity task in groups, and (3) a second tower-building task in pairs again (in fact this second tower-building task was never to run, but was used to bolster the power manipulation). Participants were also told that for each task the highest performers could win one of several \$100 Apple Store gift certificates.

To manipulate power, participants were randomly split into pairs and asked to work on a tower-building task in dyads. In some dyads, one participant was assigned to a high power role and given power over their partner; their partner was thereby assigned to a low power role. In other dyads, both participants were assigned to the control condition and neither had power.

After the tower-building task, participants were placed into 3-person groups to work on a creativity task. Specifically, participants in the high power condition were grouped with the two other high power participants in their laboratory session, participants in the low power condition were grouped with the two other low power participants, and control participants were grouped with two other control participants.

Power manipulation. Each laboratory session was randomly selected to be either a treatment session or control session. In a treatment session, half of the six participants were assigned to the *high power* condition and the other half to the *low power* condition. In a control session, all participants were assigned to the *control* condition. Participants in the treatment session were told that to realistically simulate group decision making in organizations, some had been chosen to be leaders in the upcoming tower-building tasks, and others chosen as subordinates, based on their responses to the online leadership questionnaire (Anderson & Berdahl, 2002). They were also told leaders would evaluate the subordinates at the end of each task and that this evaluation would be used to determine how money would be allocated if the

pair won one of the prizes described below (Galinsky et al., 2003). Participants in the control session were not told anything regarding role assignments but were merely asked to work together in dyads. Participants were then randomly assigned to dyads for the tower-building task, while ensuring that in the treatment session, high and low power participants were paired together.

Dyads were taken to separate rooms for the tower building task. Each dyad was given 30 tooth picks and 20 soft candy pieces (“dots”), and told that they had five minutes to build the tallest tower they could using the materials available. In the treatment sessions, both dyad members were told that the high power participant was to make all the decisions and that the low power participant was to follow directions. At the end of the task the high power participants were taken to a separate room and asked to complete an evaluation of their partner’s performance and indicate how much money the partner deserved if the dyad won a cash prize. (In fact, this evaluation was never used.) In the control sessions, dyads were simply asked to work together. After completing the tower building task, all control participants were taken to separate cubicles to evaluate their team’s performance and indicate how money should be allocated if they won a cash prize. (These evaluations were also never used.)

Creativity task. After the tower- building task, participants were assigned to groups of three. Each three-person group was comprised of participants in the same condition, such that three high power participants worked in a group, as did three low power and three control participants. Each group was taken to a separate room and given 15 minutes to complete a creativity task that involved inventing a new organization and charting its strategy. This task has been used successfully in prior groups research and allows for the effective assessment of group

creativity (see Anderson & Kilduff, 2009; see Appendix 1 for full details). They were videotaped while working together.

Manipulation and suspicion checks. At the end of the laboratory session, participants completed a 3-item measure of power: “I was in control during the tower-building task,” “I got to make the decisions in the tower-building task,” and “I had more influence in the tower-building task,” on a scale from 1 (*completely disagree*) to 7 (*completely agree*), $\alpha = .889$. Participants also were probed for suspicion using two-item open-ended suspicion probes (Chen, Lee-Chai and Bargh, 2001): “Did you find anything strange or unusual about the experimental procedures?” and “What do you think is the purpose of this experiment?” Participants were then debriefed, thanked and paid. Across all four studies, no participants guessed our hypotheses or recognized how the two tasks were related.

Creativity ratings. Prior research has shown that group members’ evaluations of their collective performance and processes and of each other can be more vulnerable to biases than outside observers’ judgments (e.g., Ilgen, Mitchell & Fredrickson, 1981; Miller & Schlenker, 1985; Rush, Phillips, & Lord, 1981; Schlenker, Weigold & Hallam, 1990). Therefore, in this and all group studies that follow, we use outside judges’ ratings of group performance and processes.

Two independent judges blind to condition later rated the creativity of each participant’s idea with the item, “Using your own, subjective definition of creativity, please indicate the degree to which the idea is creative” (Amabile, 1979) from 1 (*not at all*) to 5 (*very*). Previous literature (e.g. Amabile, 1983; 1996; Amabile, Conti, Coon, Lazenby & Herron, 1996) has differentiated creativity on the two dimensions of *novelty* and *usefulness*. Along an exploratory vein we thus examined how power affected both of these dimensions of creativity. The judges rated *novelty* with the item, “Overall, the idea is novel, i.e. ground-breaking rather than

conventional or commonplace,” and *usefulness* with the item, “Overall, the idea is useful, i.e. it solves a problem and is valuable and relevant,” (both items rated from 1 (*disagree strongly*) to 5 (*agree strongly*)). The reliability of judges’ ratings was good for all three items (overall creativity $r = .78$, $\alpha = .88$, novelty $r = .82$, $\alpha = .85$, usefulness $r = .75$, $\alpha = .90$), so the judges’ ratings were averaged for each item.

Group process measures. Two independent judges blind to condition separately observed the videos and rated each group’s processes. First, judges rated the degree to which groups exhibited status conflict: “members of the group competed for control over the group and its decisions” (adapted from Bendersky & Hayes, 2010). They also rated task, process and relational conflict: “the group had frequent disagreements about the tasks they were working on,” “the group had disagreements about who should do what, i.e. the process they should use,” and “the group experienced personal conflict unrelated to the task” (adapted from Jehn, 1997; Jehn & Mannix, 2001). All items were rated on a 1 (*strongly disagree*) to 7 (*strongly agree*) scale.

Second, judges rated the groups’ task processes, including information sharing (“The group shared all of their information with each other” from 1 (*strongly disagree*) to 7 (*strongly agree*)), task focus (“Overall, how focused was the group on accomplishing the task, i.e. how much did members appear to be engaged and attentive to the task itself?” from 1 (*very slightly /none at all*) to 5 (*very much*) (adapted from Barry & Stewart, 1997), and how integrative was the group (“Overall, how much did group members build upon each other’s ideas? i.e., how much did group members integrate different members’ ideas into a common solution?” from 1 (*very slightly /none at all*) to 5 (*very much*)).

Finally, to gauge the positivity of group interactions, judges rated the degree to which the groups exhibited positive affect (“In general, how much positive affect did you observe in the

group? i.e., how interested, alert, attentive, excited, enthusiastic, inspired, proud, determined, strong, active were members of the group?") (adapted from Watson, Clark and Tellegen, 1988) and positive reinforcement ("How much positive reinforcement was given from one member to another? i.e., how much did group members accept, affirm, complement each other's ideas?"). Both were rated on a 1 (*very slightly /none at all*) to 5 (*very much*) scale.

The reliability of judges' ratings for each measure were assessed after 20% of the videos had been rated and any conflicts resolved. Inter-judge reliability was high for all dimensions: positive affect $r = .93$, $\alpha = .97$, positive reinforcement $r = .91$, $\alpha = .95$, task focus $r = .80$, $\alpha = .89$; information sharing $r = .87$, $\alpha = .83$, integrativeness $r = .74$, $\alpha = .85$, task conflict $r = .83$, $\alpha = .95$, relational conflict $r = .91$, $\alpha = .88$, status conflict $r = .74$, $\alpha = .85$). Unfortunately, the video-recording system failed mid-way through the experiment, which led to the loss of 18 groups' videos (six groups in each condition). Analyses that involve group processes are therefore conducted on the remaining data.

Results

Summary statistics for Study 1A are shown in Tables 1 and 2. Neither age nor gender was significantly related to power condition or creativity. Further, controlling for these variables did not significantly affect any of our results. Therefore these variables were not considered further in the analyses below.

Manipulation check. The effect of the power manipulation on self-reported power was significant $F(2, 169) = 54.307$, $p < .001$, $\eta^2 = .391$. Participants in the high power condition felt more powerful in the tower-building task ($M = 5.91$, $SD = 1.40$) than those in the control condition ($M = 4.57$, $SD = 1.21$) and low power condition ($M = 3.20$, $SD = 1.45$), $p < .001$ and p

< .001 respectively. The difference between the control and low power conditions was also significant ($p < .001$).

[Insert Tables 1 and 2 about here]

Were groups of high power individuals less creative? Summary statistics are shown in Tables 1 and 2. Power condition significantly affected creativity, $F(2, 55) = 3.390$, $p = .041$, $\eta^2 = .110$; this effect is also illustrated in Figure 1. Groups of participants in the high power condition produced less creative ideas than groups of participants in the control condition ($p = .011$) and groups of participants in the low power condition ($p = .025$). There was not a significant difference between groups of participants in the control and lower power conditions ($p = .964$).

Along an exploratory vein we also examined the novelty and usefulness of the ideas generated. Power condition significantly affected the generation of novel ideas, $F(2, 55) = 4.342$, $p = .018$, $\eta^2 = .136$. As shown in Table 1, groups of participants in the high power condition produced less novel ideas than groups in the control condition ($p = .004$) and groups in the low power condition ($p = .009$). The difference between novelty scores of groups in the control and low power conditions was not significant ($p = .504$). In contrast to the novelty results, however, power did not affect the usefulness of the ideas produced, $F(2, 55) = 2.040$, $p = .140$.

[Insert Figure 1 about here]

Did groups of high power individuals engage in more status conflict? Also shown in Table 2, high power led to more status conflict $F(2, 37) = 7.128$, $p = .002$, $\eta^2 = .278$. It also led to more task conflict $F(2, 37) = 4.656$, $p = .016$, $\eta^2 = .201$, and more process conflict $F(2, 37) = 3.921$, $p = .029$, $\eta^2 = .175$, but was not significantly related to relational conflict $F(2, 37) = 3.006$, $p = .062$, $\eta^2 = .140$. Higher status conflict, in turn, was significantly related to less

creativity, $F(1, 38) = 5.743, p = .022, Adjusted R^2 = .108 (\beta = -.362)$. Task conflict, process conflict, and relational conflict did not significantly predict creativity, however. We thus conducted a bootstrap analysis to determine whether the effect of power on creativity was mediated by status conflict. The 95% bias-corrected confidence interval (with 5,000 bootstrap samples) excluded zero $[-.4377, -.0274]$ indicating that status conflict mediated the effect of power on group creativity (See Figure 2). Therefore, groups with high power individuals were less creative in part because they engaged in more status conflict.

