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Social Climbing: A Contextual Approach to Understanding the
Effects of Social Hierarchy on Individual Cognition and Behavior

A dissertation submitted in partial satisfaction of the requirements
for the degree Doctor of Philosophy in Management

by

Nicholas Adam Hays

2012

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ABSTRACT OF THE DISSERTATION

Climbing the Ladder: A Contextual Approach to Understanding the Effects of Social Hierarchy on
Individual Cognition and Behavior

by

Nicholas Adam Hays

Doctor of Philosophy in Management

University of California, Los Angeles, 2012

Professor Corinne Bendersky, Co-chair

Professor Noah Goldstein, Co-chair

Power and status hierarchies are ubiquitous in human society. Although a significant amount of evidence suggests that people seek power and status, there is a general emphasis in the extant literature on hierarchy acceptance and reinforcement. This dissertation examines the actions people take to challenge and modify the hierarchies of which they are a part, particularly in response to structural characteristics of those hierarchies. Chapter 1 introduces the central concepts investigated in the dissertation. Chapter 2 examines the effects of status hierarchy dispersion and legitimacy on group members' behaviors. Two studies indicate that hierarchy dispersion increases individuals' motivation to attain high status, particularly in hierarchies perceived to be illegitimate, leading to status challenges, which are detrimental for group performance. Chapter 3 investigates the interaction of power and legitimacy on the tendency to conform to social norms. Whereas legitimate power decreases conformity to norms, illegitimate power increases conformity, compared

to being powerless. Chapter 4 examines how people value power and status distinctly. There is a general tendency for people to place greater importance on status, defined as the respect they receive from others, compared to power, the control they have over valuable resources. This is moderated by gender, with men tending to value power more than women, and women valuing status more than men. Furthermore, whereas legitimacy does not change the value of having power, legitimate status is significantly more valuable than illegitimate status. Chapter 5 captures common themes across the projects, identifies implications for researchers and organizations, and highlights additional questions that should be addressed in future research.

The dissertation of Nicholas Adam Hays is approved.

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2012

Dedication

There are innumerable people to thank for the love, guidance, and support they have provided me along my journey to this point. I want to thank Corinne Bendersky for taking a risk on a consultant wanting to go to graduate school despite being out of practice as a student. She pushed me to ask big and bigger questions and provided continual mentorship. I am also grateful to Noah Goldstein for his sage advice on pursuing truth with a capital T, for showing me the importance of storytelling in science, and for making research fun. I could never repay Corinne and Noah for the countless hours they spent teaching me their craft, but I hope I can someday pay it forward.

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To Angelica Gutierrez, Heajung Jung, and Ming-Hong Tsai, thank you for going through this process with me, and for making it much less lonely than it otherwise would have been. We have shared the happiness of success, the sadness of rejection, the anxiety of exams, and many other emotions along the way, and I am happy we got to know each other. I look forward to seeing how their careers progress in the coming years. I am also indebted to all of the Anderson, psychology, sociology, and education faculty members who have taught me about invaluable research tools over the years.

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Chapter 1

Introduction

Everyone has some degree of experience with social hierarchy. Organizations from Fortune 500 corporations to small non-profit community groups use formal hierarchies to allocate decision authority and clarify roles. Consumers purchase expensive clothing, cars, and other goods to signal their standing in society's status hierarchy. Colleagues engage in verbal sparring matches to assert their dominance and competence, and to show others who *really* is the smartest person in the room. Indeed, social hierarchy is ubiquitous in humans and other species (de Waal, 1982; Fiske, 1992; Fiske, 2010; Sapolsky, 2005). Its prevalence across species, cultures, and time is a testament to the adaptive value of hierarchy, allowing people to coordinate their efforts and motivating group members to work on behalf of the group in hopes of securing a powerful or prestigious role (Magee & Galinsky, 2008). Not surprisingly, people are somewhat predisposed to hierarchy, tending to become dominant in the presence of submissiveness, and submissive in the presence of dominance (Gruenfeld & Tiedens, 2010; Tiedens & Fragale, 2003; Tiedens, Unzueta, & Young, 2007).

The prevalence of social hierarchy has not gone unnoticed by scholars in the social sciences. Two forms of hierarchy have been a particular focus for social scientists. One form, power, is defined as control over valuable resources, which also affords control over others by providing or withholding those resources (French & Raven, 1959; Keltner, Gruenfeld, & Anderson, 2003). The second form, social status, is defined as the respect, prestige, and admiration one has in the eyes of others (Magee & Galinsky, 2008). As of May 15, 2012, ISI Web of Science includes over 2,000 works related to power or status hierarchies in the Social Sciences Citation Index, with 1,250 of those citations occurring in the last 10 years.

As suggested by the sheer number of citations, the findings of research on power and status hierarchies could fill an encyclopedia. At a very high level, people tend to have upward ambitions, striving to increase their power and status (Barkow, 1975; Hogan & Hogan, 1991; McClelland, 1975; Rotter, 1966). When people feel powerful, they have a sense of control and become more approach oriented, meaning they focus on rewards in their environment (Keltner, et al., 2003). This frees people to take action (Galinsky, Gruenfeld, & Magee, 2003), take risks (Anderson & Galinsky, 2006), speak their minds and display their true emotions (Anderson & Berdahl, 2002; Berdahl & Martorana, 2006), and focus on the instrumental value of others (Gruenfeld, Inesi, Magee, & Galinsky, 2008), among a long list of other outcomes. Status is somewhat more negotiable than power because it is conferred by peers based on their perceptions (Berger, Rosenholtz, & Zelditch, 1980; Blau, 1964). People who display signs of dominance tend to attain the highest status in groups (Anderson, John, Keltner, & Kring, 2001; Anderson & Kilduff, 2009b), as do people who demonstrate their generosity and willingness to serve the group (Hardy & Van Vugt, 2006; Willer, 2009). Although status is intangible, people are remarkably adept at figuring out where they and others fall in the hierarchy, and they behave in ways consistent with their relative status (Anderson, Srivastava, Beer, Spataro, & Chatman, 2006; Henrich & Gil-White, 2001). Once people have established their position in the status hierarchy, the thought of a status loss is quite aversive (Pettit, Yong, & Spataro, 2010; Scheepers, Ellemers, & Sintemaartensdijk, 2009).

Although much is known about social hierarchies, much remains to be discovered and refined. In particular, three gaps in extant literature on power and status hierarchies are relevant to this dissertation. First, there is an emphasis on hierarchy stability and stabilizing forces in the literature. This is not an illogical focus because empirical evidence indicates that hierarchies are often (but not always) stable (Anderson, et al., 2001; Aries, 1996; Magee & Galinsky, 2008). However, given that people are motivated to seek power and status (Barkow, 1975; Hogan &

Hogan, 1991; Huberman, Loch, & Onculer, 2004; McClelland, 1975), and hierarchies are often the product of negotiation and conflict processes (Bendersky & Hays, 2012b; Owens & Sutton, 2001), it is important that hierarchy researchers understand not only the reasons for stability but the conditions under which hierarchies may be destabilized and the processes individuals use to do so.

Second, most research defines hierarchy as a rank ordering of individuals (Berger, et al., 1980; Magee & Galinsky, 2008). This implies that a hierarchy is simply present by virtue of inequality along some dimension. As a result, the focus of research has been on how the rank ordering is determined (e.g., Anderson, et al., 2001; Anderson & Kilduff, 2009b; Ridgeway, Boyle, Kuipers, & Robinson, 1998; Ridgeway & Diekema, 1989) and on the experience of having power or status, either high or low (e.g., Galinsky, et al., 2003; Pettit & Sivanathan, 2012). However, it is also important that we understand how hierarchies vary in their structural properties, and the effects of this variance. For example, research on status indicates that status can be construed as a continuum rather than a rank ordering, analogous to the difference between interval and ordinal variables. People are not only sensitive to their ranking in the hierarchy, they are also aware of distances between self and others, and take actions to manage these distances in ways that are advantageous for themselves (Bottero & Prandy, 2003; Phillips, Rothbard, & Dumas, 2009). This suggests that hierarchies are not just present or absent, they also vary in their dispersion, from relatively compressed to relatively dispersed. Understanding how structural properties of the hierarchy, such as dispersion, affect group member behavior represents an important topic to address in research.

Third, although power and status have distinct theoretical definitions, they are often correlated and many scholars use the terms interchangeably (e.g., Hall, Coats, & LeBeau, 2005), or investigate one or the other without articulating the role of both power and status in determining behavior. Scholars have only recently begun to examine whether people distinguish between these constructs, and what happens when people have either power or status, but not both. For example,

people perceive powerful others as dominant and cold but see powerless others as warm and submissive. However, if people are seen as high status, they are perceived as dominant and warm regardless of their power (Fragale, Overbeck, & Neale, 2011). Furthermore, when people have power without status, they tend to denigrate their subordinate counterparts (Fast, Halevy, & Galinsky, 2012). Additional research is needed to identify how people differentially view and seek power versus status.

This dissertation aims to address these gaps and improve our knowledge of social hierarchy in these areas. Chapter 2 examines hierarchy dispersion, its effect on competitive status challenges, and how these challenges affect group performance. We find that dispersion motivates people to attain high status in groups, which leads them to challenge the status hierarchy and ultimately harms group performance. This effect is moderated by legitimacy, the extent to which the hierarchy is seen as “appropriate, proper, and just” (Tyler, 2006, p. 376). This chapter indicates that there is merit in viewing status as a continuous construct, and in studying properties of the hierarchy itself, specifically dispersion and legitimacy.

Chapter 3 carries forward the concept of hierarchy legitimacy, but investigates how legitimacy can moderate the experience of power. We find that although power typically increases independence and decreases conformity to social norms, illegitimacy reverses this effect. People with illegitimate high power conform than those with illegitimate low power. In fact, people with illegitimate power behave similarly to people with legitimate low power, conforming to social norms more than people with illegitimate low power or legitimate high power, who are similar in terms of their conformity. This chapter further underscores the importance of considering how people perceive a hierarchy and not just their positions in that hierarchy.

Finally, Chapter 4 examines how people differentially value power and status. I find that people place greater importance on their status than their power within the groups to which they belong. Consistent with prior research, men tend to value power more than women. I also find evidence that women tend to value status more than men. Because status is consensually conferred by peers whereas individuals can possess power regardless of subordinates' views, the legitimacy of a status hierarchy influences the value of having status whereas the legitimacy of a power hierarchy does not moderate the value of having power.

I hope that my dissertation expands our knowledge of social hierarchies in innovative and compelling ways. Given the importance and prevalence of power and status hierarchies in our lives, I believe this is a worthy endeavor.

Chapter 2

Status Tournaments: The Effect of Status Hierarchy Dispersion on Performance

Abstract

Although most research on status focuses on ordinal differences in rank, individuals are also sensitive to the magnitude of status differences between self and others. We argue that status hierarchy dispersion, the level of status inequality that exists within a group, has largely been overlooked but has important consequences for individual group members and the performance of the group as a whole. We demonstrate empirically that hierarchy dispersion leads to competitive status challenges, an effect that is moderated by hierarchy legitimacy, and these challenges are detrimental for group performance. In Study 1, we validate a new measure of status challenges. Study 2, a longitudinal survey of MBA task groups, demonstrates that dispersion is positively related to subsequent status challenges, particularly in groups with hierarchies seen as illegitimate, and these challenges harm group performance. In Study 3 we manipulate hierarchy dispersion and legitimacy and find that illegitimate dispersion leads to status challenges by increasing motivation to attain higher status, but legitimate dispersion has no effect on status challenges.

Consider two groups of people working together on different product development plans for their employer. In both groups, members represent a variety of functional areas in the organization and have diverse expertise, but work at a similar, middle-management level of the organizational hierarchy. In Group A, one member, Susan, clearly commands much more respect in the team discussions than others because she launched a similar product for her former employer. When Susan speaks, the group listens, and the final decisions made by the group are remarkably similar to her initial preferences. Group B also has one member, Tom, who is more respected than other members because of prior product development experience, but the differences in respect and influence are slight compared to group A. Neither Tom nor any other single member of Group B has strong, unilateral influence over group decisions.

The scenario above highlights similarities and differences between two groups. Despite the fact that each group is comprised of individuals who work at similar levels of the organization's hierarchy, an informal status hierarchy has emerged in both groups. This is consistent with decades of research indicating that status hierarchies emerge almost instantaneously in all types of groups (Bales, 1958; Bales, Strodtbeck, Mills, & Roseborough, 1951; Gould, 2003; Whyte, 1943). Status hierarchies are defined as the rank ordering of individuals based on their status, which is the respect and admiration they receive from others (Magee & Galinsky, 2008; Ridgeway & Correll, 2006). In the scenario above, Susan and Tom have more status than other group members. However, the status hierarchies differ in dispersion, the level of status inequality that exists within the groups (Harrison & Klein, 2007). Hierarchies by definition require some degree of inequality so a ranking is possible, but Group A demonstrates a very dispersed status hierarchy, with Susan being much more respected than others, whereas Group B demonstrates a less dispersed status hierarchy, with Tom being only slightly more respected than others based on his expertise.

This distinction is missing from most research on status hierarchies, which suggests either

explicitly or implicitly that rank is the primary determinant of behavior with respect to the hierarchy (Anderson & Kilduff, 2009a; Berger, et al., 1980; Chase, 1980; Magee & Galinsky, 2008). Status research typically construes status as a zero-sum resource where an increase in one person's status necessitates a decrease in another's status. In this work, individuals are ranked higher or lower in the status hierarchy in an ordinal fashion and the distance between status positions is either not considered or is assumed to be equal. However, a limited amount of research finds that people are sensitive to status distance, the magnitude of a status difference between individuals, and that it can affect friendship formation, undermining, and information disclosure (McPherson & Smith-Lovin, 1987; Pettit, 2011; Phillips, et al., 2009). Interpersonal status distance aggregated to the group level creates status inequality, or hierarchy dispersion, but research on status distance has not yet examined group-level hierarchy dispersion or its effects on individual group members and group functioning. We believe this represents a significant gap in our understanding of status hierarchy dynamics.

The present research is intended to begin to close this gap in the literature by examining the effect of hierarchy dispersion on individual behaviors and group outcomes. Drawing on tournament theory (Lazear & Rosen, 1981), we posit that hierarchy dispersion should increase individuals' motivation to attain higher status, which engenders status challenges as group members compete over status. We define a status challenge as an attempt to modify an existing status hierarchy. Consistent with prior research showing that people are less likely to challenge legitimate structures (Thomas, Walker, & Zelditch, 1986; Walker, Thomas, & Zelditch, 1986), we expect that the effect of dispersion on status challenges will be moderated by perceived hierarchy legitimacy, defined as "the belief that...social arrangements are appropriate, proper, and just," (Tyler, 2006, p. 376, p. 376), with stronger effects in less legitimate hierarchies. Finally, we argue hierarchy dispersion will harm performance because it leads to status challenges, which should be detrimental to performance.

We present three studies to examine the effect of dispersion and legitimacy on status challenges and performance. In the first study, we establish the construct validity of our measure of status challenges and show that status challenges are distinct from status-related coalition behavior intended to undermine the hierarchy and from general dominance. In the second study, we use a longitudinal survey to demonstrate that dispersion is positively related to subsequent reports of status challenges, which are detrimental to performance, particularly in groups with hierarchies perceived by members as illegitimate. In the third study, we manipulate dispersion and legitimacy to examine causality and show that dispersion leads to status challenge intentions in illegitimate but not in legitimate hierarchies, an effect mediated by motivation to attain high status in the group. This research contributes to the growing literature on social status by demonstrating that, to fully understand status hierarchy dynamics and individual behaviors with respect to these hierarchies, we must consider variation in status dispersion. Moreover, viewing status as a social resource suggests that status researchers can benefit greatly by importing additional theories and concepts from the rich literature on decision-making.

Predicting Status Challenges

We begin by reviewing two bodies of research that are central to the development of our hypotheses. First, status research has shifted in its conceptualization of status from a static replication of societal inequalities to a social resource that can be exchanged. Second, research indicates that individuals are sensitive not only to their rank in a status hierarchy but also to the status distances between self and others. Combined, these two streams of research suggest that status hierarchy dispersion should lead to competition over status by motivating individuals to increase their status.

Status as a Social Resource

Classic research on social status describes hierarchy construction as the instantaneous replication of societal inequalities that occurs in face-to-face groups (Berger, et al., 1980; Ridgeway, 1991). According to this view, status hierarchies are relatively immutable structures because there is broad agreement about the relative status value of nominal attributes that leads to hierarchy formation, and the hierarchy itself constrains group interactions in ways that maintain and reinforce the hierarchy. Specifically, individuals are characterized by nominal attributes (e.g., gender, race, *alma mater*) that become imbued with status value due to various societal inequalities (Ridgeway, 1991; Ridgeway, et al., 1998). Those with valued attributes are perceived as more competent across a variety of domains. Moreover, there is broad consensus about the relative status value of these attributes, even by members of disadvantaged groups (Jost & Banaji, 1994; Ridgeway & Correll, 2006; Sidanius & Pratto, 1993).

During a group's initial interactions, members use these nominal attributes to form differentiated expectations for each other's performance, and these expectations lead to the creation of a status hierarchy. High-status members are given more opportunities to perform and are evaluated more positively than low-status members (Berger, et al., 1980; Sherif, White, & Harvey, 1955). At the same time, high-status members engage in dominant behaviors, evoking complementary deferential behaviors from others with lower status (Goffman, 1967; Ridgeway & Berger, 1986; Ridgeway, Berger, & Smith, 1985; Tiedens & Fragale, 2003; Tiedens, et al., 2007). These complementary behaviors legitimate the hierarchy and increase the likelihood that members will conform to status-prescribed roles (Berger, Ridgeway, Fisek, & Norman, 1998). Even group members who do not personally endorse the hierarchy tend to conform to status-prescribed roles because they observe hierarchy legitimating behaviors from others that signal apparent consensus (Berger, et al., 1998), and fear that expressing dissent would result in social sanctions from others

(Anderson, Ames, & Gosling, 2008; Blau & Scott, 1962; Ridgeway & Diekema, 1989). Thus, societal inequalities are replicated inside face-to-face groups to form a status hierarchy, and hierarchies are perpetuated through expectancy-confirming evaluations and visible dominance and deference behaviors that signal endorsement of and consensus about the hierarchy.

Although hierarchies tend to be stable over time (Anderson, et al., 2001; Aries, 1996; Savin-Williams, 1979), this stability is not necessarily the result of immutable individual attributes like race, gender, or *alma mater*. Research indicates that nominal attributes are important in the initial hierarchy formation process but expectations can change over time as group members have more opportunities to evaluate each other's abilities (Bunderson, 2003). Changes in expectations can create opportunities for status increase or decrease. Moreover, research indicates that status is valued and pursued in social groups because of its positive effects on self-esteem and well-being (Adler, Epel, Castellazzo, & Ickovics, 2000; Barkow, 1975; De Cremer & Tyler, 2005; Hogan & Hogan, 1991; Leary, Cottrell, & Phillips, 2001). As a result, researchers have begun to conceptualize status as a social resource that people actively manage (Anderson & Kilduff, 2009a), in which they invest (Bendersky & Shah, 2012; Brett et al., 2007; Hardy & Van Vugt, 2006), and over which they can negotiate and compete (Bendersky & Hays, 2012b; Groysberg, Polzer, & Elfenbein, 2011; Owens & Sutton, 2001).

When status is conceptualized as a social resource, status hierarchies are seen as dynamic structures created from an ongoing resource allocation process. Status is allocated to members in amounts commensurate with their perceived capability to contribute to group goals, and reallocated as perceptions of their capabilities change. Individuals negotiate their status by conveying higher competence or contributing extra effort toward the group (Anderson & Kilduff, 2009a; Bendersky & Shah, 2012, in press; Hardy & Van Vugt, 2006). For instance, group members highlight their competence through behavioral dominance and non-verbal cues such as verbal rapidity (Anderson

& Kilduff, 2009b; Lord, Devader, & Alliger, 1986; Ridgeway, et al., 1985), and demonstrate group orientation through generosity and self-sacrifice (Flynn, 2003; Hardy & Van Vugt, 2006; Willer, 2009). The relative stability of hierarchies, then, is due to the fact that high-status group members enjoy an advantaged position in the status negotiation (Magee & Galinsky, 2008), and not because the hierarchy itself is immutable. However, status hierarchies may also change as individuals invest in increasing their status positions (Bendersky & Shah, 2012).

Status Rank Versus Distance

Much like an ordinal variable has values that can be ranked but the specific distances between values are unknown, most status research is concerned with one's rank in the hierarchy and the distance between rankings is ignored or assumed equal. The dominant theory of status hierarchy formation in task groups, expectation states theory, describes the process by which expectations about a group member's capacity to contribute to group goals leads to his or her placement in the group's power and prestige *order* (Berger, Fisek, Norman, & Zelditch, 1977; Berger, et al., 1980). Distances between rankings in the power and prestige order are not considered. Moreover, status is often described as a zero-sum resource, meaning an increase in one's own status necessitates an equivalent decrease in another's status (Gould, 2003; Homans, 1961). This is consistent with the rank-order view of status because increasing one's rank requires that someone else must suffer a corresponding decrease, assuming group size remains the same. Empirically, studies on status tend to measure or manipulate the construct using rank order in the status hierarchy. Correlational studies typically measure relationships between status and other outcome variables (e.g., Anderson, et al., 2001; Flynn, 2003), but correlation coefficients indicate consistency of relative rankings between two variables and do not account for the magnitude of status differences between individuals (LeBreton & Senter, 2008). Experimental studies assign participants to high or low status positions and measure the effect of rank on outcome variables (e.g., Bowles & Gelfand, 2010;

Fast, et al., 2012).

Although one's rank in a status hierarchy is meaningful, research suggests that people are sensitive to the magnitude of status differences between self and others, termed status distance (Blau, 1977; Bottero & Prandy, 2003; McPherson & Smith-Lovin, 1987). McPherson and Smith-Lovin (1987) find that people tend to form friendships with others who are similar in status, meaning the interpersonal status distance is small. Philips, Rothbard, and Dumas (2009) theorize that individuals disclose certain personal information to minimize status distance between the self and those with higher status, and maximize status distance between the self and those with lower status. This implies that individuals use information disclosure to manage status distances in ways that are advantageous to themselves. The concept of status distance can also be aggregated to the group level. As status distances between individuals in a group get larger, the overall level of inequality in that group's status hierarchy increases and the hierarchy becomes more dispersed. Christie and Barling (2010) demonstrate that group-level hierarchy dispersion leads to a host of detrimental performance and physical health outcomes. Together, these studies provide evidence that individuals are sensitive and responsive to status distances between self and others, and to the level of hierarchy dispersion present in the groups to which they belong. This implies that conceptualizing and operationalizing status as a rank ordering may mask heterogeneity created by variations in status distance and hierarchy dispersion.

If status is a social resource possessed in amounts that vary along a continuum, it is possible for two people to have equal status, or for an individual to increase or decrease in status without changing his or her rank in the status hierarchy. A group member may seek to decrease the status distance between self and higher status members of the group and increase the distance between self and lower status members through information disclosure (Phillips, et al., 2009), by initiating negotiations over status (Owens & Sutton, 2001), or using other means. Such efforts may be seen as

successful when they increase one's status even if they do not change one's rank in the hierarchy or others' status. Not only does this accomplish the goal of increasing one's level of respect in the group, which has a series of benefits mentioned earlier, it may also increase the probability that future efforts could allow the individual to surpass the status of the next highest ranked person in the status hierarchy. For the highest status member of a group, an increase in rank is not possible but an increase in status distance between self and others is possible, and desirable (Phillips, et al., 2009). Thus, attaining the highest-status positions in groups does not necessarily reduce one's motivation to gain even more status.

Hierarchy Dispersion and Status Challenges

If status can be described in terms of distance rather than just rank, an important question arises about how hierarchy dispersion affects individuals' behaviors with respect to the hierarchy. Related research on status hierarchy construction suggests that people may be less likely to challenge a dispersed hierarchy because status differences are unambiguous, reducing confusion about who has more status than whom and increasing conformity with status-prescribed roles (Berger, et al., 1998; Ridgeway & Berger, 1986). Consistent with this idea, Kalkhoff (2005) proposes a model where status differentiation inhibits self-oriented behavior and increases the likelihood of collective validation and endorsement of the structure, which should reduce status challenges. Likewise, system justification theorists argue that low status group members should be more likely to rationalize and accept their place in the hierarchy to the extent that ambiguity about status differences is minimal or absent (Jost & Banaji, 1994). However, these lines of research assume widespread agreement about the status value of various attributes like gender and ethnicity, even by those disadvantaged in the status hierarchy, and that the hierarchy itself is unchanging.

By construing status as an exchangeable social resource over which people negotiate,

however, relevant economic theory can also be used to make different predictions about the effect of hierarchy dispersion on group members' behaviors. Tournament theory (Lazear & Rosen, 1981), developed to explain large gaps in compensation between levels of organizational hierarchies, posits that pay dispersion creates competition between employees as they jockey for coveted promotions. Empirical evidence supports this proposition, showing that pay dispersion motivates competition (Becker & Huselid, 1992; Devaro, 2006; Ehrenberg & Bognanno, 1990). However, because promotions are based on performance of one employee relative to another, competitions between employees often engender self-serving behavior rather than behaviors that benefit the group or organization (Cowherd & Levine, 1992; Milgrom & Roberts, 1988; Shaw, Gupta, & Delery, 2002). By viewing status as a social resource, we can extend tournament theory to the status domain, which suggests that hierarchy dispersion should increase competition between group members over status. As status dispersion increases, there should be greater jockeying for status in the group as self-interested individuals seek more of this social resource for the benefits it affords them (Loch, Huberman, & Stout, 2000). This competition may occur despite the deservedness of one's relative status or the benefits to the group of hierarchy stability.

The present investigation examines status challenges as a form of competition over status. Status in groups is normatively conferred based on expectations of one's capability to contribute to group goals (Berger, Connor, & Fisek, 1974; Berger, et al., 1977). However, because status is conferred upon each group member by others based on their perceptions and expectations, competing over status is not as straightforward as a negotiation over tangible resources. A status challenge must create the perception that the existing status hierarchy does not accurately reflect relative differences in competence and group orientation, implying that changes to the hierarchy are necessary and desirable. An individual may assert that he or she is smarter or more dedicated than others give him or her credit for, or equally or more capable than a higher status group member.

Alternatively stated, status challenges are attempts to influence the resource allocation process in ways that lead to changes in the status hierarchy, often enabling a status gain for the challenger.

Based on research reviewed above, we expect that status hierarchy dispersion will lead to competition over status in the form of status challenges, and hypothesize:

Hypothesis 1: Hierarchy dispersion will increase the likelihood that individual group members initiate status challenges.

Moderating effect of hierarchy legitimacy

If dispersion leads to status challenges, one could logically ask why widespread political revolts in countries with the greatest income inequality, like those that occurred during the “Arab Spring,” are so rare, or why status challenges do not occur in every meeting where a CEO is presenting her vision for the organization to entry-level managers. Previous research indicates that individuals are less likely to challenge a legitimate status hierarchy out of a sense of obligation to the group (Tyler, 2006), because the status allocation process is perceived as fair (Ridgeway & Berger, 1986), or because doing so is likely to lead to social sanctions from peers (Thomas, et al., 1986; Walker, et al., 1986). We, thus, posit that the effect of hierarchy dispersion on status challenges will be moderated by hierarchy legitimacy, such that the effect of dispersion is stronger when a hierarchy is perceived as illegitimate.

The hierarchy reinforcing effect of legitimacy occurs in part because the group can benefit collectively from a legitimate hierarchy. Status is normatively conferred based on competence, leadership ability, and group orientation (Berger, et al., 1980; Lord, et al., 1986; Ridgeway, 1982), and therefore the most legitimate hierarchies are those where status is allocated based on these traits. The group benefits from a legitimate hierarchy because members with the greatest competence, leadership ability, and group orientation also have the most status and, as a result, are likely to have

the greatest influence over the group's work, which should improve group performance. These collective benefits give group members an incentive to accept a hierarchy, and to resist or punish status challenges initiated by others when viewed as selfish attempts to benefit the challenger at the expense of the group (Ridgeway & Diekema, 1989). Therefore, even if hierarchy dispersion is high, group members may refrain from challenging a legitimate hierarchy. Conversely, when a hierarchy is illegitimate, dispersion should exacerbate the tendency of group members to engage in status challenges because they feel less obligated to support the hierarchy, do not see the status allocation process as fair, and may not believe that challenges will lead to social sanctions. Formally, we hypothesize:

Hypothesis 2: The effect of hierarchy dispersion on status challenges will be moderated by hierarchy legitimacy, such that the relationship between dispersion and status challenges is stronger in illegitimate hierarchies than in legitimate hierarchies.

Consequences of Status Challenges

In addition to examining the factors that lead to status challenges, we are interested in the effects of status challenges on group performance because performance is central to group effectiveness (Hackman & Morris, 1975). Prior research has found that conflicts over status are negatively associated with group performance (Bendersky & Hays, 2012b) and high levels of individual status seeking are negatively related to individual performance because individuals tend to direct resources toward attaining status rather than to the task itself (Bendersky & Shah, 2012; Flynn, Reagans, Amanatullah, & Ames, 2006; Loch, et al., 2000). Consistent with these findings, we expect that status challenges initiated by individual group members will have a detrimental effect on group performance. Moreover, status challenges could result in hierarchy instability, which also harms group performance (Halevy, Chou, & Galinsky, 2011a; Magee & Galinsky, 2008). More formally,

we hypothesize the following:

Hypothesis 3: Groups that experience higher levels of status challenges from members will perform worse than groups that experience lower levels of status challenges.

Finally, we expect that dispersion, moderated by legitimacy, will have a negative indirect effect on group performance, mediated by status challenges. Because dispersion engenders status challenges, it should indirectly harm performance. The hypothesized effect of dispersion is strongest in the least legitimate hierarchies, so we also expect that the detrimental effects of dispersion on performance will be strongest in the least legitimate hierarchies.

Hypothesis 4: Hierarchy dispersion will indirectly harm performance by increasing status challenges.

Hypothesis 5: Hierarchy dispersion and legitimacy will interactively and indirectly harm performance, such that the indirect effect of dispersion on performance will be strongest in the least legitimate hierarchies.

Research Overview

We conducted three studies, one to establish the construct validity of our status challenge measure and two to test our hypotheses related to the effects of hierarchy dispersion and legitimacy on status challenges and group performance. In Studies 1 and 2, we surveyed part-time MBA students working together in task groups for 22 weeks (Study 1) or 25 weeks (Study 2), where the deliverables had real significance for the members. In Study 3, we conducted an experiment in which we manipulated the level of status dispersion and legitimacy present in a group hierarchy to determine the causal effect of dispersion on status challenges and determine the mechanism for the relationship.

Study 1

Because a validated scale to measure status challenges initiated by individuals did not already exist, we conducted our first study to develop a new measure and establish its construct validity. Our analysis demonstrates that our items are related and load on a single factor, and that they are distinct from other measures related to status challenges and dominant behavior.

Method

Participants. Three hundred fifty-two full-time Master's of Business Administration (MBA) students at a large West Coast university received an invitation to complete a survey related to groups in which they were working on a 22-week field study project that was a degree requirement. These students were arranged into 67 groups with an average of 5.22 members ($SD = .69$). Of the students who received the invitation, 265 students (168 men) elected to participate in the research voluntarily for a 75.28 percent participation rate. The participants averaged 29.27 years old ($SD = 2.50$) and had an average of 57.48 months of work experience ($SD = 25.12$) prior to graduate school. Our participants represented 66 of the 67 groups, with an average of 4.02 participants per group ($SD = 1.22$).

Procedure. Participants received the survey invitation near the midpoint of the project, approximately nine weeks into the 22-week project. Participants rated the frequency of their status challenges in the context of their field project groups using a three-item scale developed by the authors ($\alpha = .80$). Items included "How often do you attempt to assert your opinions over group members who are higher in status than yourself?" "How often do you challenge the contributions of higher status group members?" and "How often do you compete with higher status group members for influence over group tasks and decisions?" Responses were on a seven-point scale from 1 (*Never*) to 7 (*Frequently*).