[Insert Figure 2 about here]

Did groups of high power individuals have worse task processes? As shown in Table 1, high power was significantly related to less task focus, $F(2, 37) = 7.304, p = .002, \eta^2 = .283$, less information sharing $F(2, 37) = 7.934, p = .001, \eta^2 = .300$ and less integrativeness $F(2, 37) = 4.077, p = .025, \eta^2 = .181$. Linear regression analyses revealed that task focus and information sharing, in turn, were significantly related to creativity $F(1, 38) = 15.292, p < .001, Adjusted R^2 = .268 (\beta = .536)$, and $F(1, 38) = 8.208, p = .007, Adjusted R^2 = .156 (\beta = .421)$, respectively. The relationship between integrativeness and creativity was not significant $F(1, 38) = 1.576, p = .217$. For task focus, the 95% bias-corrected confidence interval (with 5,000 bootstrap samples) excluded zero $[-.6286, -.0577]$, indicating that task focus mediated the effect of power. For information sharing, the 95% bias-corrected confidence intervals also excluded zero $[-.3628, -.0342]$. Therefore, task focus and information sharing also independently mediated the effect of power on group creativity, in addition to status conflict (See Figure 2).

Did groups of high power individuals have less positive interactions? Groups of high power individuals conveyed less positive reinforcement $F(2, 37) = 7.477, p = .002, \eta^2 = .288$ (See Table 1). Power condition did not significantly influence positive affect however, $F(2, 37)$

= .694, $p = .506$. Linear regression analyses revealed that positive affect and positive reinforcement were not significantly related to creativity, $F(1, 38) = .063$, $p = .804$ and $F(1, 38) = .108$, $p = .744$, respectively.

Path analysis. We conducted a path analysis to assess (a) whether the simultaneous regression model illustrated in Figure 2 fit our data well and (b) whether this simultaneous regression model was better than an alternative, sequential, regression model in which group conflict precedes worse group processes. We used manifest indicators rather than latent variables to mitigate concerns regarding the statistical power of tests associated with structural equation models with relatively small sample sizes (Aquino, McFerran & Laven, 2011; Chin, 1988).

We estimated a path model that included the three significant mediators (status conflict, task focus and information sharing) and permitted the two process measures to covary as the associated error terms were correlated. The model fit the data well $\chi^2(2) = 1.786$, $p = .168$, $CFI = .956$; $RMSEA = .117$.

To assess whether this simultaneous regression model fit our data better than a sequential model, we estimated a second path model that included the three mediators in sequence (status conflict preceding the two process measures). The model fit the data reasonably well $\chi^2(3) = 1.689$, $p = .167$, $CFI = .942$; $RMSEA = .110$. The Akaike Information Criterion for the simultaneous regression model ($AIC = 37.641$) was similar to that of the sequential regression model ($AIC = 37.387$) suggesting both models fit our data well. Similar analyses confirmed that the simultaneous model was also a better fit for the data than the reverse sequential model (process measures preceding status conflict).

Summary. Groups comprised of high power individuals (that is, individuals who had power in a prior context) were less creative than groups comprised of neutral or low power individuals (that is, individuals who had neutral or low power in a prior context). Exploratory analyses found that power specifically reduced the novelty of groups' ideas. Moreover, power was highly disruptive to group processes: First, groups of high power individuals engaged in more status conflict when working together. Indeed, status conflict in particular mediated the detrimental effects of power on creativity. Consistent with prior research (e.g. Greer et al., 2011), groups of high power individuals also engaged in more task, process, and relationship conflict; however, those forms of conflict did not mediate the effect of power on creativity. Second, high power individuals were less focused on the task when working together, and they were less integrative and shared less information. Task focus and information sharing also mediated the effects of power on creativity. Finally, high power individuals gave each other less positive reinforcement when working together, though this did not mediate the effects on creativity. It is interesting to note that the effects of power occurred primarily in the high power condition: the low power and control conditions did not differ on any variable, save the manipulation check. This is consistent with a host of prior studies that have also found stronger effects for possessing power than for lacking power (e.g. Anderson & Galinsky, 2006; Galinsky et al., 2003; Guinote, Willis & Martellotta, 2010; Smith & Bargh, 2008). It suggests that while giving individuals high power might debilitate their ability to work with other high power individuals, giving individuals low power does not necessarily improve their collaborative performance above and beyond being in a neutral position.

Study 1B: Addressing the Effects of Power on Individual Creativity

We have argued that when high power individuals work together in groups, they will perform worse than other groups because they will work together in less effective and more dysfunctional ways. Therefore, our model focuses on how power disrupts group processes, which in turn, damages group performance. However, a possible alternative explanation for the findings in Study 1A, is that groups of high power individuals were less creative because of individual-level cognitive effects as well. That is, the possession of high power in the tower-building task might have led participants to be less creative on subsequent tasks, regardless of whether they worked in groups or worked alone. Power might have simply led individuals to be less creative on a general level. Yet, prior research has shown that the possession of power actually increases, rather than decreases, individuals' creativity when they work alone (Galinsky et al., 2008; Gervais et al., 2013). But it is still possible the specific creativity task we used allowed for different effects of power than the creativity tasks used in prior research.

To address this possibility in Study 1B we used a nearly identical design and procedure that was used in Study 1A, including the same power manipulation and creativity task. However, participants in Study 1B completed the creativity task alone rather than in groups. By using the same creativity task we could thus address whether the effects observed in Study 1A were due to individual-level effects of power on creativity.

Method

Participants. One hundred sixteen participants (57 female, $M_{age} = 20.80$, $SD = 1.54$) from a large West Coast University participated in the study for either course credit or cash payment (\$15). All participants also had the opportunity to earn additional money, as described below.

Procedure: The laboratory procedure was nearly identical to that used in Study 1A. Participants completed the same online survey before the laboratory session that included

measures ostensibly used in the laboratory power role assignments. Six participants were again scheduled for each laboratory session. To manipulate power, participants were split into pairs and asked to work on the tower-building task as a dyad. In some dyads, one participant was assigned to a high power role and the other to a low power role. In other dyads, both participants were assigned to the control condition. After manipulating power through the dyadic task, participants then completed a creativity task. However, in contrast to Study 1A, the creativity task was completed alone rather than in groups. Participants were assigned to individual cubicles and given 15 minutes to complete the creativity task alone. Further, the creativity task was not videotaped as there were no interactions between participants to observe during this task.

Results

Neither age nor gender was significantly related to power or creativity. Further, controlling for these variables did not significantly affect any of our results. Therefore these variables were not considered further in the analyses below.

Manipulation check. Power condition had a significant effect on participants' self-reported power, $F(2, 111) = 52.632, p < .001, \eta^2 = .487$. Participants in the high power condition ($M = 5.84, SD = .79$) had higher self-reported power than those in the control ($M = 4.67, SD = 1.31$) and low power conditions ($M = 3.05, SD = 1.35$), $p < .001$ and $p < .001$, respectively. Control participants also had higher self-reported power than low power participants ($p < .001$).

Did power increase creativity? The power manipulation had a significant effect on participants' creativity, $F(2, 111) = 4.988, p = .008, \eta^2 = .082$. Consistent with prior research, however, participants in the high power condition ($M = 1.90, SD = .58$) were *more* creative than those in the control condition ($M = 1.50, SD = .69$) and those in the low power condition ($M =$

1.46, $SD = .71$), $p = .008$ and $p = .005$, respectively. There was not a significant difference in creativity between those in the control and low power condition, $p = .801$.

Along an exploratory vein we again examined the novelty and usefulness of participants' ideas. Power had a significant effect on novelty $F(2, 111) = 5.484$, $p = .005$, $\eta^2 = .090$.

Participants in the high power condition ($M = 1.93$, $SD = .71$) generated more novel ideas than those in both the control ($M = 1.51$, $SD = .78$) and low power conditions ($M = 1.41$, $SD = .71$), $p = .016$ and $p = .002$, respectively. The novelty of ideas generated by those in the control and lower power conditions did not differ, $p = .532$. Similar to study 1A, participants' power did not affect the usefulness of their ideas, $F(2, 111) = 1.162$, $p = .317$. High power participants did not generate more useful ideas than others.

Summary. In contrast to Study 1A in which power reduced groups' creativity, Study 1B found that power *increased* individuals' creativity when they worked alone on a creativity task. This is suggestive that the findings of Study 1A were not due to individual-level creativity effects.

Power did not appear to decrease individuals' creativity in general; in fact, when working alone, power enhanced individuals' creativity. Instead, power appeared to damage group processes specifically, and the ways in which high power individuals worked with each other. In other words, high power individuals working together in groups were less creative than other groups *in spite of* the creative boost power provides individuals working alone. Exploratory analyses also found that power specifically boosted the novelty of participants' ideas, suggesting that power boosted divergent and innovative thinking when individuals work alone.

Study 2: Group Negotiation among Executives

Study 2 extended beyond Study 1A in two important ways. First, we examined whether the effects observed in Study 1A generalize to individuals who have power in the real world. We

assessed executives who worked for a large healthcare organization. Many of these executives held prominent positions in their medical facilities or as members of regional oversight committees, supervised numerous individuals with the ability to hire and fire, set salaries, and determine promotions. However, these executives also differed in their level of power. While some executives held roles such as Departmental Chief that afforded them power over hundreds of subordinates, others held much more specialized roles that afforded them much less power. We were thus able to examine whether groups of executives who had higher power in the organization would perform worse than groups of executives who held less power.

Second, we examined whether the effects of Study 1A would generalize to a different kind of group task, one that is also representative of the kinds of tasks groups of individuals with high power often must accomplish. Specifically, groups of individuals with high power often must come together and reach agreement on difficult decisions despite their opposing viewpoints – this is true of boards of directors, members of congress, or heads of state, for example. Therefore, we had groups of participants in Study 2 work on a negotiation task in which they role-played an organizational committee that must agree on which job candidate their company should hire. Each group member was assigned to advocate for a different candidate, and the key dependent variable was whether group members were able to overcome their differences of opinion and come to an agreement.

Participants completed their group task as part of a broader executive leadership program. By having all groups work on the same task at the same time, we also helped to control for an important potential confound. Within organizations, executives with different levels of power typically work on different kinds of problems. Those with more power tend to work on more important issues that have a broader impact on the organization compared to those with less

power. Power can thus be confounded with the kind of problem on which groups work. We were able to avoid this confound by having all groups in Study 2 work on the same task.

The procedure in Study 2 was similar to that used in Study 1A except for the following differences: First, power was not experimentally manipulated across groups. Instead, groups were formed based on their power in the organization, with higher-power executives being grouped together and lower-power powerful executives being grouped together. Second, participants completed a negotiation task rather than the creativity task used in Study 1A. Third, participants completed the task in larger rooms where other groups also completed the same task. Finally, participants were given 30 minutes rather than 15 minutes to complete the group task.

Method

Participants. One hundred fifty eight executives (62 female; 75 Caucasian; $M_{age} = 40.6$, $SD = 5.14$) from a large healthcare company participated in the study as part of an executive leadership program. All participants were Doctors of Medicine with several years' post-MD experience managing different practices or functional areas of the business.

Online survey. Several weeks prior to the experimental session, participants completed an online survey that included a measure of their power in the organization. We used an eight-item measure (adapted from Sherman, Lee, Cuddy, Renshon, Oveis, Gross & Lerner, 2012) that comprised three sub-measures: two items related to the total number of subordinates the participants managed ($\alpha = 0.981$), two items related to the number of participants' direct reports ($\alpha = 0.970$) and four items relating to their authority in making decisions that affect those they lead, such as the ability to promote or demote subordinates ($\alpha = 0.752$). Consistent with Sherman et al. (2012), the first two sub-measures were each log-transformed to reduce skewness; all three sub-measures were then standardized and averaged to create a composite measure ($\alpha = 0.700$).

The composite scores of all the members of each group were then averaged ($M = 0.03$, $SD = .73$, ranged from -1.43 to 1.44). Note that while Sherman et al. (2012) called their measure an index of leadership, it serves very well as an index of power, as having subordinates, direct reports, and the ability to promote or demote others are core features of power in organizations (Perrow, 1970; Pfeffer, 1981).

Allocation to group. Participants were randomly assigned to one of three hour-long sessions by the company. Within each session, participants were ranked according to their individual power in the organization. Initial group assignments within each session was made by allocating the four participants with the four highest power scores to the first group, the four participants ranked fifth through eighth highest power to the second group, and so on.² In total, participants comprised 42 groups, including 32 groups of four participants and 10 groups of three. Moderation analyses confirmed that group size did not moderate the effects of power on any other variable. In addition, including a dummy variable for group size did not significantly affect any of the results. We thus analyze all groups together.

Group negotiation task and performance measure. Groups role-played an organizational committee that was charged with selecting their company's next Chief Financial Officer (CFO; full task materials are available upon request). All group members were given information about four job candidates. The group's task was to reach agreement in 30 minutes on which candidate should be the next CFO (as well as who was the second, third, and fourth choice). To mimic conditions in which individuals have differences in opinion and different motivations, each of the four group members were also randomly assigned to advocate for a different candidate.

In contrast to Study 1A in which groups' performance was measured by the creativity of their ideas, here their performance was measured by whether or not they reached agreement in

spite of their differences in opinion. The dichotomous measure “agreement” was coded 1 if the group agreed on which candidate was their first, second, third, and last choice in the time available and 0 if they reached an impasse. Four of the videos ended before the end of the group’s discussion and so it was not possible to code agreement for these groups.

Group process measures. As in Study 1A, videotapes of the group discussions were rated by two independent judges blind to the hypotheses and condition. The reliability of judges’ ratings for each measure were assessed after 20% of the videos had been coded and any conflicts resolved before the rest of the videos were coded (inter-rater reliabilities were positive affect $r = .80$, $\alpha = .89$, positive reinforcement $r = .89$, $\alpha = .94$, task focus $r = .88$, $\alpha = .91$; information sharing $r = .97$, $\alpha = .97$, integrativeness $r = .93$, $\alpha = .95$, task conflict $r = .85$, $\alpha = .92$, process conflict $r = .89$, $\alpha = .95$, relational conflict $r = .95$, $\alpha = .94$, status conflict $r = .79$, $\alpha = .85$).

Individual performance measure. Along an exploratory vein, we wanted to address the effects of power on individual performance. For example, it is possible that power might hinder not only group processes but also individual cognitive abilities. Therefore, groups of high power individuals might perform worse in part because high power leads each individual member to think and perform less effectively. In this task, strong individual performance in the negotiation means delivering credible, persuasive arguments that would convince others to adopt one’s perspective. Therefore, to assess the quality of the arguments individual members of each group used, two independent judges blind to condition rated the quality of each individual’s arguments during the group discussions. For each member of every group they rated the extent to which they agreed with the following statement “During the group task, to what extent did each member of the group exhibit credibility (knowledge, expertise)” using the scale 1 (*much less*

than others) to 7 (*much more than others*). Reliability was high ($\alpha = .92$) and so scores were combined into an average measure of quality.

Results

Individual power was not related to age $F(1, 155) = .706, p = .402, Adjusted R^2 < 0.001$; gender $F(1, 155) = 1.324, p = .252, \eta^2 = .008$; or race $F(1, 155) = .108, p = .743, \eta^2 = .001$. Similarly at the group level, power was not related to average age $F(1, 40) = 1.023, p = .318, Adjusted R^2 = 0.001$; the percentage of men in the group $F(1, 40) = 2.135, p = .152, Adjusted R^2 = .027$; or the percentage of Caucasians in the group $F(1, 40) = .012, p = .912, Adjusted R^2 < 0.001$. Moreover, controlling for these demographic variables did not significantly affect our results in any way. Therefore we did not consider the effects of demographic characteristics of participants further.

[Insert Table 3 about here]

Were groups comprised of high power executives less likely to reach agreement? As predicted, a logistic regression analysis revealed that power predicted whether or not groups reached agreement ($B = -1.303, SE = .625, Wald = 4.349, p = .037$). For illustrative purposes and to compare the results with those from Study 3 (see below), we tertiary-split the groups to compare the outcomes of groups with high power, moderate, and low power participants. Groups whose members were in the highest tertiary of power in the organization were less likely to reach agreement (46%, 5 out of 11 groups) than groups whose members possessed moderate power (79%, 11 out of 14 groups) and, than groups whose members had the lowest power (85%, 11 out of 13 groups), $\chi^2(2, N = 38) = 5.052, p = .080$ (See Figure 3).

[Insert Figure 3 about here]

Did groups of high power executives engage in more status conflict? Consistent with Study 1A, groups of high power executives exhibited higher levels of status conflict $F(1, 40) = 10.732, p = .002, Adjusted R^2 = .192 (\beta = .460)$. They also exhibited more task conflict $F(1, 40) = 16.030, p < .001, Adjusted R^2 = .268 (B = .535)$, process conflict $F(1, 40) = 8.839, p = .005, Adjusted R^2 = .161 (\beta = .425)$, and relational conflict $F(1, 40) = 7.786, p = .008, Adjusted R^2 = .142 (\beta = .404)$.

Status conflict predicted the likelihood of reaching agreement: logistic regression analyses predicting agreement revealed that the coefficient for status conflict was $B = -1.143 (.438), Wald = 6.803, p = .009$. Task conflict ($B = -1.027 (.423), Wald = 5.884, p = .015$); and process conflict ($B = -.970 (.457), Wald = 4.500, p = .034$) were also negatively related to the likelihood of reaching agreement whereas relational conflict was not ($B = -.406 (.324) Wald = 1.567, p = .211$).

We thus conducted bootstrap analyses to determine whether the relation between power and agreement on the task was mediated by status conflict, as well as task and process conflict. The 95% bias-corrected confidence intervals (with 5,000 bootstrap samples) excluded zero for both status conflict [-2.2678, -.0402] and task conflict [-.3.2894, -.0530] but included zero for process conflict [-1.3078, .0934] indicating that both status conflict and task conflict independently mediated the effect of power on the likelihood of agreement (see Figure 4). Groups comprised of high power executives were less likely to reach agreement than other groups in part because they engaged in more status conflict and more task conflict.

Did groups of high power executives have worse task processes? Higher power was also related to being less task focused $F(1, 40) = 7.864, p = .008, Adjusted R^2 = .143 (\beta = -.405)$,

information sharing less $F(1, 40) = 10.289, p = .003, AdjustedR^2 = .185 (\beta = -.452)$ and being less integrative $F(1, 40) = 7.165, p = .011, AdjustedR^2 = .131 (\beta = -.390)$.