To establish discriminant validity for the items, we asked participants to rate their dominance using three adjectives ($\alpha = .81$) – dominant, forceful, assertive – on a seven-point scale from 1 (*Not at all like me*) to 7 (*Just like me*), following previous research (Anderson & Berdahl, 2002; Wiggins, Trapnell, & Phillips, 1988). We chose dominance because it is associated with status attainment (Anderson & Kilduff, 2009b) and because status challenges are generally assertive, we wanted to ensure that we were not simply capturing generally dominant behaviors. We also wanted to distinguish between status challenges initiated by an individual from status-related coalition behavior, such as taking sides with other members against higher or lower status members, because we are primarily interested in actions taken to boost one's own status directly. To this end, we also developed three items related to supporting others' status challenges ($\alpha = .81$). Items included "How often do you actively support someone else's conflicts with higher status group members?" "How often do you form an alliance with someone else who is challenging a higher status group member?" and "How often do you encourage others to help you block the opinions of higher status group members with which you disagree?" Participants rated the frequency of these actions on a seven-point scale ranging from 1 (*Never*) to 7 (*Frequently*).

Results

To establish the construct validity of our status challenge measure, we conducted a series of confirmatory factor analyses (CFAs) to determine whether our status challenge items load on a single factor and whether they are independent of related measures, specifically the dominance and coalition items. All models specify three factors but differ in their constraints. Our first model was an unconstrained model where all three factors were separate but allowed to co-vary. Fit statistics indicated that the model was a good fit to the data ($\chi^2(23) = 31.74, p = .11, RMSEA = .04, CFI = .99$). In our second model, we constrained all three factors to be equal ($r = 1.00$), analogous to a model where all items load on a single factor. This model represented a poor fit ($\chi^2(26) = 335.32, p$

< .01, RMSEA = .21, CFI = .69). In addition, a chi-square difference test indicated that its fit was significantly worse than our first model ($\chi^2 (3) = 303.58, p < .01$). In our third model, we constrained the status challenge and dominance factors to be equal ($r = 1.00$), effectively forcing all of their items to load on a single factor, but left the coalition factor unconstrained. This model also represented a poor fit to the data ($\chi^2 (24) = 315.25, p < .01$, RMSEA = .21, CFI = .70), and a sequential chi-square difference test indicated that its fit was significantly worse than our three-factor model ($\chi^2 (1) = 283.51, p < .01$). Finally, in a fourth model, we constrained the status challenge and coalition factors to be equal ($r = 1.00$) but left the dominance factor unconstrained. Fit statistics indicated that the model was a moderate fit to the data ($\chi^2 (24) = 41.67, p = .01$, RMSEA = .05, CFI = .98), but the sequential chi-square different test indicated that the fit was significantly worse than our three-factor model ($\chi^2 (1) = 9.93, p < .01$). The sequence of models indicates that our measure of status challenges is distinct from general dominance behaviors, and correlated with but distinct from status-related coalition behaviors.

Insert Table 1 here

Discussion

We find that the status challenge measure is distinct from measures of general dominance and coalition behavior. Although status challenges and status-oriented coalition behaviors are related, as indicated by moderate fit statistics for the model where challenge and coalition items shared a factor, they are indeed separate means of challenging a group's status hierarchy. We therefore use this three-item status challenge measure in the next two studies.

Study 2

In this study, we surveyed part-time MBA students working in groups for approximately 25 weeks on a field project to examine the interactive effect of dispersion and legitimacy on status challenges, and how these status challenges would affect group performance.

Method

Participants. Two hundred fifty-six (183 men) part-time MBA students at a large West Coast university received an invitation to complete surveys conducted over the course of a 25-week field study project that was a requirement for their degree. These students were arranged into 51 groups with an average of 5.02 members ($SD = .24$ members). Of the eligible students, 212 students (151 men) opted to participate in the research voluntarily for an 82.81 percent participation rate. The participants were on average 32.48 years old ($SD = 3.53$ years), had an average of 23.65 months of management experience ($SD = 25.38$ months) prior to starting the MBA program, and represented all 51 groups, with an average of 4.16 participants ($SD = 1.03$) in each group.

Participants in this study worked in groups assigned to a variety of organizations unaffiliated with the university. Each group consulted with its client organization on a particular business problem for the duration of the project. The students worked interdependently with each other on the project, which ultimately resulted in a final presentation and report of recommendations from the group. Following the final reports and presentations, each group received a grade from a panel of faculty advisers. The groups have a great deal at stake because the project is required for degree completion, the final deliverables are graded, and the quality of the work affects the reputation of the students and the university in the eyes of the client. We believe these groups are ideal for our study because the content of the work and the significance of the outcomes are similar to groups that exist in many organizations, thus increasing the external validity of our findings.

Procedure. Participants responded to two surveys administered during the course of the project. The first survey was administered at the midpoint of the project, when the groups started working together actively (the first half of the project was primarily comprised of independent research and coursework). The second survey was administered immediately following the final presentation but before the groups received their final grades. All surveys had a round-robin design where participants answered a series of questions about themselves and each member of their group along with a series of questions about their own interactions with the group.

Measures. We describe our measures by the point in time at which they were captured.

Time 1 measures. Participants rated their own status and the status of each member of their study group by responding to three items ($\alpha = .91$) on a seven-point scale ranging from 1 (*very little*) to 7 (*very much*). Items included “How much respect do you (or does he/she) have in the group?” “How much esteem do you (or does he/she) have in the group?” and “How much prominence do you (or does he/she) have in the group?” They also rated themselves and each other group member on perceived level of competence by responding to three adjectives – knowledge, capability, and competence ($\alpha = .90$; Ridgeway & Correll, 2006) – on a seven-point scale where the anchor labels corresponded to the adjective (e.g., rating knowledge from “Unknowledgeable” to “Knowledgeable”).

Time 2 measures. Participants responded to the three-item measure of status challenges validated in Study 1 ($\alpha = .83$) on a seven-point scale ranging from 1 (*Never*) to 7 (*Frequently*). In this study, the status challenge scale was distinct from the status and competence ratings collected at time 1 ($\chi^2 (24) = 32.42, p = .12, CFI = .99, RMSEA = .04$).

Additional measures. We captured the project grade for each group from program administrators and use grade as our measure of performance after the final survey was completed.

We also obtained demographic data, including gender and GMAT score, for all participants from the school's admissions office.

Variable calculations

Because many of our variables were calculated from measures described above, we first describe these calculations and then move to the results of our analyses.

Hierarchy dispersion. We operationalize perceived hierarchy dispersion using the Gini coefficient as recommended by Harrison and Klein (2007). Because we had round-robin data, each participant provided his or her perception of the group's status hierarchy in the form of status ratings of each group member. We calculated perceived hierarchy dispersion for each participant using the Gini coefficient of his or her ratings of self and other group members' status. We operationalize dispersion as an individual-level measure rather than a group-level measure because our hypotheses are based on perceptions of hierarchy dispersion, which could vary by individual within a group. For this reason, operationalizing hierarchy dispersion at the individual level is more closely related to our theory than a structural measure of dispersion. We aggregated individuals' perceptions of hierarchy dispersion to the group level by averaging the Gini scores of all group members.

Hierarchy legitimacy. Similar to our measure of hierarchy dispersion, we calculated a variable to represent individuals' perceptions of hierarchy legitimacy. Because status is normatively allocated primarily based on relative competence of group members (Ridgeway, 1981), an individual's perceptions of hierarchy legitimacy should be based on the extent to which he or she sees status and competence as positively correlated (Berger, Cohen, & Zelditch, 1972; Lord, et al., 1986; Ridgeway & Diekema, 1989). Therefore, we operationalize hierarchy legitimacy at the individual level as the correlation between each participant's ratings of all group members' status and

competence. A legitimacy score of +1 indicates that the status and competence are perfectly and positively related, so the group member perceived to be most competent by a given participant had the highest status and the least competent person had the lowest status. Conversely, a score of -1 indicates that status and competence are perfectly and inversely related. For group-level analysis, we averaged individual perceptions of legitimacy within each group.

Participant status. We calculated participant status using the target score equation from the Social Relations Model (Kenny & La Voie, 1984; Kwan, John, Kenny, Bond, & Robins, 2004) to make the scores independent of group membership.

Status challenges. At the individual level, status challenges are simply the participant's rating of his or her status challenge behaviors. Our group-level status challenge variable is the average level of status challenges reported by the members of each group.

Results

Because our theory and data exist at multiple levels, we use a more complex analytical strategy than what would be required at a single level of analysis. We begin at the individual level of analysis and examine the effect of hierarchy dispersion and legitimacy on subsequent individual status challenges. We then move to the group level of analysis and examine the effect of dispersion and legitimacy on status challenges and group performance.

Descriptive statistics. See Tables 3 and 4 for descriptive statistics at the individual and group levels, respectively.

Insert Tables 2 and 3 here

Effects of individual hierarchy perceptions on status challenge behavior. To test Hypotheses 1 and 2, we used mixed-effects regression with individuals nested within groups. We regressed individual status challenges at time 2 on perceptions of dispersion, legitimacy, and the interaction of dispersion and legitimacy measured at time 1, with independent variables centered to reduce multicollinearity (Aiken & West, 1991). We also controlled for participant status at time 1 because status challenge behaviors may vary as a function of an individual's standing in the group and not just structural properties of the group's status hierarchy. Following previous research, we controlled for gender and GMAT score.

Hierarchy dispersion at time 1 was positively related to status challenges at time 2 ($\gamma_{10} = 6.88, p < .05$). This provides further support for Hypothesis 1 by demonstrating that perceived dispersion was positively related to subsequent status challenge behavior. We also found that this effect was qualified by an interaction with hierarchy legitimacy at time 1 ($\gamma_{30} = -19.71, p < .01$). No other coefficients in the model were significant. The pseudo- R^2 for the model, equal to the squared correlation between predicted and actual values of the dependent variable (Singer & Willett, 2003), was .13.

Insert Table 4 here

To interpret the interaction, we graphed the effect of hierarchy dispersion on status challenges when hierarchy legitimacy was at one standard deviation above and below its mean (Aiken & West, 1991), and at its mean (see Figure 1). Simple slopes analysis revealed that dispersion at time 1 is positively related to status challenges at time 2 at low ($\gamma = 16.54, p < .01$) and mean levels ($\gamma = 6.88, p < .05$) of legitimacy, but unrelated to status challenges at high levels of legitimacy

($\gamma = -2.78, n.s.$). This is consistent with Hypothesis 2 and suggests that a hierarchy must be perceived as highly legitimate to eliminate the effect of dispersion on status challenges.

Insert Figure 1 here

Group performance effects. To test Hypotheses 3, 4, and 5 related to group performance, we conducted our analysis at the group level, as grades were assigned to each group and not to individuals. We used structural equation modeling to analyze a path model where dispersion, legitimacy, and their interaction predicted status challenges, which then predicted performance. We also controlled for number of males in each group (parallel with the gender control variable at the individual level), average GMAT score (parallel with GMAT score at the individual level), overall group size, and standard deviation of the status challenge variable within each group.

Replicating our individual-level analysis, our path model revealed a positive relationship between dispersion at time 1 and status challenges at time 2 ($B = 10.14, \beta = .32, p < .05$) and a significant interaction between dispersion and legitimacy ($B = -41.23, \beta = -.35, p < .01$). We also found a negative relationship between legitimacy at time 1 and status challenges at time 2 ($B = -1.08, \beta = -.29, p < .05$). As at the individual level, simple slopes analysis revealed that dispersion was positively related to status challenges in hierarchies perceived as low ($B = 19.83, \beta = .67, p < .01$) and average ($B = 10.14, \beta = .32, p < .05$) in legitimacy, but not related to status challenges in hierarchies seen as high in legitimacy ($B = .45, \beta = .03, n.s.$).

There was a negative relationship between status challenges at time 2 and group performance ($B = -.12, \beta = -.35, p < .01$). This provides support for Hypothesis 3, that status

challenges have a detrimental effect on performance.

To determine the indirect effect of dispersion on performance, moderated by legitimacy and mediated by status challenges, we followed methods recommended by Edwards and Lambert (2007) for analyzing moderated mediation. We calculated the significance of our indirect effects using bootstrap methods with 5,000 replications. This analysis indicated that dispersion had a significant negative indirect effect on performance in low legitimacy hierarchies ($B = -2.40$, 95-percent bias-corrected CI (-5.78 -.32)), a negative indirect effect in mean legitimacy hierarchies ($B = -1.23$, 95-percent bias-corrected CI (-3.59 -.00)), but no effect on performance in high legitimacy hierarchies ($B = .05$, 95-percent bias-corrected CI (-1.91 1.80)).

Insert Figure 2 here

Discussion

In study 2, we tested our hypotheses that dispersion would lead to status challenges, which are detrimental to performance. The effect of dispersion was posited to interact with hierarchy legitimacy, such that the effect of dispersion should be strongest in illegitimate hierarchies. Finally, we expected status challenges to be detrimental for group performance. Using a sample of MBA students working together in groups on a 25-week field project, we found support for our hypotheses. At the individual level of analysis, perceived dispersion at time 1 was positively related to status challenges at time 2, and there was a significant interaction between dispersion and legitimacy at time 1. Further analysis of this interaction revealed that the effect of dispersion was strongest in low or mean legitimacy hierarchies. There was not a significant relationship between dispersion and status challenges in high legitimacy hierarchies.

At the group level of analysis, we replicated the effect of dispersion on status challenges, finding that groups where members perceived more dispersion in their group's status hierarchy experienced more status challenges. Legitimacy had the opposite effect, such that the more group members perceived the status hierarchy as legitimate, the lower the level of status challenges. Finally, there was an interaction of dispersion and legitimacy such that the effect of dispersion was strongest in groups with hierarchies perceived as least legitimate, and there was not a significant effect of dispersion in the most legitimate hierarchies. In support of Hypothesis 3, status challenges were negatively related to group performance. Finally, we found that dispersion had a negative, indirect effect on performance in hierarchies perceived as low and average in legitimacy, but no indirect effect in hierarchies seen as high in legitimacy.

Although the study provides support for our hypotheses, it is important to acknowledge its limitations. First, the study design does not allow us to determine the direction of causality. Although some independent variables were measured earlier in time than dependent variables, there could be unobserved factors that are causing perceptions of dispersion and legitimacy at time 1 and affecting status challenges and performance at time 2. Furthermore, because status challenges and performance were measured at approximately the same time, groups that were struggling with performance may have engaged in status challenges because they anticipated poor performance, rather than status challenges leading to poor performance. Second, although tournament theory posits that dispersion increases individual motivation to move up in a hierarchy, we did not measure motivation in the current study and therefore cannot test this proposed mechanism. Third, although our participants are working managers enrolled in a part-time MBA program, and their group performance had significant consequences for the participants, the research was conducted in an academic setting and our findings may not generalize to a working sample. We conducted study 3 to address these limitations.

Study 3

As mentioned above, we conducted Study 3 to manipulate dispersion and legitimacy so we could determine the direction of causality, to examine psychological mechanisms between dispersion and status challenges, and to investigate our effects in a non-academic setting. Before we detail the methods, we revisit propositions from tournament theory to make predictions about the mechanism by which hierarchy dispersion leads to status challenges.

Tournament theory posits that pay dispersion increases competition between employees because it increases their motivation to seek and attain coveted, high-wage positions (Devaro, 2006; Lazear & Rosen, 1981). In the status domain, research suggests that hierarchy dispersion increases the value of status because those with high status in dispersed hierarchies are afforded relatively greater respect and esteem than high status members in compressed hierarchies (Christie & Barling, 2010). Moreover, in high power distance cultures where power and status inequalities are greatest, people are willing to expend more resources to increase their status than individuals from low power distance cultures (Hofstede, 1980; Huberman, et al., 2004). However, in legitimate hierarchies where status challenges are likely to be unsuccessful, people may not be motivated to engage in status challenges. Classic theories of motivation state that motivation is the product of efficacy, the belief that one's efforts will be successful, and the value of what one would obtain if successful (e.g., Bandura, 1997; Steel & König, 2006; Vroom, 1964). Although dispersion may increase the value of having status, legitimacy should decrease the perceived probability that an increase is possible. As a result, motivation to take actions that can increase one's status should be strongest in dispersed but illegitimate hierarchies because in these structures, mobility is possible and the status "prize" is relatively valuable. Therefore, we hypothesize:

Hypothesis 6: The interaction of hierarchy dispersion and legitimacy on status challenges will be mediated by motivation to increase one's status, such that motivation will be greatest in hierarchies that are dispersed and

illegitimate.

In study 3, we created a group status hierarchy in a virtual environment and manipulated the level of dispersion present and the legitimacy of the hierarchy by assigning titles that varied in dispersion using a process that was legitimate or illegitimate. Participants indicated their intentions to initiate status challenges and their motivation to attain high status in the group.

Methods

Participants. Ninety-five individuals (40 males) were recruited from Amazon MTurk in exchange for one dollar. Their average age was 32.43 years ($SD = 11.20$) and 85.26 percent were Caucasian.