Logistic regression analyses revealed that both task focus and information sharing were significantly positively related to the likelihood of reaching agreement: task focus $B = 1.978 (.726)$ Wald = 7.424, $p = .006$; information sharing $B = 1.207 (.472)$ Wald = 6.544, $p = .011$. The relationship between integrativeness and agreement in the task was not significant $B = .834 (.546)$ Wald = 2.344, $p = .127$. The 95% bias-corrected confidence intervals (with 5,000 bootstrap samples) excluded zero for both task focus [-8.7420, -.0963] and information sharing [-2.7765, -.0792] indicating that both process measures independently mediated the effect of power on agreement. Groups comprised of high power executives were less likely to reach agreement in part because they were less focused on the task and shared less information (see Figure 4).

[Insert Figure 4 about here]

Did groups comprised of high power executives have less positive group interactions?

Groups comprised of high power executives expressed significantly less positive reinforcement $F(1, 40) = 10.574, p = .002, AdjustedR^2 = .189 (\beta = -.457)$. Power was again not significantly related to positive affect $F(1, 40) = 2.599, p = .115$. Logistic regression analyses revealed that neither positive affect nor positive reinforcement were significantly related to agreement $B = .566 (.449)$ Wald = 1.591, $p = .207$ and $B = .647 (.464)$ Wald = 1.941, $p = .163$.

Path analysis. As in Study 1A, we conducted a path analysis to assess (a) whether the simultaneous regression model illustrated in Figure 4 fit our data well and (b) whether this simultaneous regression model was better than an alternative, sequential regression model in which conflict preceded worse group processes. We estimated a path model that included the

four significant mediators (status conflict, task conflict, task focus and information sharing) and permitted the two conflict measures to covary as well as the two process measures to covary as the associated error terms were correlated. The model fit the data well $\chi^2(4) = 1.167, p = .323, CFI = .992; RMSEA = .067$.

To assess whether this simultaneous regression model fit our data better than an alternative sequential model, we estimated a second path model which included the four mediators in sequence (the two conflict measures preceding the two process measures). The model did not fit the data well $\chi^2(4) = 5.779, p < .001, CFI = .755; RMSEA = .341$. The Akaike Information Criterion for the simultaneous regression model ($AIC = 38.666$) was significantly better than that of the sequential regression model ($AIC = 69.115$) suggesting the simultaneous regression model was a better fit for the data. The simultaneous model was also a better fit for the data than the reverse sequential model (process measures preceding conflict measures).

Did high power groups perform worse because power undermined individual performance? Individual power was significantly *positively*, rather than negatively, related to the quality of individual arguments $F(1, 155) = 16.743, p < .001, Adjusted R^2 = .092$. The average quality of arguments was also higher in groups comprised of high power participants $F(1, 40) = 12.755, p = .001, Adjusted R^2 = .223$, but was not related to group performance (i.e. agreement) $B = .976 (SE = .718), Wald = 1.846, p = .174$. Moreover, power remained marginally significantly related to agreement when controlling for average credibility of the group members' arguments $B = 1.235 (SE = .728), Wald = 2.881, p = .090$.

Summary. The findings of Study 2 were highly consistent with those from Study 1A and help generalize the results in important ways. Groups comprised of actual executives with more power in their organization were significantly less likely to reach agreement on a difficult

negotiation task than groups comprised of executives with less power in that same organization. Moreover, consistent with the findings of Study 1A, groups comprised of high power executives experienced greater status conflict, which mediated the effects of power on agreement. These groups also experienced greater task, process and relational conflict compared to groups comprised of lower power executives and task conflict mediated the detrimental effects of power on agreement. Groups comprised of higher power executives were less focused on the task, less integrative and shared less information than groups comprised of executives with less power and again, both task focus and information sharing independently mediated the effects of power on agreement. Power was not related to positive affect but groups comprised of executives with more power did engage in less positive reinforcement than groups comprised of executives with less power. The positive reinforcement was not related to the likelihood of agreement however. Finally, groups comprised of higher power executives did not perform worse because power undermined individual performance. To the contrary, the quality of high power executives' arguments was better, lending additional support to the hypothesis that worse group processes explain the detrimental effects of power on group performance.

Study 3: Experimental Manipulation of Group Negotiation in the Laboratory

The findings of Study 2 are of course correlational in nature and, although the findings held up after controlling for many potential confounds such as demographic variables, they are subject to omitted variables bias and alternative explanations. To increase the internal validity of these findings and rule out additional potential alternative explanations, we thus returned to the laboratory in Study 3. Study 3 bridges the findings of Studies 1A and 2 by using the same rigorous experimental methodology used in Study 1A and the same negotiation task used in Study 2. The procedure used in Study 3 was identical to that in Study 1A except for the

following differences: First, eight participants rather than six were recruited for each session so that we could split participants into groups of four. Second, at the start of the laboratory session, prior to the power manipulation, participants were given 10 minutes to read the instructions for the group task and make notes. Third, as described above, the group task comprised the negotiation task used in Study 2 wherein members assumed roles on an organizational committee and had to choose their company's next CFO while being videotaped. Fourth, participants were given 20 minutes rather than 30 minutes to complete the negotiation.

Method

Participants. Three hundred nineteen participants (178 female, $M_{age} = 20.67$, $SD = 1.49$) from a large West Coast University participated in the study for either class credit or pay (\$15). As in Study 1A, all participants had the opportunity to earn additional money. Participants were scheduled eight at a time for each laboratory session. When fewer than eight participants attended a session and we could not form two groups of four, they were split up into at least two groups of three participants. In total 82 groups of participants (27 High Power, 30 control, 25 Low Power) including nine triads took part in the experiment. Moderation analyses confirmed that group size did not moderate the effects of power. Further, including a dummy variable for group size did not significantly affect any of the results. Thus the analyses combine all groups.

Group negotiation task and performance measure. Groups completed the same decision making task used in Study 2 but were given 20 minutes to complete the task. Groups were told that if they reached agreement they would have a better chance of winning a \$100 Apple store gift certificate. Moreover, each participant was also told he/she would have a better chance of winning a gift certificate if his/her own preferred candidate was selected by the group. The same dichotomous measure of agreement used in Study 2 was used in Study 3.

Group process measures. As in Studies 1A and 2, videotapes of the group discussions were rated by two independent judges blind to the hypotheses and condition. The judges rated the same group process dimensions as in Studies 1A and 2. The reliability of coders' ratings for each measure were assessed after 20% of the videos had been coded and any conflicts resolved before the rest of the videos were coded (inter-rater reliabilities were positive affect $r = .88$, $\alpha = .94$, positive reinforcement $r = .88$, $\alpha = .93$, task focus $r = .81$, $\alpha = .90$; information sharing $r = .89$, $\alpha = .94$, integrativeness $r = .83$, $\alpha = .88$, task conflict $r = .93$, $\alpha = .97$, process conflict $r = .84$, $\alpha = .91$, relational conflict $r = .92$, $\alpha = .96$, status conflict $r = .94$, $\alpha = .96$).

Individual performance measure. The quality of individuals' arguments was coded using the same methodology described in Study 2. Reliability was again high ($\alpha = .83$ and so scores were combined into an average measure of quality).

Manipulation and suspicion checks. At the end of the laboratory session, participants completed the same 3-item measure of power ($\alpha = 0.902$) and two-item open-ended suspicion probe used in Studies 1A and 1B.

Results

Summary statistics for Study 3 are shown in Tables 4 and 5. None of the demographic variables of age, race or gender was significantly related to power, agreement or the group process measures. Further, controlling for these variables did not significantly affect any of our results. Therefore these variables were not considered further in the analyses below.

Manipulation check. The effect of the power manipulation on self-reported power was again significant $F(2, 309) = 111.067$, $p < .001$, $\eta^2 = .418$. Participants in the high power condition felt more powerful ($M = 5.78$, $SD = 1.08$) than those in the control condition ($M = 4.80$,

$SD = 1.07$) and low power condition ($M = 3.03$, $SD = 1.74$), $p < .001$ and $p < .001$ respectively. The difference between the control and low power conditions was also significant ($p < .001$).

Were groups of high power individuals less likely to reach agreement? As predicted, groups of participants in the high power condition were less likely to reach agreement (59%, or 16 out of 27 groups) than groups of control participants (80%, or 24 out of 30 groups) and groups of participants in the low power condition (88% or 22 out of 25 groups), $\chi^2(2, N = 82) = 6.309$, $p = .043$. Further, consistent with the findings in Study 1A, the effect of power was primarily driven by groups in the high power condition: their 59% agreement rate was substantially lower than that of groups in the control and low power conditions combined (84%, or 46 out of 55 groups total), $\chi^2(12, N = 82) = 5.836$, $p = .016$. In contrast, control and low power groups did not differ, $\chi^2(12, N = 55) = .638$, $p = .425$ (see Figure 5).

[Insert Figure 5 about here]

Did groups of high power individuals engage in more status conflict? As shown in Table 4, high power condition was related to more status conflict $F(2, 79) = 6.593$, $p = .002$, $\eta^2 = .143$. It was also related to more task conflict $F(2, 79) = 3.814$, $p = .026$, $\eta^2 = .088$, more process conflict $F(2, 79) = 4.274$, $p = .017$, $\eta^2 = .098$, more relational conflict $F(2, 79) = 4.996$, $p = .009$, $\eta^2 = .112$. Status conflict ($B = -.657$, $SE = .220$, Wald = 8.944, $p = .003$), in turn, was negatively related to the likelihood of reaching agreement. Task conflict was also negatively related to the likelihood of reaching agreement ($B = -.693$, $SE = .214$, Wald = 10.528, $p = .001$) whereas process conflict and relational conflict were not: $B = -.336$ (.202) Wald statistic = 2.758, $p = .097$ and $B = -.318$ (.206) Wald statistic = 2.370, $p = .124$, respectively.

We thus conducted bootstrap analyses to determine whether the effect of power condition on rates of agreement was mediated by more status conflict and more task conflict. The 95%

bias-corrected confidence intervals (with 5,000 bootstrap samples) excluded zero for both status conflict [-.7500, -.0582] and task conflict [-.9789, -.0630] indicating that both types of conflict mediated the effect of power on the likelihood of agreement. Consistent with Study 2, groups with high power individuals were less likely to reach agreement in part because they engaged in more status conflict and more task conflict (see Figure 6).

Did groups comprised of high power individuals have worse task processes? Again, as shown in Table 4, power condition led to less task focus $F(2, 79) = 3.215, p = .045, \eta^2 = .075$, less information sharing $F(2, 79) = 7.399, p = .001, \eta^2 = .158$, and less integrativeness $F(2, 37) = 4.542, p = .014, \eta^2 = .103$. Logistic regression analyses revealed that both task focus and information sharing were significantly positively related to the likelihood of reaching an agreement: task focus $B = 1.020 (.342)$ Wald = 8.897, $p = .003$; information sharing $B = 1.092 (.344)$ Wald = 10.085, $p = .001$. The relationship between integrativeness and agreement was not significant $B = .073 (.283)$ Wald = .065, $p = .798$. The 95% bias-corrected confidence intervals (with 5,000 bootstrap samples) excluded zero for both task focus [-.7286, -.0298] and information sharing [-.9699, -.1461] indicating that both process measures independently mediated the effect of power on agreement. Consistent with Study 2, and as shown in Figure 6, groups comprised of high power individuals were less likely to reach an agreement in part because they were less focused on the task and shared less information than did other groups.

[Insert Figure 6 about here]

Did power reduce positive group interactions? Groups of high power individuals conveyed significantly less positive reinforcement $F(2, 79) = 4.872, p = .010, \eta^2 = .110$. Power was not significantly related to positive affect $F(2, 79) = 1.850, p = .164$ (See Table 4). Logistic regression analyses revealed that neither positive affect nor positive reinforcement were

significantly related to the likelihood of reaching an agreement $B = .406$ (.305) Wald statistic = 1.773, $p = .183$ and $B = .349$ (.333) Wald Statistic = 1.103, $p = .294$.

[Insert Tables 4 & 5 about here]

We again conducted a path analysis to assess (a) whether the simultaneous regression model illustrated in Figure 6 fit our data well and (b) whether this simultaneous regression model was better than the alternative sequential regression model in which conflict preceded worse group processes. We estimated a path model which included the four significant mediators (status conflict, task conflict, task focus and information sharing) and permitted the two conflict measures to covary and the two process measures to covary as the associated error terms were correlated. The model fit the data well $\chi^2(4) = 1.743$, $p = .137$, $CFI = .971$; $RMSEA = .096$.

To assess whether this simultaneous regression model fit our data better than an alternative sequential model, we estimated a second path model, which included the four mediators in sequence (the two conflict measures preceding the two process measures). The model did not fit the data well $\chi^2(4) = 7.382$, $p < .001$, $CFI = .749$; $RMSEA = .281$. The Akaike Information Criterion for the simultaneous regression model ($AIC = 40.971$) was significantly better than that of the sequential regression model ($AIC = 63.528$) suggesting the simultaneous regression model was a better fit for the data. Consistent with prior studies the simultaneous model was also a better fit for the data than the reverse sequential model (process measures preceding conflict measures).

Did high power groups perform worse because power undermined individual performance? In contrast to the findings of study 2, individual power condition was not significantly related to the quality of individual arguments $F(2, 314) = .287$, $p = .751$, $\eta^2 = .002$. At the group level, power condition was also not significantly related to the average quality of

group members' arguments $F(2, 79) = 306, p = .737, \eta^2 = .008$, and the quality of arguments was again not significantly related to agreement $B = .205 (SE = .473), Wald = .189, p = .664$.

Moreover, power remained significantly related to agreement when controlling for average credibility of the group members' arguments $B = .860 (SE = .362), Wald = 5.653, p = .017$.

Consistent with the findings of study 2, individual performance did not explain the detrimental effects of power on group performance in study 3.

Summary. Groups of individuals who had been given power in a prior task were less likely to reach agreement on a decision in which they had opposing viewpoints than were groups of neutral or low power individuals. The experimental methodology of Study 3 helps to rule out alternative explanations for the findings of Study 2. Also, consistent with Studies 1A and 2, Study 3 found groups of high power individuals experienced greater status conflict than groups of neutral or low power individuals. Groups of high power individuals also experienced greater task and process conflict (consistent with Studies 1A and 2) as well as greater relational conflict. Status conflict again mediated the detrimental effects of power on agreement, as did task conflict in this study. Groups of high power individuals were less focused on the task, less integrative and shared less information than other groups and again, task focus and information sharing mediated the effects of power on agreement. Power was not related to positive affect but groups comprised of high power individuals did engage in less positive reinforcement than other groups. Differences in positive interactions were again not related to agreement in the task however. Finally, the quality of individual arguments did not differ between groups of high power individuals versus other groups lending additional support to the hypothesis that it is worse group processes rather than individual performance decrements explain the detrimental effect of power on group performance.

General Discussion

Summary of Findings

A driving question motivating the current research was how the possession of power affects leaders' ability to work with other leaders. To address this question we examined high power individuals when they work together as a group. In three studies, we found that groups of high power individuals (i.e., individuals who had high power in a previous task or in their organization) performed worse than other groups. Groups of high power individuals were both less creative (Study 1A) and less likely to agree on a difficult negotiation task (Studies 2 and 3). The effects of power were consistent regardless of whether power was manipulated experimentally (Studies 1A and 3) or measured naturalistically in a field setting (Study 2).

The deleterious effects of individuals' power on group performance stemmed from group interaction processes, and did not appear to stem from individual-level cognitive effects. That is, power hampered individuals' ability to work with others, but it did not appear to hinder their ability to think effectively. We found in all three group studies that groups comprised of high power individuals performed worse because they experienced greater levels of status conflict and employed worse group processes. Specifically, groups comprised of high power individuals not only fought over status more but were less focused on the task and shared less information with each other. The detrimental effect of power on group performance was mediated by the relatively higher levels of status conflict, and lower levels of task focus and information sharing that members of these groups experienced compared with members of other groups.

In contrast, the possession of power did not appear to damage individuals' creativity when they worked alone (Study 1B) and did not cause them to generate weaker arguments to support their case in the group negotiations (Studies 2 and 3). In fact, high power individuals

were *more* creative when they worked alone (Study 1B) and offered *more* credible arguments in one of the negotiation studies (Study 2). These results are consistent with prior work, which has shown that power can provide performance benefits when individuals work alone (e.g., Guinote, 2007; Magee & Galinsky, 2008; Whitson et al., 2012). Taken together, our findings suggest that groups of high power individuals performed worse than other groups *in spite of* the cognitive, affective and motivational benefits that power provides individuals when they work alone.

Implications

The current research helps us understand the behavior, performance – and perhaps most important, the failings – of those in power. Specifically, it can help explain why groups of high power individuals fail so often when they work together in collaborative efforts. Recent years have seen a ground swell of media attention and criticism of the performance of groups of leaders in the political and corporate spheres. Politicians are condemned for their inability to work together, to bridge across ideological lines, pass a budget, or agree on a bill (or any policy issue, really). Boards of directors are criticized for their failure to hold CEO's accountable for their performance or for failing to place limits on their compensation. While the possession and experience of power makes individuals more capable than others when acting alone, that same power appears to undermine their ability to get along and work with each other. Interaction among the powerful is vulnerable to conflict and miscommunication which undermines their collective performance. Interventions to mitigate these risks are critical given the nature of the decisions these groups make and the impact those decisions have for wider society.

The present research identifies a number of potential causes for the detrimental effects that power appears to have on the performance of groups. And, perhaps more importantly, identifying these causes enables us to target where intervention strategies might be deployed to

improve these groups' performance. For example, the higher levels of status conflict experienced by groups of high power individuals suggest that opportunities for mutual recognition and voicing of opinions should be identified so as to reduce the potential for status threat and conflict to arise. Formal information-sharing strategies might be implemented so that members of these groups are cognizant of all of the relevant information before making decisions thus mitigating the risk that relevant information is not shared. Structuring meeting time and formalizing decision processes may help these groups focus more on the task at hand than on other matters.

The current research contributes to the existing theoretical literature on the social psychology of power in several important ways. Though recent years have seen an explosion in the amount of research on the social psychology power, prior research has focused heavily on the effects of power on the individual or within hierarchical contexts in which the powerful interact with the powerless. Very little social psychological research to date has examined interactions between powerful individuals. The studies presented here begin to fill this lacuna in the literature. Critically, our findings suggest that simply extending the extant literature on the individual psychology of power to that of the group would be greatly mistaken. Groups comprised of high power individuals are not simply the sum of their (more capable) parts; indeed, far from it: groups of powerful individuals underperform relative to other groups, it would seem, precisely because of the members' individual power.

Limitations and Future Directions

There were a number of important strengths to the data. First, in examining groups working together, we used laboratory experimental as well as field designs; this allowed us to not only infer the causal effects of power but also assess the generalizability of the findings to the real world. Second, we collected objective indices of performance including independently rated

individual and group creativity scores in the first two studies, and independently verified agreement outcomes in the final two studies. This removes the possibility that groups might have simply misreported their performance outcomes. Third, we collected video data of all group discussions and had raters blind to condition and performance outcome rate the videos for process measures. This mitigates issues relating to the distorting effect of group attribution error on self-report measures (e.g., Allison & Messick, 1987).