Design and procedure. Participants were randomly assigned to one of four conditions in a 2 (dispersion: dispersed versus compressed) X 2 (legitimacy: legitimate versus illegitimate) between-subjects design.

Participants first read a cover story explaining that they would work with three to four others in a group on a series of decision-making tasks. They also learned that the group would be eligible for a performance bonus from \$0 to \$15 depending on performance on the tasks. Following the cover story, participants entered their initials, gender, and age, ostensibly so they could be randomly assigned to a group with others who were currently logged in to the study. After a series of brief delays, purportedly to allow time for additional other participants to log in, they saw the initials of all members of their group – their own initials (entered previously) and initials of four other group members, who in reality were fictitious.

To enhance the credibility of the cover story and the existence of other participants, participants learned that prior to any decision-making tasks, the group would select a team name (see Goldstein & Hays, 2011). One of the five group members would be randomly selected to enter an

adjective for the first word in the name, and a second group member would be randomly selected to enter a noun to follow that adjective. Participants again saw a delay message indicating that another group member had been selected to enter an adjective. After 14 seconds, participants learned that the other group member had entered “Extreme” and that the participant had been randomly selected to enter a noun to complete the team name. Team names included “Extreme Turkers,” “Extreme Unicorns,” and “Extreme Squirrels.” The team name was captured and displayed by the study software on future screens to refer to the group.

Next, participants read more detailed information about the upcoming task. They learned that the researchers were interested in organizational groups and would therefore assign titles similar to those found in an organization. Participants in the dispersed condition also read that “Past research indicates that the roles are likely to have a significant effect on the group’s interactions,” with higher ranking members having much higher status and influence. In this condition, the titles to be assigned included Vice President, Director, Manager, Analyst, and Intern. In the compressed condition, participants read “Past research indicates that the roles are likely to have only a small effect on the group's interactions,” with minimal differences in status and influence. The titles to be assigned in the compressed condition included Senior Analyst, Analyst (level IV), Analyst (level III), Analyst (level II), and Analyst (level I). In both conditions, participants learned that roles would be assigned based on a brief business aptitude assessment.

The participants proceeded to what was described as a business aptitude assessment, which the participants were given three minutes to complete. The assessment had six management style questions (e.g., “I have a hands-on management style” and “I am systematic and methodical” rating agreement on a seven-point scale) and five multiple-choice, objective questions related to business and marketing (e.g., “All of the following are examples of profit centers within an airline, except: (A) in-flight magazine; (B) merchandising; (C) aircraft maintenance; or (D) ticketing). On average,

participants answered 2.20 ($SD = 1.09$) of the five objective questions correctly, a 44 percent correct response rate, indicating that the questions were sufficiently difficult.

After completing the business aptitude assessment and proceeding through a number of short delays while other group members ostensibly completed the same assessment, participants learned their score ranking in the group, although not the actual score. Participants in the legitimate condition learned that their assessment score was ranked fourth in their group of five members, and went on to see that they had been assigned the fourth-ranking title in their group. In the dispersed condition participants were assigned to the Analyst role and in the compressed condition they were assigned to the Analyst (level II) role.

Participants in the illegitimate condition saw that their assessment score was ranked second in their group of five members. Before seeing their role assignment, however, participants in this condition saw a warning that, despite the fact that roles should be based on assessment score, an imbalance in the number of males and females who had participated in the study to date required that the highest ranking roles be assigned by gender (Lammers, Galinsky, Gordijn, & Otten, 2008). Participants proceeded to the role assignment screen. In the dispersed condition, the participants should have received the Director role (the second-ranking title) but instead received the Analyst role. In the compressed condition, participants should have received the Analyst (level IV) role but received the Analyst (level II) role.

After the role assignment process, participants responded to the three-item status challenge measure ($\alpha = .90$). They were asked to rate how the likelihood of the status challenge behaviors once the group interaction began on a seven-point scale from 1 (*Very unlikely*) to 7 (*Very likely*). Next, they responded to two items related to their motivation to attain high status in the group ($\alpha = .85$) on a seven-point scale from 1 (*Strongly disagree*) to 7 (*Strongly agree*). Items included “I

am willing to expend a great deal of effort to be one of the most respected and influential members of the group” and “I want to increase the extent to which others in the group look up to me.” This status motivation measure was sufficiently distinct from the status challenge measure in a confirmatory factor analysis, $\chi^2(3) = 2.73, p = .44, RMSEA = 0.00, CFI = 1.00$.

Participants rated their mood on a seven-point scale ranging from 1 (*Very bad*) to 7 (*Very good*) (Galinsky, et al., 2003). We included the mood measure to examine the possibility that dispersion might make participants unhappy and dissatisfied, leading to a general tendency to resist or move against (Jung & Young, in press). Participants then responded to one item related to the dispersion of the hierarchy (“All group members will be roughly equal in status”) and one item about the legitimacy of the hierarchy (“Roles and titles are justified based on group members' relative abilities”) on seven-point scales from 1 (*Strongly disagree*) to 7 (*Strongly agree*). Finally, participants were probed for suspicion about the existence of other group members, debriefed, and dismissed.

Results

One participant did not follow instructions during the study and is excluded from our analysis. In addition, four participants expressed suspicion about the reality of other group members and we therefore also exclude them from our analysis. The analysis below is based on the remaining 90 participants.

Manipulation check. A 2 (dispersion) X 2 (legitimacy) ANOVA on the dispersion item indicated a marginal main effect of dispersion, $F(1, 86) = 3.02, p = .09$, but no effect of legitimacy or an interaction of dispersion and legitimacy ($F_s < 1$). Participants in the high dispersion condition perceived marginally less status equality ($M = 3.82, SD = 1.42$) than those in the low dispersion condition ($M = 4.33, SD = 1.40$).

A 2 (dispersion) X 2 (legitimacy) ANOVA on the legitimacy item indicated a significant main effect of legitimacy, $F(1, 86) = 34.77, p < .01$, no effect of dispersion ($F < 1$), and no interaction of dispersion and legitimacy ($F < 1$). Participants in the legitimate condition perceived the hierarchy to be significantly more legitimate ($M = 4.60, SD = 1.39$) than those in the illegitimate condition ($M = 2.88, SD = 1.36$).

Status challenge intentions. A 2 (dispersion) X 2 (legitimacy) ANOVA indicated there was a main effect of dispersion, $F(1, 86) = 7.50, p < .01$, but no effect of legitimacy ($F < 1$). There was also an interaction of dispersion and legitimacy, $F(1, 86) = 4.03, p < .05$. Planned contrasts indicated that participants in the illegitimate-dispersed condition reported significantly higher intentions to initiate status challenges ($M = 5.30, SD = .77$) than participants in the illegitimate-compressed condition ($M = 4.00, SD = 1.24$), $F(1, 86) = 10.12, p < .01$. There was no difference in status challenge intentions between participants in the legitimate-dispersed ($M = 4.61, SD = 1.61$) and legitimate-compressed conditions ($M = 4.41, SD = 1.28$), $F(1, 86) = .30, p = .58$.

Motivation to attain high status. A 2 (dispersion) X 2 (legitimacy) ANOVA indicated that there was no main effect of dispersion, $F(1, 86) = 2.05, p = .16$, nor was there a main effect of legitimacy ($F < 1$). There was, however, an interaction of dispersion and legitimacy, $F(1, 86) = 6.40, p < .05$. Participants in the illegitimate-dispersed condition were more motivated to attain high status in their groups ($M = 4.63, SD = 1.48$) than participants in the illegitimate-compressed condition ($M = 3.40, SD = 1.17$), $F(1, 86) = 7.05, p < .01$. There was no difference in motivation to attain high status between participants in the legitimate-dispersed ($M = 3.66, SD = 1.57$) and legitimate-compressed conditions ($M = 4.00, SD = 1.55$), $F(1, 86) = .68, p = .41$.

Mediation. We examined whether motivation to attain high status mediated the effect of dispersion and legitimacy on intentions to engage in status challenges using the methods outlined in

Edwards and Lambert (2007) for analyzing moderated mediation. We used seemingly unrelated regression to simultaneously estimate the paths from the interaction of dispersion and legitimacy to motivation, and motivation to status challenge intentions controlling for the interaction of dispersion and legitimacy. We then calculated the significance of the indirect effects of dispersion in illegitimate and legitimate groups using bootstrap methods with 5,000 replications. Dispersion has a significant indirect effect on status challenge intentions, mediated by motivation to attain high status, in the illegitimate condition, ($B = .46$, 95 percent bias-corrected CI (.15 .94)), but no indirect effect in the legitimate condition, ($B = -.13$, 95 percent bias-corrected CI (-.52 .19)).

Mood. A 2 (dispersion) X 2 (legitimacy) ANOVA indicated there were no main effects of dispersion or legitimacy on mood, nor was there an interaction of dispersion and legitimacy (all F s < 1). Thus, we rule out mood as an alternative mechanism for the effects of dispersion on status challenge intentions.

Discussion

In this study, we demonstrated that hierarchy dispersion strengthens motivation to increase one's status, which leads to status challenge intentions. By experimentally manipulating the level of dispersion and legitimacy present in a fictitious group interaction, our findings provide further support for our theory that dispersion leads to status challenges by increasing motivation to attain high status. Moreover, although our participants were not working in real groups, they are drawn from a non-academic sample, suggesting that our findings in study 2 were not purely a function of an academic setting. Finally, dispersion did not affect mood, which could lead to a general tendency to resist or move against the group.

General Discussion

In this paper, we theorize that status hierarchy dispersion strengthens motivation to increase

one's status and, as a result, leads to status challenges. Furthermore, we posit that the effect of hierarchy dispersion is moderated by hierarchy legitimacy such that when the hierarchy is perceived to be illegitimate, the effect of dispersion on status challenges should be stronger than when the hierarchy is legitimate. Finally, because status challenges divert attention and resources from group tasks and can create uncertainty and instability, we argued that challenges should be detrimental to group performance and satisfaction, especially when the hierarchy is illegitimate.

In Study 1, we developed a measure of status challenges and demonstrated its construct validity. Status challenges are distinct from generally dominant behaviors and from status-related coalition behaviors. Next, we found support for six hypotheses across two studies using different methodologies to assure the internal and external validity of our findings. In Study 2, we demonstrated a positive relationship between dispersion and status challenges in groups of MBA students with no prescribed hierarchies. These challenges were detrimental to group performance, as measured by their group grade on a field project. Moderated mediation analysis indicated that dispersion had a negative indirect effect on performance in hierarchies perceived to be low and at the mean in terms of their legitimacy, but no indirect effect on performance in hierarchies seen as highly legitimate. In Study 3, we manipulated hierarchy dispersion and legitimacy experimentally to show that dispersion leads to status challenge intentions to in illegitimate but not in legitimate hierarchies, an effect mediated by motivation to attain high status.

This research makes a number of contributions to our understanding of how status hierarchies affect individual group members and group dynamics. First, our conclusions provide further evidence that people are sensitive to the magnitude of status differences and not just to status rank. Hierarchies are not simply present or absent by virtue of inequality. Rather, hierarchies vary along a continuum from dispersed to compressed, and this attribute affects group member behavior and important group outcomes like performance. By showing that status hierarchy

dispersion leads to motivation to attain high status, our research may help explain why steeper hierarchies do not consistently deliver the potential benefits of improved coordination and performance (Anderson & Brown, 2010). Future research on social hierarchy should not only consider rank but also distance between ranks to accurately understand the ways individuals experience and respond to status hierarchies.

Second, we provide additional support that hierarchy maintenance processes are significant in the life of a group. Hierarchy stability does not imply that status dynamics are not operating. Hierarchy stability may instead be the result of an ongoing negotiation in which high-status members are advantaged and can often maintain their positions. Both of these contributions are consistent with the notion that status is best described as a social resource that can be negotiated, contested, gained or lost rather than the product of immutable attributes of individuals. This suggests there may be a number of parallels between decisions that underlie status-related behaviors and those that underlie decisions related to tangible resources like money where there is risk and uncertainty. For example, Pettit, Yong, and Spataro (2010) demonstrated that status loss is more aversive than status gain is rewarding, which is consistent with Prospect Theory (Kahneman & Tversky, 1979). Status researchers may benefit from importing other concepts from the vast literature on decision-making under risk and uncertainty.

Our results also raise a number of important questions that should be addressed in future research. First, given this and other research demonstrating that people are sensitive to and act on status distances and inequality, further work on hierarchy configuration is important. For example, inequality could mean that one person has high status and others have low status, or that there are large but equivalent decreases in status between members of the hierarchy. Whether people experience these forms of inequality similarly is a question for future research. Second, the present research on status challenges as an attempt to increase one's status stands in contrast to studies

showing that people can also use generosity to increase their status (Bendersky & Shah, 2012; Hardy & Van Vugt, 2006). When and why people use challenging behaviors versus generosity in their attempts to increase status is an interesting avenue for future research. Third, recent research indicates that dispersion can also lead to more cooperative behaviors (Halevy, Chou, Galinsky, & Murnighan, 2011b). This raises an intriguing question about differential effects of dispersion depending on certain characteristics of a hierarchy. Perhaps dispersion in hierarchies where mobility is not possible in the short term leads to greater cooperation, assuming the hierarchy is seen as legitimate, whereas dispersion in continually negotiated hierarchies, like status hierarchies, leads to competition. This is a worthy topic for future research. Finally, the present research investigates who initiates status challenges but does not address at whom these challenges are directed. A challenge could be directed at a group member with much higher status because it could lead to a significant status gain for the challenger if successful. Alternatively, a challenger may want to direct his or her efforts at someone with slightly higher status because this challenge may be more likely to succeed. Still a third alternative is that individuals may challenge the hierarchy itself, attempting to reallocate status for themselves and the whole network of actors. More work is necessary to understand which strategies people use and why. Further research that crosses group, dyadic, and individual levels of analysis is required to answer these questions.

Our research has a number of practical implications for managers. Consistent with research on leadership and power (e.g., Anderson & Brown, 2010), we find that status hierarchy dispersion is often detrimental for group performance and satisfaction. The effects of status dispersion on performance seem to hinge on the perceived legitimacy of the group status hierarchy, with no apparent decrement when the hierarchy is seen as highly legitimate. Given the well-documented finding that status hierarchies inevitably emerge in all types of groups (Bales, 1958; Bales, et al., 1951), our research underscores the need for managers to monitor the level of status hierarchy

dispersion on the teams they oversee and take steps to reduce dispersion when necessary. A group leader or someone with formal authority could manage discussions to ensure that all voices are heard and given equal weight. Managers might also want to underscore the legitimacy of a hierarchy by highlighting the qualifications and accomplishments of a group leader. Alternatively, they may be able to facilitate the development of legitimate status hierarchies. Dominant individuals in particular tend to be conferred higher status because they are seen as more competent, even when they are not (Anderson & Kilduff, 2009b). By carefully constructing a hierarchy in which those with demonstrated competence hold leadership positions where they are in a position to earn the respect of others, a more legitimate informal status hierarchy may develop. These considerations should be especially important in light of more fluid organizational structures where status hierarchies could be more apparent than power hierarchies.

Chapter 2: Table 1

Confirmatory Factor Analysis With Sequential Chi-Squared Difference Tests (Study 1)

Model	χ^2	df	p	RMSEA	CFI
Unconstrained three-factor model	31.75	23	.11	.04	.99
One-factor model	335.32	26	<.01	.21	.69
Difference from three-factor model	303.57	3	<.01		
Two-factor model (chal/dom, coal)	315.25	24	<.01	.21	.70
Difference from three-factor model	283.50	1	<.01		
Two-factor model (chal/coal, dom)	41.67	24	.01	.05	.98
Difference from three-factor model	9.92	1	<.01		

Note: chal = status challenge items, dom = dominance items, coal = coalition items

Chapter 2: Table 2

Individual-Level Means, Standard Deviations, and Correlations (Study 2)

	1	2	3	4	5	6
1) Status Challenge	1.00					
2) Hierarchy Dispersion	0.14*	1.00				
3) Hierarchy Legitimacy	0.02	0.31**	1.00			
4) Participant Status	0.02	0.07	-0.07	1.00		
5) Gender (1=male)	<0.01	-0.04	-0.12+	0.02	1.00	
6) GMAT Score	-0.02	-0.04	-0.08	0.13+	0.26**	1.00
Mean	3.51	0.05	0.51	0.04	0.72	688.42
SD	1.52	0.04	0.49	0.47	0.45	42.38

+ $p < 0.10$

* $p < .05$

** $p < .01$

Chapter 2: Table 3

Group-Level Means, Standard Deviations, and Correlations (Study 2)

	1	2	3	4	5	6	7
1) Group Performance	1.00						
2) Mean Status Challenges	-0.35*	1.00					
3) Hierarchy Dispersion	-0.16	0.16	1.00				
4) Hierarchy Legitimacy	-0.06	-0.14	0.38**	1.00			
5) Group Size	0.01	-0.06	-0.11	-0.14	1.00		
6) Number of Males	0.07	0.03	-0.22	-0.13	0.67**	1.00	
7) Mean GMAT Score	-0.09	0.06	-0.18	-0.02	-0.17	0.09	1.00
Mean	3.83	3.53	0.06	0.52	4.22	2.98	689.42
SD	0.31	0.90	0.03	0.24	1.01	1.38	18.44

+ $p < 0.1$

* $p < .05$

** $p < .01$

Chapter 2: Table 4

Results of Mixed-Effects Regression Analysis on Individual Status Challenges (Study 2)

Status Challenge (T2)	γ
Hierarchy Dispersion (T1)	6.88*
Hierarchy Legitimacy (T1)	-0.29
Dispersion x Legitimacy (T1)	-19.71**
Participant Status (T1)	0.16
Gender (1=male)	0.11
GMAT Score	-0.00
Constant	3.85*
N	201
Wald χ^2	12.37
df	6
<i>p</i> value	.05
Pseudo-R ²	0.13

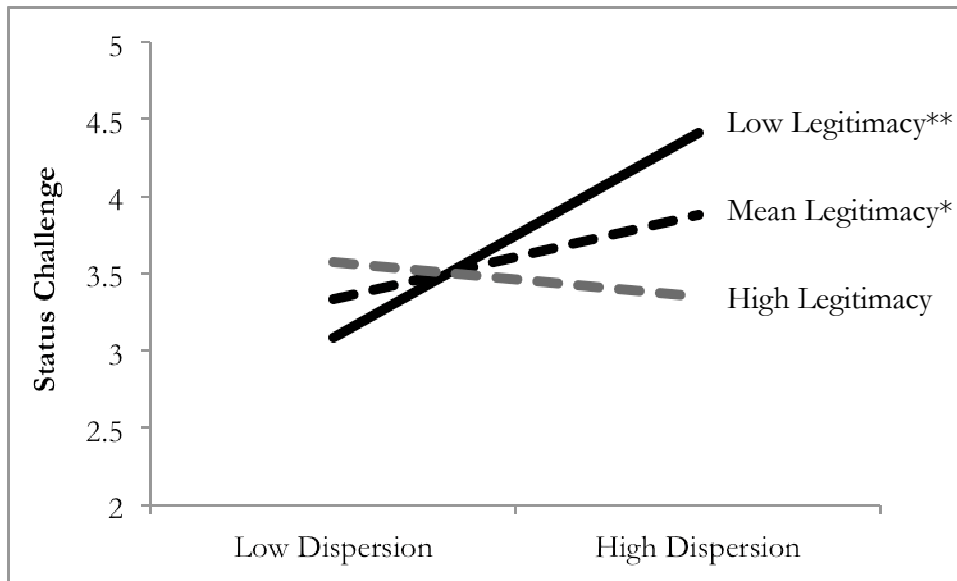
+ $p < 0.1$

* $p < .05$

** $p < .01$

Chapter 2: Figure 1

Interaction of Hierarchy Dispersion and Legitimacy on Status Challenges (Study 2)

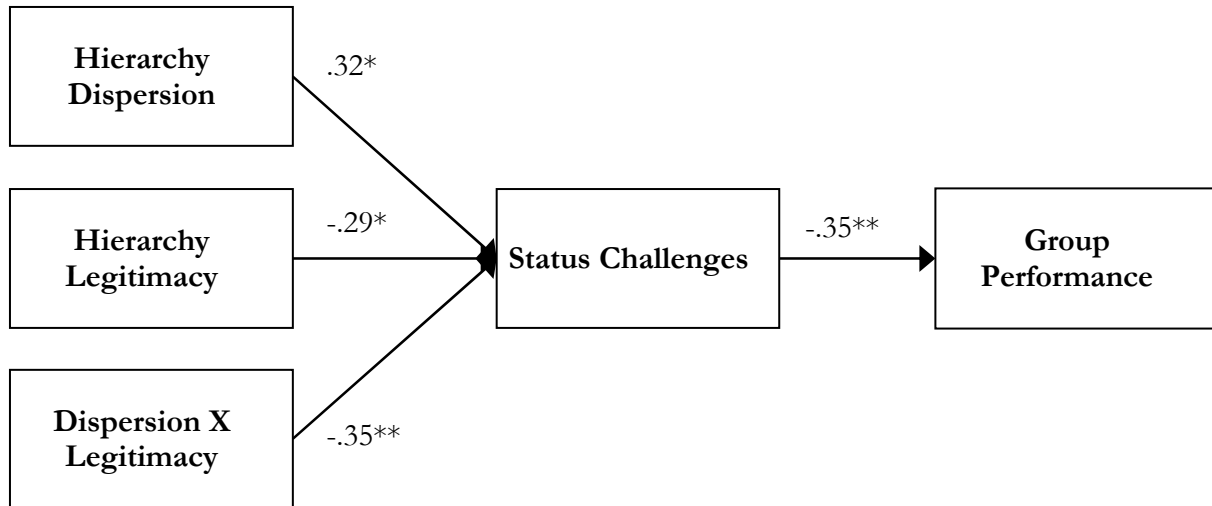


* $p < .05$

** $p < .01$

Chapter 2: Figure 2

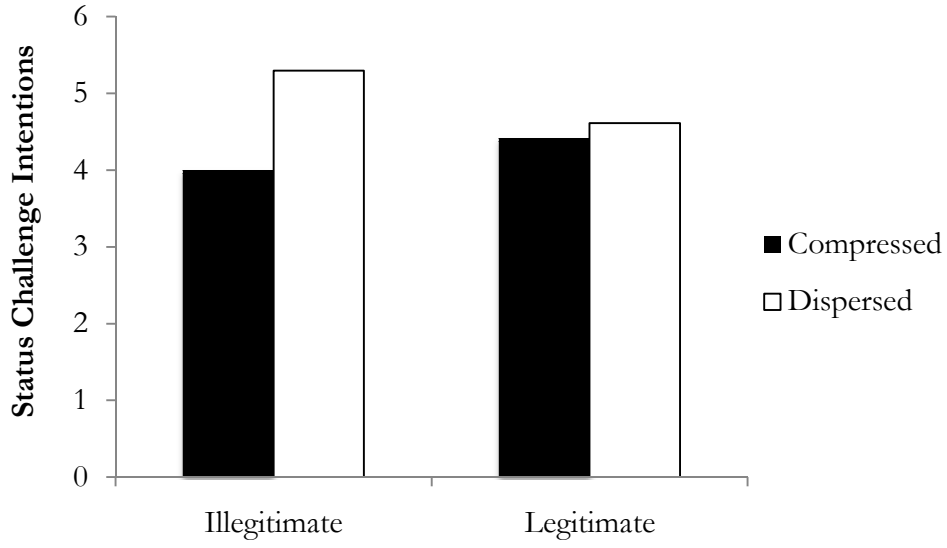
Path Diagram of Hierarchy Dispersion and Legitimacy on Performance (Study 2)



Note: Standardized coefficients shown.

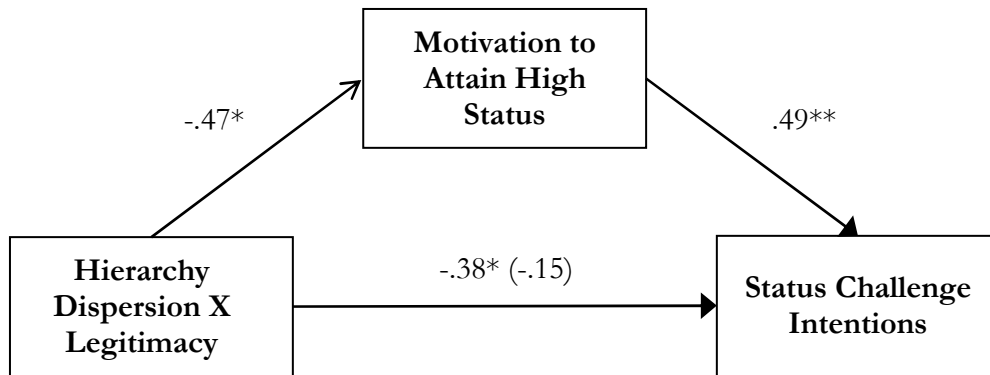
Chapter 2: Figure 3

Status Challenge Intentions by Condition (Study 3)



Chapter 2: Figure 4

Effect of Hierarchy Dispersion on Status Challenges Mediated by Motivation (Study 2)



* $p < .05$
** $p < .01$

Chapter 3

The Moderating Effect of Legitimacy on Power and Conformity

Abstract

Although prior research indicates that having power increases individuals' sense of independence and decreases conformity to social norms, we argue that the effect of power depends on its legitimacy, meaning the extent to which the power structure is perceived as appropriate and fair. In two experiments, we find that legitimacy moderates the effect of power on conformity. In Study 1, we examine the effect of legitimacy on positions of high and low power and find that participants with illegitimate high power and legitimate low power conform behave similarly, conforming significantly more than participants with illegitimate low power or legitimate high power. Study 2 replicates this finding with provincial norms ostensibly established by others with whom participants expected to work in a group. Our studies suggest that attributes of a power hierarchy, such as its legitimacy, can be as important in determining behavior as one's placement in that hierarchy.

Imagine that you are at work one day and receive a phone call from an old college friend who is an executive at a large company in town. Your friend's company has an opening for a Marketing Vice President, and because of your friendship you have a good chance at getting the job if interested. At first you decline because you have no experience in marketing – you are an accountant – but your friend is determined, persuades you to apply, and you are offered the job a few weeks later. Once you have moved in to your corner office, it becomes clear that your employees are fully aware that you secured your job because of your friendship with the company executive despite lacking experience in marketing. How would this awkward situation affect your interactions with your employees? On one hand, you might be tempted to show them who is boss by barking orders, hoping they will come to accept and respect your power over them. On the other hand, you might behave sheepishly, paying close attention to the established behavioral norms of the department, hoping to ingratiate yourself to your employees to break down their resistance to you.

The present research is intended to address the above question about how the appropriateness and legitimacy of a power structure affects conformity to social norms. Research indicates that power, the ability to control others' outcomes by administering and withholding rewards and punishments (Keltner, et al., 2003), leads to risk-taking, independence, and decreased reliance on situational cues and norms (e.g., Anderson & Galinsky, 2006; Berdahl & Martorana, 2006; Galinsky, Magee, Gruenfeld, & Whitson, 2008). Legitimacy, defined as the perception that arrangements are “appropriate, proper, and just” (Tyler, 2006, p. 376) leads to support of social structures whereas illegitimacy increases the likelihood of challenging those structures (Thomas, et al., 1986; Walker, et al., 1986). Deviating from established social norms is one way of challenging or resisting a structure (Kruglanski & Webster, 1991; Levine, 1989). Together, these literatures suggests that combining power with illegitimacy should lead to non-conformity, as power strengthens a sense of independence and illegitimacy engenders resistance to norms. However,

building on related research on power, legitimacy and stability, we propose that individuals with illegitimate power will behave as if they had no power at all, generally conforming to social norms. Conversely, those who are illegitimately powerless will experience a sense of challenge similar to those with legitimate power, leading to independence and non-conformity. We find support for our hypotheses in three experiments that employ two different manipulations and three measures of conformity.

Our research contributes to an extensive literature on the psychology of social hierarchies, which are ubiquitous in society (Fiske, 1992; Fiske, 2010; Henrich & Gil-White, 2001; Sidanius & Pratto, 1999). We assert that characteristics of the hierarchy itself, such as its legitimacy, influence decisions and behaviors as much as one's position in the hierarchy. Given the variability in legitimacy of power structures, we assert that understanding how power and legitimacy interactively affect behavior is an important endeavor.

Psychological Consequences of Power

In the last decade, there has been an enormous amount of research on the psychology of power and its effects on cognition, emotion, and behavior. Much of this work was stimulated by a theory of power, approach, and inhibition tendencies, developed by Keltner and colleagues (2003). They argue that having power activates the behavioral approach system and directs attention to rewards in the environment (Carver & White, 1994; Higgins, 1997). This focus on rewards decreases behavioral inhibition, freeing people to behave in accordance with their own wishes rather than conforming to social norms. Conversely, having low power activates the behavioral inhibition system and directs attention to threats in the environment, leading to greater interpersonal sensitivity and conformity to social norms.

Subsequent empirical work has largely supported the theory proposed by Keltner and colleagues. People assigned to a high-power role are more likely to express their true attitudes (Anderson & Berdahl, 2002), and more likely to express their emotions (Berdahl & Martorana, 2006) compared to people in a low power role. Research by Anderson and Galinsky (2006) indicates that people with a powerful mindset are more optimistic about risk and as a result make riskier decisions, such as engaging in unprotected sex and disclosing private information in a negotiation. Because non-conformity exposes the actor to risk of social repercussions (Levine & Moreland, 1994), a tendency for those with power to behave in riskier ways suggests that they should also be more likely to deviate from social norms.

Consistent with the notion that power leads to non-conformity, power has been shown to reduce individuals' reliance on situational cues and social norms. In work by Galinsky and colleagues (2008), individuals were less likely to incorporate examples provided in study materials into product labels and drawings, and less likely to conform to ratings of a task ostensibly provided by previous participants, all indicating greater independence. Not only are individuals with power less prone to social influence, they are more likely to believe that they can influence others as well (Anderson, John, & Keltner, 2012). The increasing independence and decreasing conformity that result from having power align with conformity pressures in groups that vary as a function of position in the hierarchy. Research on small groups indicates that newcomers who are low in status face significant pressure to conform to norms and may face negative social consequences for non-conformity (Levine & Moreland, 1994; Scheepers, Branscombe, Spears, & Doosje, 2002), but once they have established their commitment to the group are allowed to question or challenge prevailing attitudes and decisions (Cartwright, 1959; Hollander & Julian, 1970). Furthermore, newcomers can use conformity strategically to signal their commitment and integrate themselves into the group (Hollander, 1958; Jetten, Hornsey, & Adarves-Yorno, 2006). Thus, people with power are permitted

to deviate from norms and are more likely to do so, whereas people with low power are more likely to face punishment for non-conformity but fortunately are prone to conformity.

Psychological Consequences of Legitimacy

Like power, a significant amount of research exists on the effect of legitimacy on decisions and behaviors. Because legitimate structures by definition are seen as “appropriate, proper, and just,” (p. 376), people who are part of those structures tend to support them because they feel an obligation to do so (Tyler, 2006). There is a sense that one should or ought to support these structures because it is the right thing to do (French & Raven, 1959; Suchman, 1995). People tend to identify more strongly with groups when their structure and authorities are seen as legitimate (Smith, Jackson, & Sparks, 2003). In turn, this leads to cooperation among group members, group-oriented behaviors (Tyler & Blader, 2000), and conformity to group norms (Abrams, Wetherell, Cochrane, Hogg, & Turner, 1990; Terry & Hogg, 1996). Conversely, individuals are more likely to challenge and attempt to change structures seen as illegitimate (Thomas, et al., 1986; Walker, Rogers, & Zelditch, 1988). Because conformity to group norms is a sign of identification with and support of a group (Deutsch & Gerard, 1955; Jetten, et al., 2006; Kelman, 1958), one may expect a higher overall level of conformity to norms in groups with legitimate compared to illegitimate structures.

Not only does legitimacy increase support for structures, it also increases compliance with powerful authority figures (Kelman & Hamilton, 1989; Milgram, 1975; Tyler, 2001). Research indicates that people are more willing to follow rules set by company leaders (Tyler & Blader, 2005) and accept decisions made by judicial and law enforcement officials when they perceive their authority as legitimate (Tyler & Huo, 2002). Although the research on legitimate authorities deals with compliance, it is reasonable to believe those with low power would also voluntarily conform to norms established by high power group members to the extent that the power structure is seen as

legitimate. This is consistent with research indicating that people with low power tend to conform more than those with high power (Galinsky, et al., 2008).