While the current data had a number of strengths, there were of course limitations as well that should be addressed in future studies. First, the current research examined two kinds of tasks, a creativity task and a negotiation task in which members had to reach agreement. Both group tasks were procedurally interdependent rather than independent and required interpersonal interaction and negotiation. We suspect that the more a task requires interpersonal interaction the more severe the effects of power will be. In contrast, it is possible that the detrimental effects of power on collaborative performance would be mitigated in tasks involving less interpersonal interaction. Future research should consider tasks that involve less negotiation to examine this issue. For example, it is possible that for creativity tasks that involve generating a high number of possible uses for an object, or names for various products, teams of high power individuals might fare better. More generally, future research examining the effects of power on other group tasks and problems would help us to better understand whether power leads groups to make suboptimal decisions, fail to maximize joint gain in an integrative bargaining context, or generate less accurate solutions to problems. Although one could imagine the debilitating effects of status conflict and less effective information exchange would generalize to other contexts as well, this requires empirical assessment.

Second, in the current studies participants came from the same subject pool (and thus same school environment) or the work same organization, and thus might have felt as though they ultimately stemmed from the same ingroup. The contexts we studied were thus akin to contexts such as boards of directors or White House administrations where the individuals all fall within the same superordinate group. It is important to examine whether the same effects would emerge when powerful individuals who are part of different outgroups must work together. This would be similar to a meeting between heads of state or CEOs of different organizations, for example. It is possible that the deleterious effects of power on group performance would be exacerbated, given the lack of cohesion and collaboration that typically arises between members of different outgroups. However, it is also possible that because the powerholders of such groups occupy distinct status hierarchies (Frank, 1985), less status conflict would emerge and thus fewer problems would arise.

Third, it should be noted that this research was conducted on participants working or studying in the US and therefore acclimatized to US work habits and norms. It is important to test whether the detrimental effects of power on performance apply in cross-cultural settings given work is becoming increasingly global in nature. Moreover, power has been shown to have different effects on individuals from different cultures (Zhong, Magee, Maddux & Galinsky, 2006), suggesting many findings in the current research might differ across cultures.

Another interesting issue worthy of further study is whether high power members of groups are aware of each other's power. In the current research, participants were likely aware of the relative power of other members' of their group. In some powerful group contexts such as juries, members of the group do not know each other's relative power. In other contexts, such as corporate executive teams, the clarity of relative power may depend on the extent to which

reporting lines are articulated explicitly. To the extent that participants are aware of other members of their groups relative power, such knowledge may affect role expectations and subsequent behavior. This matters to the extent that changes in behavior are different between different conditions. It is possible that the powerful are less concerned with others' relative power given their tendency to focus on themselves rather than others. In this situation, knowledge of others power matters less to the powerful than to those with less power. In contrast, to the extent that the powerful are more conscious of threats to their standing in groups and the powerful group context raises this concern, then the powerful may be more likely react than the less powerful in these contexts.

Finally, though our research focused on groups of high power individuals, it is also important to examine the effects of status as well. Research is increasingly showing different effects for the possession of power and status (Blader & Chen, 2011; Fast et al., 2012). It is possible that groups of high status individuals might work well together, because status appears to promote more prosocial behavior. On the other hand, research also suggests that high status individuals are particularly threatened by the potential of losing status (Gruenewald, Kemeny, & Aziz, 2006). Therefore, it is possible that high status individuals, confronted with other high status individuals, might feel threatened and react negatively.

Conclusion

Our research posed the question of how leaders' power affects their ability to work with other leaders. The answer we found was disheartening. When individuals with power are assembled to work as a group on difficult issues, their power had a negative effect on their group's collective performance. Groups comprised of more high power individuals, be they students given temporary power or executives endowed with actual organizational power,

perform worse than groups comprised of neutral or low power individuals. And, these detrimental effects of power on group performance are explained in part by members of these groups experiencing higher levels of status conflict, being less focused on the task at hand and sharing information less effectively with each other compared to other groups.

Footnotes

1. To control for the possibility that participants with higher power might know each other better than do participants with lower power (thus confounding power with familiarity to other group members), these initial group assignments were then adjusted using demographic information the company provided including the group they had been assigned to for the duration of the leadership program (i.e., their POD), medical center (a proxy for their geographical location), and functional specialty (e.g. Medicine, Neurology, Pediatrics, etc.). The adjustments to the initial group allocation were made with the aim of minimizing the variance of power within each group by swapping members of groups with adjacently ranked power and using the following order of priorities: First no two members of the group should be from the same POD; second, no two members of the group should have the same functional specialism; and third, no two members of the group should be from the same geographic location. Both priorities (1) and (2) were achieved. Nine of the 42 groups had pairs of members from the same geographic but different functional specialism. Moderation analyses confirmed that shared geographic location did not moderate the effects of power on any other variable.

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Table 1
Means and standard deviations of measures by condition in Study 1A

Measure	Low Power	Control	High Power
DV: Creativity	2.42 ^a (1.11)	2.43 ^a (1.00)	1.75 ^b (.46)
Novelty	1.75 ^a (1.15)	1.55 ^a (.75)	1.00 ^b (.00)
Usefulness	3.14 ^a (1.05)	3.64 ^a (1.08)	3.00 ^a (1.03)
Status conflict	1.42 ^a (.67)	1.62 ^a (.89)	2.75 ^b (1.22)
Other conflict			
Task conflict	2.33 ^{ab} (1.56)	1.81 ^a (.75)	3.08 ^b (.90)
Process conflict	1.33 ^a (.49)	1.31 ^a (.70)	2.08 ^b (1.08)
Relational conflict	1.50 ^{ab} (.67)	1.25 ^a (.45)	2.00 ^b (1.21)
Task processes			
Task focus	3.08 ^a (.52)	3.25 ^a (.58)	2.42 ^b (.67)
Information sharing	4.42 ^a (.67)	4.75 ^a (.78)	3.75 ^b (.45)
Integrativeness	3.33 ^a (.65)	2.94 ^{ab} (.44)	2.67 ^b (.65)
Positive interactions			
Positive affect	3.00 ^a (.95)	3.13 ^a (.89)	2.75 ^a (.62)
Positive reinforcement	3.08 ^a (.67)	3.31 ^a (.70)	2.33 ^b (.65)

Note. Means with different superscript letters are significantly different, $p < 0.05$ (t test). Standard deviations are in parentheses. $N = 58$ groups (18 high power, 22 control, 18 low power) for creativity, novelty and usefulness measures, $n = 42$ for other measures.

Table 2

Study 1A Descriptive Statistics - Group Level

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1 . Group power ¹	2.00	0.81							
2 . Male group dummy	0.53	0.50	.00						
3 . Average age	20.39	1.54	.06	.11					
4 . Percentage caucasian	0.20	1.63	.03	.18	-.12				
5 . Status conflict	1.90	0.76	.48**	.15	.42**	-.09			
6 . Other conflict - task	2.35	0.74	.25	.18	.15	-.17	.51**		
7 . Other conflict - process	1.55	0.69	.35*	-.13	.15	-.16	.51**	.57***	
8 . Other conflict - relational	1.55	0.85	.23	.11	.33*	-.08	.43**	.59***	.28
9 . Task process - focus	2.95	0.68	-.39*	-.07	-.10	.17	-.43**	-.17	-.09
10 . Task process - information sharing	4.35	0.77	-.34*	.09	-.01	-.06	-.23	-.25	-.15
11 . Task process - integrativeness	2.98	0.62	-.42**	-.20	.14	.03	-.16	-.20	-.07
12 . Positive interactions - positive affect	2.98	0.83	-.12	-.40*	-.09	.00	-.35*	-.35*	-.16
13 . Positive interactions - positive reinforcement	2.95	0.78	-.38*	-.19	.11	.05	-.37*	-.39*	-.23
14 . Creativity - overall	2.21	0.95	-.27*	.15	.03	-.03	-.37*	-.06	-.00
15 . Creativity - novelty	1.44	0.84	-.36**	.14	-.11	.04	-.34*	.01	-.09
16 . Creativity - usefulness	3.28	1.08	-.05	.23	-.02	.05	.03	.00	.29

	8	9	10	11	12	13	14	15
9 . Task process - focus	-.26							
10 . Task process - information sharing	-.23	.48**						
11 . Task process - integrativeness	-.12	.30	.40*					
12 . Positive interactions - positive affect	-.27	.41**	.34*	.50**				
13 . Positive interactions - positive reinforcement	-.35*	.53***	.46**	.53***	.75***			
14 . Creativity - overall	.07	.54***	.43**	.20	.06	.07		
15 . Creativity - novelty	.02	.46**	.25	.09	-.08	-.07	.80***	
16 . Creativity - usefulness	.01	.24	.35*	-.01	.08	.01	.53***	.32*

Notes: 1. Group power coded 3=high power, 2=control, 1=low power

* $p < .05$, ** $p < .01$, *** $p < .001$. N = 58 except for process measures (5 through 13) where n = 40.