Interaction of Power and Legitimacy

Although the research reviewed thus far suggests main effects of power and legitimacy, with power tending to decrease conformity and legitimacy tending to increase it, other research indicates that power and legitimacy interact. Underlying the interaction is empirical evidence that people are more likely to challenge illegitimate structures and resist illegitimate authorities, compared to structures and authorities perceived as legitimate (Berger, et al., 1998; Martorana, Galinsky, & Rao, 2005; Tyler & Huo, 2002; Walker, et al., 1986). This creates the potential for instability in illegitimate structures, meaning that those with low power can effect change in the hierarchy to secure greater power for themselves, and those with power risk losing their authority if a change effort is mobilized. Research indicates that this potential instability creates a sense of challenge for those with low power and a sense of threat for those with high power. For example, people with low status in unstable structures demonstrate a physiological challenge response, indicated by elevated ventricular contractility (the force with which the heart pumps blood) and cardiac output (the amount of blood pumped by the heart), at the prospect of effecting change in the hierarchy (Scheepers, 2009). Members of high status groups demonstrated an increase in blood pressure, a physiological marker of stress, when faced with the possibility of status loss (Scheepers & Ellemers, 2005; Scheepers, et al., 2009), and individuals are motivated to take action to avoid losing their privileged position in the hierarchy (Pettit, et al., 2010). In studies of primates, unstable interactions are associated with greater stress for dominant than for subordinate animals (Sapolsky & Share, 1994, 2004).

Conversely, because legitimate structures tend to be stable, those with low power are more likely to experience a sense of threat and anxiety because they are the mercy of the powerful. Members of low status groups in ostensibly stable hierarchies demonstrate a physiological threat response, indicated by elevated blood pressure, very similar to people with unstable high status as described above (Scheepers & Ellemers, 2005). This is consistent with primate research finding that subordinate animals in stable hierarchies experience higher levels of threat than dominant animals, as indicated by cortisol levels (Sapolsky, 2005). Those with legitimate power experience no such threat. Rather, individuals with stable high power demonstrate a physiological challenge response very similar to those who are powerless in an unstable hierarchy (Scheepers, de Wit, Ellemers, & Sassenberg, 2012). Thus, research indicates that people who are legitimately powerless or illegitimately powerful are similar in that they experience a greater sense of threat than those who are illegitimately powerless, who experience a sense of challenge at the prospect of gaining more power, or those who are legitimately powerful, who are secure in their positions and also experience a sense of challenge.

How might threat and challenge affect likelihood of conformity to social norms? On one hand, the threat and anxiety experienced by people with legitimate low power and illegitimate high power may lead them to take social risks (Jordan, Sivanathan, & Galinsky, 2011), possibly including non-conformity to group norms. Some research indicates that non-conformity can be an effective tool to draw attention to oneself, and if the non-conforming action is (or appears to be) intended to benefit the group rather than the self, this can increase one's standing in the eyes of others (Ridgeway, 1981, 1982). Therefore, people with legitimate low power may want to draw attention and demonstrate their group-oriented motives to ingratiate themselves to those in power, reducing the potential threat posed by their powerful counterparts. Those with illegitimate high power could use non-conformity to signal that they are working on behalf of the group, hoping to legitimate and

stabilize the hierarchy. People with illegitimate power may also use non-conformity to assert their dominance in an attempt to fortify their positions. Research indicates that individuals with unstable power adopt dominant postures, derogating their low power counterparts (Bugental & Happaney, 2000; Georgesen & Harris, 2006). Similar effects have been found when power holders do not feel competent in their roles, which could create a sense of illegitimacy (Fast & Chen, 2009). Following this logic, because those with illegitimate low power and legitimate high power experience lower levels of threat, they should be less prone to social risk-taking and therefore demonstrate higher levels of conformity. Together, this reasoning posits high levels of conformity from individuals with illegitimate low power and legitimate high power, and low levels of conformity from those with legitimate low power and illegitimate high power. This implies that prior research showing that power decreases conformity (e.g., Galinsky, et al., 2008) is closer to manipulating illegitimate power than legitimate power.

Alternatively, the heightened sense of threat associated with legitimate low power and illegitimate high power may make individuals more sensitive to social norms and likely to conform to them. Illegitimate high power and legitimate low power similarly activate the behavioral inhibition system, associated with attention to environmental threats, a focus on avoiding punishment, and decreased risk-taking (Lammers, et al., 2008). Moreover, conformity increases when social needs are threatened (Baumeister & Leary, 1995). For example, those who experienced ostracism, which threatens sense of belongingness, conformed more on a subsequent task (Williams, Cheung, & Choi, 2000) and demonstrated greater motivation to work on behalf of the group (Williams & Sommer, 1997). Even facing the possibility of social rejection decreases risk taking and increases prosocial behaviors intended to strengthen social ties (Derfler-Rozin, Pillutla, & Thau, 2010). Although people with illegitimate high power or legitimate low power do not necessarily risk exclusion, they may use conformity for similar reasons to ingratiate themselves to others. People

with illegitimate power may use conformity in an attempt to buy support from others and mitigate the threat of power loss, and those who are legitimately powerless may use conformity to align with those in power and avoid victimization. Finally, because people with illegitimate high power feel a greater sense of guilt than those with legitimate power (Smith, Jost, & Vijay, 2008; Weber, Mummendey, & Waldzus, 2002), they may use conformity to assuage this guilt by demonstrating their group-oriented motives. Conversely, people with illegitimate low power and legitimate high power similarly experience a greater sense of challenge than threat (Scheepers, 2009; Scheepers, et al., 2012). Research suggests they are more approach oriented, attentive to rewards in the environment, and willing to take risks (Lammers, et al., 2008). This implies that those with illegitimate low power and legitimate high power will take greater social risks, including non-conformity to group norms, than people with legitimate low power and illegitimate high power.

Although the arguments above make competing predictions about the moderating effect of legitimacy on power and conformity, we expect to find higher levels of conformity from individuals with legitimate low power and illegitimate high power compared to those with illegitimate low power and legitimate high power for two reasons. First, the limited research that directly examines power and legitimacy suggests that people with illegitimate low power and legitimate high power will take greater risks (Lammers, et al., 2008), which should include non-conformity. Second, our prediction implies that research showing that power decreases conformity (e.g., Galinsky, et al., 2008) is manipulating legitimate rather than illegitimate power. This is consistent with the tendency for people to presume consensus and legitimacy unless presented with evidence to the contrary (Berger, et al., 1998; Ridgeway & Berger, 1986). Therefore, we hypothesize:

Hypothesis: People with legitimate low power and illegitimate high power will conform similarly, and significantly more than people with illegitimate low power and legitimate high power, who will conform similarly.

Research Overview

We conducted two experiments to test our hypothesis. Study 1 tests the interactive effects of power and legitimacy on conformity to norms supposedly established by previous participants. Study 2 is intended to introduce greater conformity pressure by using social norms ostensibly established by others with whom the participants expect to work in person.

Study 1

In this study, participants answered a series of questions in the presence of information about how others had supposedly responded. Based on our hypotheses, we expected to find that people with illegitimate low power would behave similarly to those with legitimate high power in that both conform relatively less to others' responses. Conversely, we expected that people with illegitimate high power would behave similarly to those with legitimate low power in that both should conform relatively more to others' responses.

Methods

Participants. One hundred fifty-three members of an online participant pool (54 males) at a large West Coast university participated in the study in exchange for two dollars.

Procedure. Participants were assigned to one of four conditions in a 2 (power: high versus low) x 2 (legitimacy: legitimate versus illegitimate) between-subjects design.

Participants first completed a recall task to manipulate their sense of power and legitimacy. In the high-power conditions, the recall prompts were as follows:

Please recall a particular incident in which you had power over another individual or individuals, and in which this power difference was in your opinion fair and/ or legitimate [unfair and/ or illegitimate]. By power we mean a situation in which you controlled the ability of another person or persons to get something (s)he or they wanted, or were in a position to evaluate him/ her/ them. By fair/ legitimate [unfair/ illegitimate], we mean that the power difference felt fair or legitimate [unfair or illegitimate] to you. Please describe this situation in which you had power that felt fair [unfair]—what happened, how you felt, etc.

In the low-power conditions, participants were asked to recall a situation where someone had power over them using the following prompt:

Please recall a particular incident in which another individual or individuals had power over you, and in which this power difference was in your opinion fair and/ or legitimate [unfair and/ or illegitimate]. By power we mean a situation in which another person controlled your ability to get something you wanted, or was in a position to evaluate you. By fair/ legitimate [unfair/ illegitimate], we mean that the power difference felt fair or legitimate [unfair or illegitimate] to you. Please describe this situation in which you had power that felt fair [unfair]—what happened, how you felt, etc.

Following this task, participants responded to a series of six questions, each of which had two possible answers. Immediately above the area where participants selected an answer they saw a data table with the header “Aggregated responses of 109 study participants to date:” and inside the table were percentages, ostensibly indicating how many previous participants had chosen each of the two options. One option (counterbalanced) had supposedly received a clear majority, with the percentage ranging from 72 percent to 86 percent. Example questions included “Which airline has more on-time arrivals?” with options American Airlines and United Airlines, and “If purchasing a car, which color would you prefer?” with options red and silver. Finally, participants were probed for suspicion, debriefed, and dismissed.

Results

Four participants expressed suspicion that the percentages of previous participants who had selected each option were in fact determined by the experimenters and 19 participants did not complete the power recall task (they did not enter any text in the response field) so we excluded their data from the analysis for a sample of 130 participants.

A 2 (power) X 2 (legitimacy) ANOVA indicated no main effects ($F_s < 1$), but there was a significant interaction of power and legitimacy, $F(1, 126) = 5.43, p < .05$. Because we expected participants in the illegitimate-high power condition and legitimate-low power condition (high conformity conditions) to behave similarly, generally conforming to social norms, whereas

participants in the legitimate-high power condition and illegitimate-low power condition (low conformity conditions) were expected to similarly non-conform, we contrasted the high-conformity conditions against the hypothesized low-conformity conditions. First, we established that our high conformity cells did not differ from each other, with people in the illegitimate-high power condition ($M = 3.39, SD = 1.37$) conforming similarly to those in the legitimate-low power condition ($M = 3.54, SD = 1.37$), $F(1, 126) = .22, n.s.$ Second, we confirmed that the low conformity conditions did not significantly differ from each other, with participants in the legitimate-high power condition ($M = 2.89, SD = 1.45$) responding similarly to those in the illegitimate-low power condition ($M = 2.97, SD = 1.00$), $F(1, 126) = .05, n.s.$ Finally, we contrasted the high-conformity conditions against the low-conformity conditions, and found significant differences in the conformity measure, $F(1, 126) = 5.43, p < .05.$

Insert Figure 1 here

Discussion

This study is consistent with our hypothesis that legitimacy moderates the effect of power on conformity to social norms, reversing the effects of power documented in prior research (e.g., Galinsky, et al., 2008). We found that people with illegitimate low power behaved similarly to participants with legitimate high power in their level of conformity to social norms. Moreover, participants with illegitimate high power behaved similar to participants with legitimate low power, conforming significantly more to social norms than the other two conditions in the study.

It is important to note two limitations in our first study. First, although a significant amount of research indicates that manipulating power mindset through recall or lexical primes is effective

(e.g., Chen, Lee-Chai, & Bargh, 2001; Galinsky, et al., 2003), our participants were not in a situation where they had actual power over someone, and the situations described in their short essays varied widely. In some ways the additional variance introduced by participants recalling situations that varied in temporal distance, degree of power, and degree of legitimacy makes the test of our hypothesis more conservative. However, it is important to replicate the effect using other manipulations to ensure that the pattern of results was not a function of the manipulation itself. Second, consequences of non-conformity in this study were essentially non-existent. Norms were established using information about responses ostensibly provided by previous participants whose identity was unknown and whom the real participants would never meet. Although we expected similar behaviors regardless of the source of the norms, we wondered if participants would only non-conform where stakes were low, or if they would engage in riskier non-conformity where norms were established within a task group. We conducted Study 2 to address these limitations.

Study 2

In study 2, we sought to examine whether participants would deviate from social norms set by (ostensibly) proximal others with whom the participants expected to work during the study. Although there were no actual interactions between participants, we used a cover story that participants would provide initial ratings of images in a chat room and then meet to discuss those images face-to-face. The interactive effect of power and legitimacy would need to be stronger than in Study 1 to create differences by condition because the participants expected to defend their conforming or non-conforming views in front of others who were part of their discussion group.

Methods

Participants. Forty-five students (14 males) at a large West Coast university participated in this study in exchange for ten dollars.

Procedure. Participants were assigned to one of four conditions in a 2 (power: high versus low) X 2 (legitimacy: high versus low) between-subjects design.

Participants first read a cover story explaining that they would complete two decision-making tasks during the study. In the first task, they would work with three other participants in a group to evaluate a series of images. In the second task they would work with one other participant to develop a marketing plan for a new product. Next, participants entered their initials, supposedly so we could randomly assign them to a group. After a brief delay designed to create the impression that a random group assignment process was occurring, participants saw the initials of the four members of their group for the first task (their own and three other sets of initials) and the initials of the pair that would work on the marketing task (their own and one other set of initials). In reality, participants were working alone and the initials of other group members were developed by the experimenters.

After the group assignment process, participants read more about the upcoming tasks. In the first task, the group of four participants would begin by providing their initial impressions of two images in an online chat room. Following this online chat session, all members of the group would convene in an adjacent room to discuss their opinions of the images. At the end of the face-to-face group meeting, the participant and his/her partner for the market plan task would complete the second study task. In this task, one person would have the role of Marketing Vice President and the other would be the Marketing intern. The Vice President would be responsible for assigning tasks to the intern, evaluating the intern's performance, and determining a performance bonus for the intern, from \$0 to \$2. The Vice President would automatically earn a \$2 bonus. The task description was consistent with methods used by Goldstein and Hays (2011) and was intended to convey clear power differences between the Vice President and the intern. The roles would be

assigned based on a business aptitude assessment that all participants would complete prior to beginning the image rating task.

Following the study overview but prior to the image rating task, participants completed the business aptitude assessment, which consisted of 10 multiple-choice questions related to marketing and general management. Questions included “All of the following are examples of profit centers within an airline, except: (A) in-flight magazine; (B) merchandising; (C) aircraft maintenance; and (D) ticketing” and “Which of the following becomes increasingly important in a virtual team environment? (A) requirements engineering; (B) communication planning; (C) formal procurements closure; and (D) network diagramming.” The test questions were designed to be sufficiently difficult that participants would not be certain about their true score.

After completing the assessment, participants in the legitimate-high power condition learned that they had scored better than their upcoming partner and would therefore have the role of Marketing Vice President. Participants in the legitimate-low power condition learned that their upcoming partner had scored better and would have the Marketing Vice President role, and the participant would be assigned to the intern role. In the illegitimate conditions, participants learned their score and the score of their partner but saw a message that the experimenters needed an equal number of males and females in the Vice President role and therefore needed to assign roles by gender instead of assessment score (see Lammers, et al., 2008). In the illegitimate-high power condition, the participant had scored lower than his/her partner but was assigned to the Vice President role based on gender. In the illegitimate-low power condition, the participant had received the highest score in the pair but was assigned to the intern role based on gender.

Participants then entered what they believed was a chat room with the three other participants with whom they would work on the image rating task. They read instructions that to

make the online chat session more efficient, the experimenters would randomly determine an order for group members to provide their initial opinions about the images. In reality, participants were always assigned to be the last group member to rate the image. Group members were instructed that they would rate the extent to which they found the image interesting on a seven-point scale, from 1 (*Not at all interesting*) to 7 (*Very interesting*). The participants then saw the image and a message “Please wait while p.w.j. rates this image...” with p.w.j. purportedly being the initials of another group member. After a few seconds, the rating supposedly entered by p.w.j. appeared on screen and the “Please wait...” message displayed the initials of a different group member. One-by-one, supposed group members provided their ratings of the image, which were visible to the participants. After the three fictitious group members had entered their ratings, the participants were prompted to provide their ratings. Participants (and their fictitious group members) evaluated two images. One image received generally high ratings from the other group members (7, 6, 7) and the second image received low ratings (2, 1, 2). The order of image presentation was counterbalanced.

Finally, participants responded to two items ($\alpha = .93$) asking about how much power they would have in the marketing task relative to their partner on seven-point scales from 1 (*Much less*) to 7 (*Much more*), and three items ($\alpha = .75$) asking about the fairness of the role assignment process on seven-point scales from 1 (*Not at all*) to 7 (*Very much*). The power items included “How much power will you have in the marketing task, relative to JM,” referring to the participants’ supposed partner by his/her initials. The legitimacy items included “To what extent do you think the roles in the marketing task were assigned using a fair process?” The participants were then probed for suspicion, debriefed, and dismissed.