Table 3
Study 2 Descriptive Statistics - Group Level

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1 . Group power	0.03	0.73						
2 . Percentage male	0.61	0.23	.23					
3 . Average age	40.61	2.43	.16	-.03				
4 . Percentage caucasian	0.47	0.25	.02	.05	.32*			
5 . Status conflict	2.31	1.07	.46**	.22	-.01	-.12		
6 . Other conflict - task	4.52	1.40	.54***	.20	.22	.04	.69***	
7 . Other conflict - process	1.98	0.95	.43**	.20	.08	-.17	.54***	.36*
8 . Other conflict - relational	1.95	1.08	.40**	.11	.14	-.05	.54***	.65***
9 . Task process - focus	3.21	0.84	-.41**	.07	.12	.24	-.16	-.08
10 . Task process - information sharing	4.10	1.12	-.45**	-.10	-.36*	-.23	-.23	-.44**
11 . Task process - integrativeness	2.45	0.77	-.39*	-.10	-.21	.02	-.29	-.54***
12 . Positive interactions - positive affect	2.81	0.89	-.25	-.22	-.05	-.04	-.35*	-.41**
13 . Positive interactions - positive reinforcement	2.67	0.95	-.46**	-.30	-.17	-.05	-.45**	-.52***
14 . Agreement ¹	0.71	0.46	-.36*	-.15	-.06	.07	-.48**	-.46**

	7	8	9	10	11	12	13
8 . Other conflict - relational		.52***					
9 . Task process - focus		-.24	-.12				
10 . Task process - information sharing		-.27	-.28	.21			
11 . Task process - integrativeness		-.48**	-.50**	.22	.43**		
12 . Positive interactions - positive affect		-.47**	-.47**	.15	.51**	.59***	
13 . Positive interactions - positive reinforcement		-.63***	-.39*	.12	.53***	.71***	.76***
14 . Agreement ¹		-.37*	-.21	.57***	.49**	.26	.21

Notes: 1. Agreement coded 1=yes, 0=no
* $p < .05$, ** $p < .01$, $p < .001$. $N = 42$

Table 4
Means and standard deviations of measures by condition in Study 3

Measure	Low Power	Control	High Power
DV: Agreement ¹	88% ^a	80% ^{ab}	59% ^b
Status conflict	2.12 ^a (1.05)	2.20 ^a (1.19)	3.22 ^b (1.45)
Other conflict			
Task conflict	3.00 ^a (1.50)	3.70 ^{ab} (1.42)	4.11 ^b (1.48)
Process conflict	1.60 ^a (1.00)	1.77 ^a (1.14)	2.48 ^b (1.34)
Relational conflict	1.80 ^a (1.19)	1.90 ^a (1.00)	2.70 ^b (1.27)
Task processes			
Task focus	3.40 ^a (.71)	3.27 ^{ab} (.79)	2.85 ^b (.95)
Information sharing	4.72 ^a (.89)	4.47 ^a (.97)	3.78 ^b (.89)
Integrativeness	3.00 ^a (.82)	2.80 ^a (.66)	2.30 ^b (1.10)
Positive interactions			
Positive affect	3.08 ^a (.81)	3.03 ^a (.67)	2.67 ^a (1.07)
Positive reinforcement	3.36 ^a (.76)	3.00 ^{ab} (.64)	2.70 ^b (.87)

Note. Means with different superscript letters are significantly different, $p < 0.05$ (t-test). Standard deviations are in brackets after the relevant means. $N = 82$ groups (25 high power, 30 control, 27 low power).

1. Figures for agreement are percentage of groups reaching agreement within that condition. Different superscript letters are significantly different, $p < .05$ (chi-square).

Table 5
Study 3 Descriptive Statistics - Group Level

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1 . Group power ¹	2.02	0.80						
2 . Percentage male	0.45	0.50	.07					
3 . Average age	20.69	0.86	-.10	.13				
4 . Percentage caucasian	0.24	0.22	.09	.20	.15			
5 . Status conflict	2.51	1.33	.34**	.06	.04	-.16		
6 . Other conflict - task	3.62	1.51	.29**	.11	-.05	-.13	.63***	
7 . Other conflict - process	1.95	1.22	.29**	.19	.03	-.05	.60***	.43***
8 . Other conflict - relational	2.13	1.21	.30**	-.01	.02	-.16	.64***	.63***
9 . Task process - focus	3.17	0.84	-.26*	.12	.11	.04	.06	.11
10 . Task process - information sharing	4.32	0.99	-.38***	.08	.12	-.01	-.25*	-.22*
11 . Task process - integrativeness	2.70	0.91	-.31**	.09	.11	.12	-.33**	-.33**
12 . Positive interactions - positive affect	2.93	0.87	-.19	.11	.07	-.07	-.38***	-.36**
13 . Positive interactions - positive reinforcement	3.01	0.79	-.33**	.02	.14	.12	-.30**	-.37**
14 . Agreement ²	0.76	0.43	-.27*	-.06	.04	.11	-.36**	-.39***

	7	8	9	10	11	12	13
8 . Other conflict - relational	.65***						
9 . Task process - focus	.18	.06					
10 . Task process - information sharing	-.18	-.28*	.29**				
11 . Task process - integrativeness	-.34**	-.47***	.09	.42***			
12 . Positive interactions - positive affect	-.39***	-.54***	.12	.40***	.62***		
13 . Positive interactions - positive reinforcement	-.32**	-.48***	.09	.42***	.71***	.66***	
14 . Agreement ²	-.19	-.17	.35**	.38***	.03	.15	.12

Notes: 1. Group power coded 3 = high power, 2 = control, 1 = low power

2. Agreement coded 1=yes, 0=no

* $p < .05$, ** $p < .01$, $p < .001$. $N = 82$

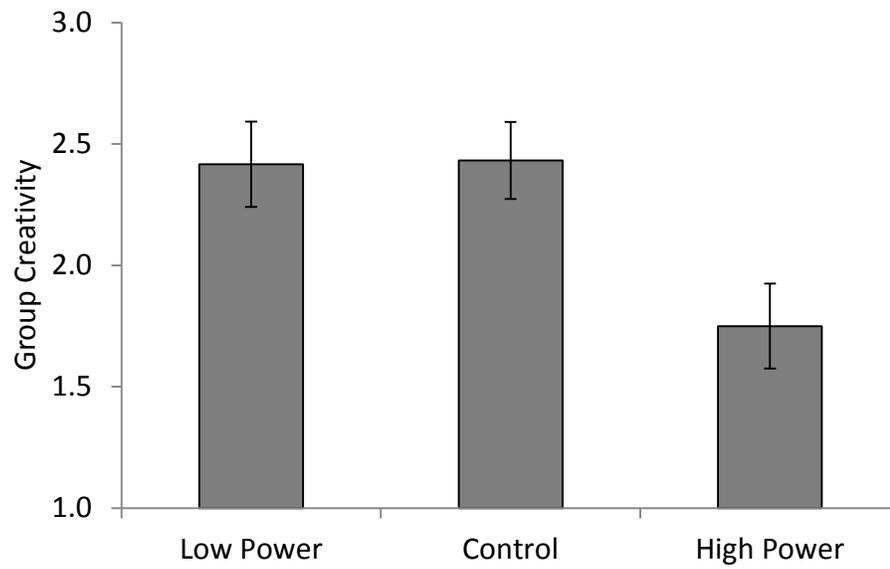


Figure 1: *In Study 1A, creativity scores for groups comprised of individuals in the low power condition, control condition, and high power conditions, respectively. Error bars denote one standard error around the mean.*

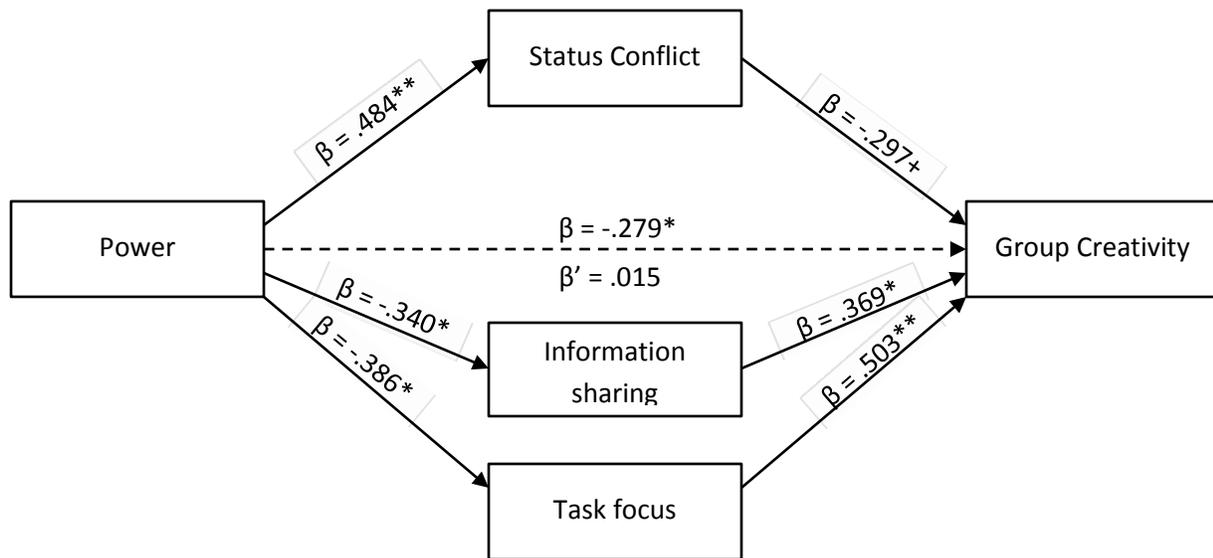


Figure 2: In Study 1A, the mediation model for the effects of power on group creativity through status conflict, information sharing and task focus. Shown are standardized beta coefficients.

+ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

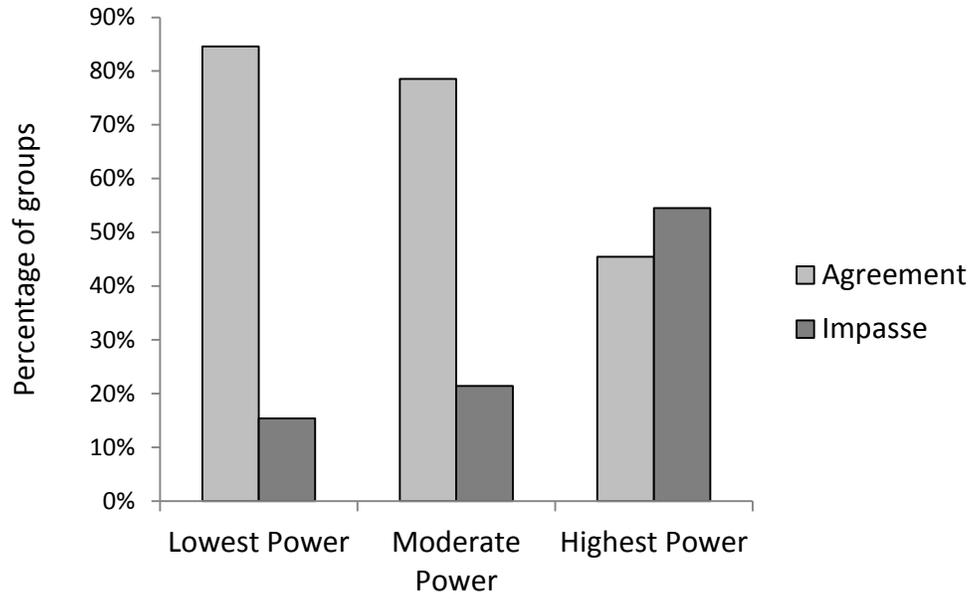


Figure 3: *In Study 2, the percentage of groups who reached agreement, broken down by groups whose members’ average power in the organization was in the highest, middle and lowest tertiarities.*

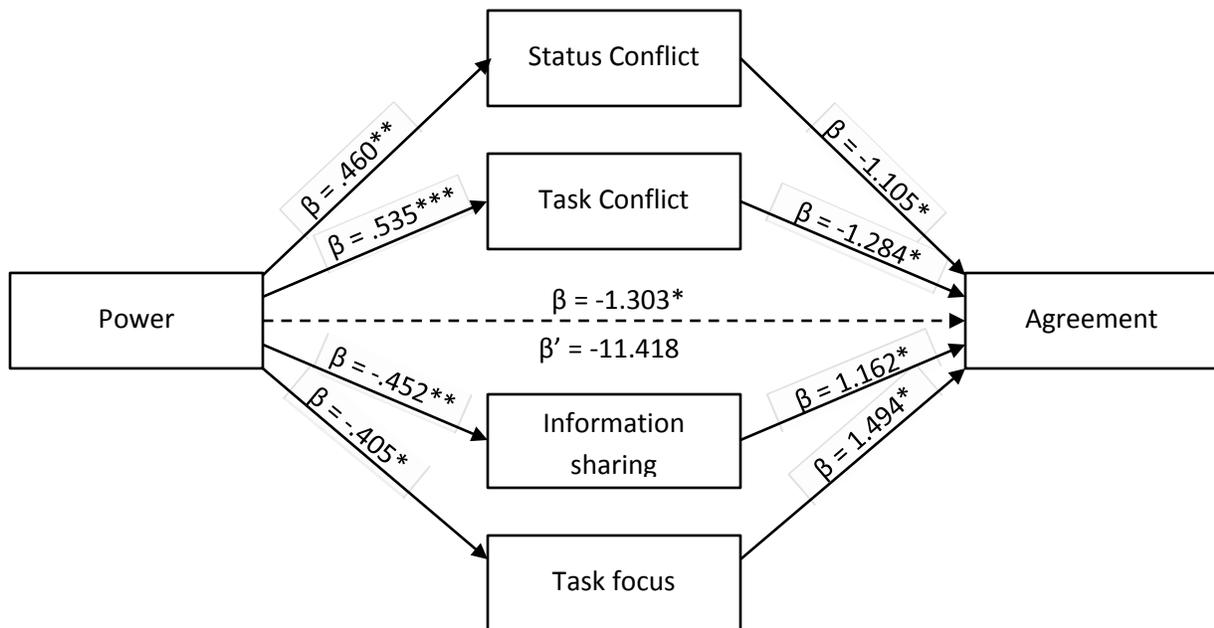


Figure 4: In Study 2, the mediation model for the effects of power on agreement through task conflict, status conflict, information sharing and task focus. Shown are standardized beta coefficients.

* $p < .05$, ** $p < .01$, *** $p < .001$

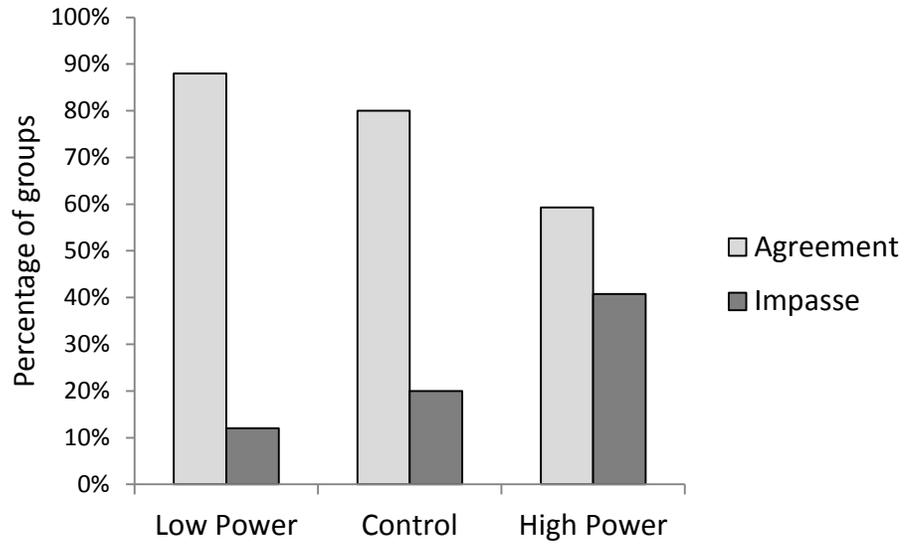


Figure 5: *In Study 3, the percentage of groups who reached agreement, broken down by condition.*

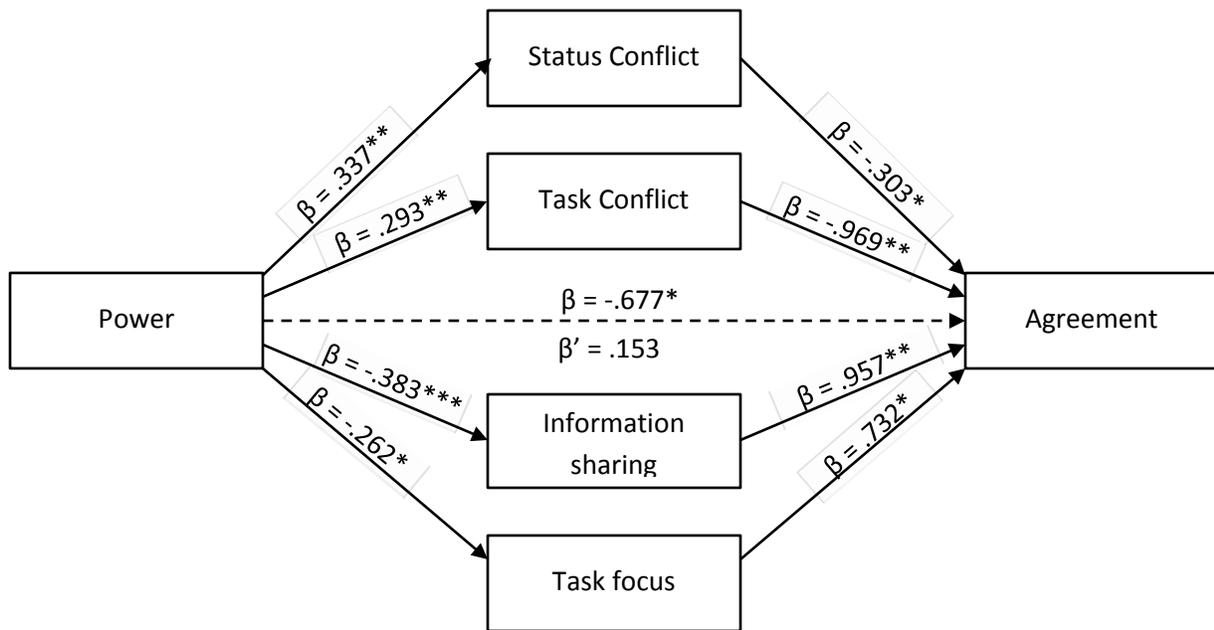


Figure 6: In Study 3, the mediation model for the effects of power on agreement through task conflict, status conflict, information sharing and task focus. Shown are standardized beta coefficients.

* $p < .05$, ** $p < .01$, *** $p < .001$

Appendix: Group Task Instructions for Study 1A (/1B)

You are the founders (/founder) of a new company. As founders (/founder) you will need to decide upon a product or service that your company will provide; the goals and the strategies the company will use to achieve those goals; and a name for the company. You have fifteen minutes to complete all steps 1 to 3 of this task and answer the five questions.

[Study 1A only:] Even though we have handed you each a copy of these instructions, you will turn in just one group response to this task.

Step 1: Choosing a Product or Service

To begin, you will need to decide upon a product or service that your company will provide. Decide on what product or service your company will provide and explain why you think this will be a successful idea.

1. What is a product or service that your company could provide?
[8 blank lines for response]

Step 2: Choosing a Name

We would now like you to discuss some names for your company, and to choose one of these names.

2. What are some possible names for your company?
[5 blank lines for response]
3. What is the name you choose for your company?
[3 blank lines for response]

Step 3: Goals and Strategies

Like any other organization or business, your company should have some goals that you aim to achieve, and strategies designed to help you meet those goals. In this step, you will outline your more long-term goals and describe the strategies that you will employ to meet these goals.

4. How will you measure success for your company? For example, you could measure your company's success with benchmarks for membership totals, raising capital, market share, etc. Based upon your selected measures of success, please choose three specific goals that you would like to accomplish within your company's first two years of operation and describe them below.
[8 blank lines for response]
5. What strategies will you employ to attempt to meet your goals? Please describe your company's three main strategies.
[8 blank lines for response]