Results

Manipulation check. We conducted a 2 (power) X 2 (legitimacy) ANOVA on the power manipulation check items, which indicated that participants in the high-power condition ($M = 5.02$, $SD = .73$) felt they had more power than participants in the low-power condition ($M = 2.64$, $SD = .80$), $F(1, 41) = 109.85$, $p < .01$. There was no effect of legitimacy ($F < 1$), nor was there an interaction of power and legitimacy $F(1, 41) = 2.13$, *n.s.*

Next, we conducted a 2 (power) X 2 (legitimacy) ANOVA on the legitimacy manipulation check items, which revealed that participants in the high-legitimacy conditions felt the roles were more fair in the legitimate ($M = 4.39$, $SD = .92$) than in the illegitimate condition ($M = 3.54$, $SD = 1.37$), $F(1, 41) = 6.19$, $p < .05$. There was no effect of power ($F < 1$) nor was there an interaction of power and legitimacy, $F(1, 41) = 1.52$, *n.s.*

Assessment score. To ensure that the assessment was moderately difficult and that there were no unintended differences by condition in assessment scores, we conducted a 2 (power) X 2 (legitimacy) ANOVA on the scores. The overall (grand) mean score on the assessment was 5.00 correct answers ($SD = 1.28$) out of 10 questions, or 50 percent correct. The ANOVA indicated no differences as a function of power ($F < 1$), legitimacy ($F(1, 41) = 1.95$, *n.s.*), or an interaction of the two ($F < 1$).

Conformity measure. A 2 (power) X 2 (legitimacy) ANOVA indicated no main effects (F 's < 1), but there was a significant interaction of power and legitimacy, $F(1, 41) = 9.01$, $p < .01$. Because we expected participants in the legitimate-low power and illegitimate-high power conditions (high conformity conditions) to behave similarly, generally conforming in their ratings, and we expected participants in the illegitimate-low power and legitimate-high power conditions (low conformity conditions) to behave similarly, conforming relatively less, we contrasted the high and

low conformity conditions. First, we confirmed that the high conformity conditions did not differ, with participants in the legitimate-low power condition ($M = 4.59, SD = .92$) conforming as much as participants in the illegitimate-high power condition ($M = 4.75, SD = .62$), $F(1, 41) = .23, n.s.$ Second, we confirmed that the low conformity conditions did not differ significantly, with participants in the illegitimate-low power condition ($M = 4.09, SD = .94$) conforming similarly to participants in the legitimate-high power condition ($M = 3.82, SD = .68$), $F(1, 41) = .64, n.s.$ Finally, a contrast of high and low conformity conditions indicated a significant difference in rating conformity, $F(1, 41) = 9.01, p < .01$.

Insert Figure 2 here

We also conducted a 2 (power) X 2 (legitimacy) X 2 (norm type: high versus low) ANOVA, where norm type was a within-subjects factor, to assess whether there were differences in conformity depending on the normative rating was high or low. The between-subjects component of the model was the same as reported above so we do not report it here. Turning to the within-subjects component, there was no main effect of norm type (high versus low; $F < 1$) nor did norm type interact with power or legitimacy (F 's < 1), and there was not a three-way interaction ($F < 1$), suggesting that participants conformed similarly regardless of whether the normative rating was generally high or low.

Discussion

In this study, we found that power and legitimacy interact to affect likelihood of conforming to social norms, even when those norms are established by proximal others with whom the participants expected to work during the study. When participants expected to be in a legitimate,

high power role or an illegitimate, low power role, they conformed significantly less to ratings of an image purportedly supplied by other study group members than if they expected to be in a legitimate, low power role or an illegitimate, high power role. This suggests that the interactive effect of power and legitimacy does not just occur when there is no possibility of social repercussions for non-conformity (because the norms are established by people with whom an individual will never interact) – the effect also influences response conformity in group settings.

General Discussion

The present research examines how the legitimacy of a power structure can moderate the effect of power on individuals' tendency to conform to social norms. We hypothesized that although prior research indicates a negative effect of power on conformity, the opposite would happen if the power structure is illegitimate. Specifically, we expected to find that people with illegitimate high power would behave similarly to those with legitimate low power, tending to conform to social norms. Conversely, people with illegitimate low power would be similar to those with legitimate high power, behaving more independently and conforming less to social norms.

We found evidence for our predictions in two studies that employed different manipulations and measures of conformity. In Study 1, participants who recalled a time when they had illegitimate low power or legitimate high power were significantly less likely to conform to social norms purportedly established by prior participants than those who recalled legitimate low power and illegitimate high power conditions. Study 2 was intended to raise the stakes of non-conformity by using norms ostensibly established by others with whom the participants would work on a group task. Again, we found that participants in the illegitimate low power and legitimate high power conditions were significantly less likely to conform than participants in the legitimate low power and illegitimate high power conditions.

To determine simple effects of power and legitimacy, we conducted a metaanalysis on our studies. The metaanalysis revealed that power had a significant effect on conformity in legitimate and illegitimate conditions, and legitimacy had a significant effect on conformity in high and low power conditions. However, the negative effect of legitimate power on conformity was stronger than the positive effect of illegitimate power. Likewise, the effect of legitimacy was stronger in the high power conditions than in the low power conditions. This suggests that although we found that illegitimacy reversed the effect of power on conformity, it is also possible that it may simply weaken or eliminate the effect of power. Moreover, it appears that whether one's high power is legitimate or not may be somewhat more important than if one's low power is legitimate.

Insert Table 1 here

Our research has a number of implications for theory and practice. First, this research suggests that structural features of hierarchies are as important as one's placement in the hierarchy in determining behaviors. This is consistent with a growing body of research that looks directly at properties of a hierarchy, for example its stability (Jordan, et al., 2011), dispersion (Hays & Bendersky, 2012), and legitimacy (Bendersky & Hays, 2012a; Lammers, et al., 2008). The present work also suggests that the desire to secure of people with illegitimate high power to secure their positions by demonstrating their group orientation and identity may be more salient and have a stronger influence on behavior than the threat and anxiety associated with the instability, which might otherwise lead to greater risk taking and lower conformity.

For organizations and managers, this research underscores the importance of creating legitimate power structures, and highlighting the legitimacy for employees. Bosses who feel their

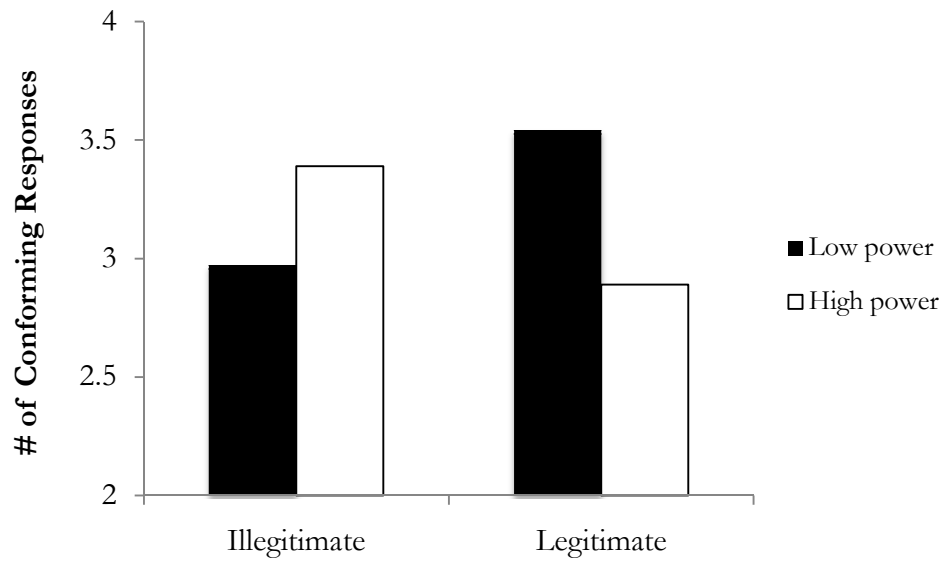
power is illegitimate may not be effective leaders if they are hypersensitive to what their subordinates or others are doing. Likewise, subordinates who feel like they are more qualified for leadership than their bosses may be disengaged group members, or disruptive to the organization and its objectives. Managers should not only use fair procedures to establish and maintain power hierarchies, they would be well advised to communicate explicitly why these hierarchies are fair and appropriate to help avoid unintended, unproductive behaviors.

Our research also raises questions that should be addressed in future research. First, the present research does not address the mechanisms that cause individuals to conform to or deviate from norms. Although we theorize that illegitimate high power and legitimate low power may similarly produce a behavioral avoidance orientation, leading to risk-avoidance and conformity, and illegitimate low power and legitimate high power similarly produce a behavioral approach orientation, leading to risk-seeking and non-conformity, it is also possible that different mechanisms underlie these behaviors. For example, research indicates that power leads to independence and a sense of control (Fast, Gruenfeld, Sivanathan, & Galinsky, 2009; Galinsky, et al., 2008; Keltner, et al., 2003), which can explain why people with legitimate high power conform less than people with legitimate low power. However, this may or may not underlie non-conformity by individuals with illegitimate low power. Perhaps people with illegitimate low power tend not to conform because they are acting against the norms. In other words, rather than expressing their independence, perhaps people with illegitimate low power are expressing anti-conformity (Nail, MacDonald, & Levy, 2000; Willis, 1965). A related question is whether people are conscious and strategic about their use of conformity and non-conformity. On one hand, people may be conforming strategically to signal their group-serving motives (e.g., Jetten, et al., 2006), or not conforming as a form of protest again against a structure they perceive as unfair. On the other hand, these behaviors may be unconscious. Realistically, conscious and unconscious forces are probably at work and future

research may consider situational factors that determine the relative strengths of each. Future research should address these and other related questions.

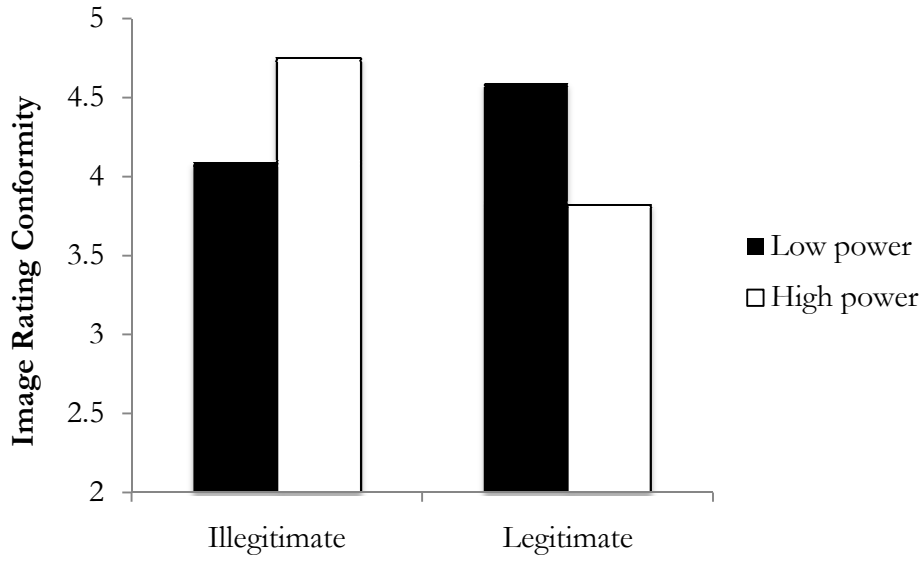
Chapter 3: Figure 1

Response Conformity by Condition



Chapter 3: Figure 2

Image Rating Conformity by Condition



Chapter 3: Table 1

Results of Meta-analysis

Statistic	Effect of power		Effect of legitimacy	
	Illegitimate	Legitimate	Low power	High power
Cohen's D	0.57	0.72	0.52	0.75
Average Z	2.28	2.93	2.29	2.84
p value	.023	.0034	.022	.0045

Note: These figures are adjusted using Hedge's correction to D.

Chapter 4

Disentangling the Value of Power and Status

Abstract

Although power and status are theoretically and empirically differentiable constructs, and research indicates that people desire both, no research exists on whether people value them equally, or see one as more important than the other. In two studies, a survey and a study using conjoint analysis, I find that people tend to value status, defined as the level of respect one is conferred by others (Magee & Galinsky, 2008), more than power, which is defined as control over valuable resources (Emerson, 1976; Keltner, et al., 2003). Furthermore, I find evidence in Study 2 that men tend to see power as more desirable than women, and women tend to see status as more desirable than men. Finally, I find that although legitimacy of the status hierarchy affects the desirability of having status, with status more desirable in legitimate than illegitimate structures, legitimacy does not affect the desirability of power. This is consistent with the consensual and conferred nature of status compared to power. Together, this research indicates that people perceive and value power and status distinctly, and the two should not be confounded theoretically or empirically in future research.

“Upon this a question arises: whether it be better to be loved than feared or feared than loved? It may be answered that one should wish to be both, but... [it] is much safer to be feared than loved...”

– Niccolò Machiavelli (1469 – 1527)

“The power is detested, and miserable the life, of him who wishes to be feared rather than to be loved.”

– Cornelius Nepos (c. 100 B.C. – c. 25 B.C.)

The above statements made by classical philosophers paint a sharp distinction between the use of love and fear in leadership, and raise an intriguing question about the best means to get people to do what a leader desires. The statements allude to the difference between a leader using control to force compliance versus using others’ respect and admiration for him or her to influence their thoughts and behaviors. Anthropologists working in the Amazon have similarly distinguished between leaders’ use of force, relying on fear and compulsion, from use of persuasion when they lack the capability to obligate compliance (Krackle, 1978). Henrich and Gil-White (2001) re-label these concepts as dominance and prestige, which are distinct hierarchical forms analogous to power and status, respectively. Power is defined as control over valuable resources, which enables control over others by providing or withholding those resources (Blau, 1964; Emerson, 1962; French & Raven, 1959; Keltner, et al., 2003), whereas status is defined as the relative amount of respect, prestige, and admiration one has in the eyes of others (Berger, et al., 1972; Magee & Galinsky, 2008). Power and status are both social resources that allow individuals to influence others (French & Raven, 1959), and yet they are distinct and produce influence in different ways. Power-based influence often involves doling out rewards and punishment whereas status-based influence operates by creating a desire to mimic a high-status person because he or she is seen as a competent role model (Henrich & Gil-White, 2001).

This distinctiveness of power and status is belied by the fact that they often come and go together as a package. Corporate executives have significant power and status in their organizations. At the other end of the spectrum, entry-level employees are characterized by low power and status.

However, power and status are not always so tightly coupled. Some occupations can be characterized as high power and low status, or vice versa. For example, an Olympic athlete has high status but no real power whereas an immigration officer has significant power (over visa applicants at least) but low status (Fragale, et al., 2011). Furthermore, in today's flatter organizations and in the cross-functional teams often used to carry out projects in companies, power hierarchies are minimal but a status hierarchy is likely to emerge (Bales, 1958; Bales, et al., 1951), suggesting that some people on the team will have higher status than others, despite having equal power.

Because power and status are positively related, researchers often explicitly or implicitly treat them as a single construct. Some scholars use the terms interchangeably (e.g., Hall, et al., 2005) or see them as dimensions of a single construct (e.g., French & Raven, 1959). Empirically, researchers often manipulate either power (e.g., Goldstein & Hays, 2011) or status (e.g., Pettit, et al., 2010) but may in fact be manipulating both simultaneously. Recent work has begun to unpack the effects on behavior of having power with or without status (Blader & Chen, 2012; Fast, et al., 2012) and how people perceive others who have either power or status (Fragale, et al., 2011). Little is known, however, about how individuals distinctly value the prospect of having power versus status. Having both power and status is ideal, of course, but what about when tradeoffs are necessary? As Weber (1946) notes, "Not all power, however, entails social honor...Nor is power the only basis of social honor" (p. 180). Do people see all forms of hierarchy as equal, is power preferable to status, or is status preferable to power?

The present research aims to fill this gap by examining the relative value people place on power and status. Although research on basic human motivation suggests that both are valuable, I aim to test whether one social resource is more valuable than the other. Moreover, I posit that gender should moderate the value placed on power and status. Men, relative to women, tend to have more favorable attitudes toward power, are more attentive to power cues in the environment,

and are more motivated to see themselves as powerful (Goldstein & Hays, 2011; Maccoby, 1990; Mason, Zhang, & Dyer, 2010; Offermann & Schrier, 1985), suggesting that they should place greater value on power than women. On the other hand, women tend to be more relationship oriented than men (Cross & Madson, 1997), and should therefore place relatively more importance on status than men because being respected by others signals acceptance and security of group membership (Hollander, 1958; Jetten, et al., 2006). Finally, because status is consensually conferred by others whereas power need not be consensual (Berger, et al., 1980; Blau, 1964), I argue that the legitimacy of power and status hierarchies should differentially affect the value of these social resources. Although legitimacy should be preferable in both power and status hierarchies, power can be exercised whether legitimate or not whereas status is reliant on the perceived legitimacy of the hierarchy. Therefore, I posit that status legitimacy will affect the value of having status more than the legitimacy of power affects the value of that power. I test my hypotheses in two studies: a survey of MBA students and a study that uses conjoint analysis to disentangle the relative value of having power and status.

Need for Power versus Status

Need for Power

Scholars and philosophers have been concerned with power for centuries. As the quotation at the outset of this manuscript suggests, political philosophers like Machiavelli (1532) were concerned with successful acquisition and maintenance of power. More recently, the desire for power has been linked to a general human need for control and predictability because, as indicated in its definition, power is about control. In fact, recent research indicates that power and choice, another form of control, are substitutable (Inesi, Botti, Dubois, Rucker, & Galinsky, 2011).

Decades of research in psychology indicates that people desire a sense of certainty and control in life (Kruglanski & Webster, 1996; Mineka & Hendersen, 1985; Skinner, 1996), and enjoy the ability to exercise control (Cordova & Lepper, 1996). For example, people prefer options that will lead to a second choice over options that do not, even when the expected value of both options is the same (Bown, Read, & Summers, 2003; Catania & Sagvolden, 1980; Suzuki, 1997, 1999). People who feel control over their lives have better self-regulation and are more motivated (Bandura, 1977; Brehm & Self, 1989; Rotter, 1966; Weiner, 1985). When people feel in control, they have greater confidence that they will be successful, set higher goals, and achieve more (Bandura & Wood, 1989; Henry & Sniezek, 1993; Tafarodi, Milne, & Smith, 1999). Perception of control also produces physiological benefits by inhibiting the release of stress hormones and immune suppressors (Bandura, Taylor, Williams, Mefford, & Barchas, 1985; Maier, Laudenslager, & Ryan, 1985; Mineka & Hendersen, 1985). Consistent with this evidence, people who feel a sense of control fare better on a variety of physical and mental well-being measures (e.g., Lachman & Burack, 1993; Rodin, 1986; Strickland, 1989; Thompson & Spacapan, 1991). Even one opportunity to make a choice improved mood, quality of life, and longevity for nursing home residents (Langer & Rodin, 1976).

Conversely, lacking a sense of control is aversive, and people attempt to restore control when they do not have it (Brehm & Brehm, 1981; Crombez, Eccleston, De Vlieger, Van Damme, & De Clercq, 2008), even through maladaptive behaviors (Shapiro, Schwartz, & Astin, 1996). Those who feel unable to gain control tend to have decreased motivation and are at risk for depression (Abramson, Alloy, & Metalsky, 1989). Physiologically, restriction of control leads to stress in rats (Glavin, Pare, Sandbak, Bakke, & Murison, 1994) and infants (Kochanska & Aksan, 2004), and a variety of evidence documents neural bases of the need for control (Leotti, Iyengar, & Ochsner,

2010). Together, this research provides evidence that the need for control is fundamental and necessary for survival, existing across species and, in humans, at birth before socialization.

Based on evidence of the mental and physical benefits of control, and recent research indicating that control is necessary for survival, I posit that power, which provides control, may be more important than status. Therefore, I hypothesize:

Hypothesis 1a: People will place greater value on obtaining power than on obtaining status.

Need for Status

Much like the need for control, status is widely desired and sought after, prompting many scholars to label the quest for status as a human universal (Barkow, 1975; Hogan & Hogan, 1991). That status would be desired is not surprising because of its positive effects on self-esteem and physical well-being (Adler, et al., 2000; Barkow, 1975; De Cremer & Tyler, 2005; Hogan & Hogan, 1991; Leary, et al., 2001). In the context of task groups, those with the highest status are given the most opportunities to contribute and their contributions are evaluated more positively than lower status group members (Berger, et al., 1980; Sherif, et al., 1955). Moreover, people with status have greater behavioral latitude in the context of the group. High status group members are permitted to deviate from group norms and attitudes with less risk of negative social consequences (Hollander, 1958; Levine & Moreland, 1994). Recent research suggests that status can also offset unfavorable social judgments of those with power. Although powerful individuals are generally seen as dominant but cold and powerless individuals are seen as warm but submissive, people with high status are seen as dominant and warm regardless of their power (Fragale, et al., 2011).

In addition to the direct benefits of status listed above, status also creates security in group membership and acceptance by others (Hollander, 1958, 1960). This security helps satisfy the fundamental need for belongingness, which could otherwise be threatened if an individual feared

potential ostracism or social rejection from a group (Baumeister & Leary, 1995; Williams, et al., 2000; Williams & Sommer, 1997). Like control, belongingness and social contact are critical for survival. The body is programmed to avoid rejection, physiologically experiencing social pain in the same way as physical pain (DeWall et al., 2010). Ostracized and isolated individuals are more likely to suffer from a variety of physical ailments, including cardiovascular disease, cancer, infectious diseases, and death (Uchino, 2006), and are prone to social anxiety and depression (Baumeister & Tice, 1990; Leary, 1990). Ostracism can have detrimental effects on individuals even when it lasts for a short time (Pepitone & Wilpizeski, 1960; Williams, et al., 2000). Thus, although group membership can satisfy social needs regardless of one's status, low status members are at greater risk of being rejected for norm violations or other infractions, and may be less secure in their ability to satisfy their fundamental need for belongingness compared to high status group members.

Additional evidence for the value that people place on status comes from research on the lengths to which individuals will go to obtain high status in the groups to which they belong. People actively assert their competence and advertise their contributions to jockey for status within groups (Anderson & Kilduff, 2009a; Anderson & Kilduff, 2009b; Hardy & Van Vugt, 2006). Furthermore, people negotiate and compete over status in groups (Bendersky & Hays, 2012b; Owens & Sutton, 2001) and invest tangible resources to obtain status (Brett, et al., 2007; Huberman, et al., 2004), even at the expense of performance (Bendersky & Shah, 2012). Status may be particularly valuable, relative to power, because status is often diffuse, carrying over into multiple contexts (Frank, 1985) whereas power exists only in domains where the resources over which one has control are valued.

Thus, the extant literature is clear about the wide-ranging benefits of having status and the ensuing quest for status. Therefore, although power is valuable, status may be even more valuable. More formally I hypothesize:

Hypothesis 1b: People will place greater value on obtaining status than on obtaining power.

Moderators of Power and Status Value

Although needs for power and status appear to be fundamental and universal, the intensity of those needs is likely to vary by individual. McClelland (1975) introduced the concept of need for power as an individual difference, finding that some people have a stronger need for power than others. Similarly, people differ in their need for social status (Flynn, et al., 2006). I therefore sought to identify moderating factors that could strengthen or weaken relative preferences for power and status.

Gender

As argued earlier, men and women both have a fundamental need for power and control in their lives. However, research suggests that men may value power more than women. Men have more favorable attitudes toward power, and are more likely to use power-based strategies such as rewards and coercion to influence others (Offermann & Schrier, 1985). Men are also more likely to use aggression (Baron, 1977; Eagly & Steffen, 1986; Prentice & Carranza, 2002; Tedeschi & Felson, 1994), which is enabled by physical power, and can lead to social power because it is a means of controlling through physical punishment. Moreover, men are attracted to and distracted by power-related cues more than women, and men are more likely to commit power-related material to memory (Mason, et al., 2010). Finally, whereas men use even minimal associations with high-power others to see themselves as more powerful, women do not demonstrate this effect (Goldstein & Hays, 2011). This suggests that men are motivated to use any available cues in their environment that allow them to feel powerful. In sum, men appear to be more motivated by the prospect of gaining power than women. Therefore, I hypothesize:

Hypothesis 2: Men will place greater value on obtaining power than women.

Conversely, I argue that women should be more motivated to obtain status than men. Women tend to be more interdependent than men, meaning that they define themselves based on their relationships and group memberships more than men, who are more likely to be independent (Cross & Madson, 1997). Status is related to satisfying the need for meaningful social interaction and belongingness because being respected by others signals acceptance and security of group membership (Hollander, 1958; Jetten, et al., 2006). Therefore, women should be relatively more concerned than men about the ways they are perceived by peers, and the respect they have in the eyes of those peers, which is equivalent to their status. Formally, I hypothesize:

Hypothesis 3: Women will place greater value on obtaining status than men.

Hierarchy Legitimacy

The legitimacy of power and status hierarchies, defined as the extent to which these structures are seen as “appropriate, proper, and just” (Tyler, 2006, p. 376), should increase the value of both power and status, but not necessarily at equivalent levels. Power and status hierarchies are both reliant upon legitimacy to some extent. Power is more easily exercised when viewed as legitimate, with subordinates more likely to comply with authorities and institutions when they are legitimate (Tyler & Blader, 2005; Tyler & Huo, 2002). When power is seen as illegitimate, others are more likely to challenge the structure (Thomas, et al., 1986; Walker, et al., 1986). Therefore, I hypothesize:

Hypothesis 4: Power will be more valuable in a legitimate hierarchy than an illegitimate hierarchy.

Likewise, status legitimacy is important for the maintenance and stability of a status hierarchy. Illegitimate status hierarchies are more likely to be challenged (Hays & Bendersky, 2012). Furthermore, when conflict about an illegitimate status hierarchy erupts, the hierarchy is more likely to be destabilized, potentially leading to a decrease in status for those at the top of the hierarchy

(Bendersky & Hays, 2012a), which is particularly aversive (Pettit, et al., 2010). Thus, status should be significantly more valuable when it is legitimate, because the hierarchy is stable and status losses are unlikely, compared to when it is illegitimate. Therefore, I hypothesize:

Hypothesis 5: Status will be more valuable in a legitimate hierarchy than an illegitimate hierarchy.

Although legitimacy should increase the value of power and status, status hierarchies are more dependent on legitimacy than power hierarchies because status is consensually conferred by others (Blau, 1964). One only has as much status, and for as long, as others are willing to confer it. Power may also be conferred, as in the case of an elected official, but in many cases individuals do not choose who controls valuable resources and therefore has power over them (e.g., in the workplace). Even in the case of an elected official, the minority of the electorate does not choose who ascends to power, and the official typically serves a full term in office even if voters later regret the outcome of an election. Moreover, power can often be exercised whether or not leaders are seen as legitimate. As Mao Zedong famously remarked, “power grows from the barrel of a gun,” suggesting power can be exercised regardless of how people may feel about the hierarchy.

Therefore, I hypothesize:

Hypothesis 6: Legitimacy will have a stronger, positive effect on the value of status than on the value of power.

Research Overview

I test my hypotheses in two studies. The first study examines the reported importance of power and status in a sample of Master’s of Business Administration (MBA) students. Study 2 utilizes conjoint analysis to investigate how people make trade-offs between power and status when considering both simultaneously.

Study 1

Methods

Participants. Two hundred sixty-one full-time managers (198 males) enrolled in a part-time MBA program voluntarily participated in this study as part of an organizational behavior course.

Procedure. Participants completed a survey that included a variety of different measures as part of a class exercise in the second week of their academic quarter. Included in the survey were nine items related to the present research. Participants rated the importance of nine aspects of having power or status in groups on a seven-point scale ranging from 1 (*Not at all important*) to 7 (*Extremely important*). Power-related items were intended to correspond to the bases of power described by French and Raven (1959) and included “Control over group resources,” “Ability to reward others,” “Ability to punish others,” “Having knowledge or information that others do not possess,” and “Formal authority.” A phrase describing referent power, leveraging others’ liking and respect to gain control over them, was not included because this form of power is most similar to social status (Magee & Galinsky, 2008). Ratings of the five items were sufficiently reliable ($\alpha = .68$) so I averaged responses to create a single measure for the value of power. Status-related items corresponded to elements of having social status in groups (Anderson, et al., 2006) and included “Respect from peers,” “Social esteem,” “Prominence in my study group,” and “Admiration of friends and colleagues.” As with the power measure, ratings were reliable ($\alpha = .76$) and were averaged to create a single measure for the value of status.

Results

T tests indicated that participants rated status ($M = 5.70, SD = .65$) as significantly more important than power ($M = 3.97, SD = .91$), $t(260) = 30.37, p < .01$. Although I expected men to place greater importance on power than women, men did not differ from women in their value of

power ($M_{\text{men}} = 3.95, SD_{\text{men}} = .97, M_{\text{women}} = 4.06, SD_{\text{women}} = .67$), $t(259) = .86, n.s.$ Similarly, although I expected women to place greater importance on status than men, there were no gender differences ($M_{\text{men}} = 5.68, SD_{\text{men}} = .67, M_{\text{women}} = 5.80, SD_{\text{women}} = .55$), $t(259) = 1.31, n.s.$

Insert Figure 1 here

Discussion

In a survey of MBA students, I found evidence that people value status more than power, which is consistent with Hypothesis 1b. Contrary to Hypotheses 2 and 3, I did not find differences between genders. Men and women both rated status as equally important, power as equally important, and status as more important than power.

This study provides an initial investigation of the relative importance people place on power and status. The findings are particularly interesting in light of the sample used: MBA students, many of whom have ambitions of being powerful business leaders. However, the sample also introduces limitations. MBA students may also be more sensitive to social hierarchy and their position in it, and their attitudes toward power and status may not reflect those of a more diverse sample. Moreover, gender differences may be absent because MBA students tend to be particularly competitive and ambitious. Second, although the items were based on literature defining and describing power and status, people may be reluctant to admit that they want the ability to punish others, or that they desire formal authority. Furthermore, individuals are notably poor at introspection and explaining the true reasons behind choices they make (e.g., Nisbett & Wilson, 1977; Nolan, Schultz, Cialdini, Goldstein, & Griskevicius, 2008). Therefore, participants' ratings may not be indicative of their true views. Finally, participants responded on Likert-type scales, with

no tradeoffs required. People are better at ordering their preferences when considering options conjointly rather than independently (Luce & Tukey, 1964) suggesting that the results might differ if participants had evaluated a number of groups that differed in the power and status they would have in those groups. The next study addresses these limitations and tests the remaining hypotheses about factors that should moderate the relative importance of power and status.

Study 2

To address the limitations of Study 1, this study employs conjoint analysis to assess the relative importance of power and status for participants. Conjoint analysis was introduced in the 1960s (Luce & Tukey, 1964) and has enjoyed widespread use in market research. The technique presents participants with a variety of profiles, each containing a combination of attributes, and asks them to rate each profile. For example, if evaluating laptop computers, potential consumers could rate a model with a 17-inch screen and 500 gigabyte hard drive costing \$1,500, and a model with a 15-inch and 750 gigabyte hard drive at the same price. Rating the 17-inch model more favorably than the 15-inch model implies that, all else being equal, having a larger screen is more desirable than a larger hard drive for this particular consumer. Although conjoint analysis is commonly used in market research, it has also been employed to study social attitudes such as discrimination (Caruso, Rahnev, & Banaji, 2009). I apply the technique here to analyze the relative value people place on power and status.

I begin by briefly describing the design and analytical methods used in conjoint analysis. For a more detailed description, see Orme's book on conjoint analysis (Orme, 2006). When designing a conjoint study, the first task is to identify the attributes of concern that participants will rate, and then determine specific levels for each of those attributes. Continuing the laptop example from above, a researcher might choose to include five attributes that are used by consumers when making

a laptop purchase: screen size, hard drive size, processor speed, weight, and price. Specific levels for each attribute, usually two to four, must then be chosen. Screen sizes could include 13-inch, 15-inch, and 17-inch, hard drive size could include 500 gigabytes, 750 gigabytes, and 1,000 gigabytes, and so on. Asking a participant to evaluate all permutations of all levels of all attributes can be too taxing but the technique requires that participants rate a number of profiles equal to at least two or three times the number parameters that will be estimated (equal to one plus the total number of attribute levels minus the number of attributes). The researcher must select a reasonable number of profiles that are balanced – meaning each level of each attribute appears an equal number of times – and orthogonal – meaning that attributes do not appear in such a way that they are correlated. Stated differently, a conjoint study is analogous to an experiment where all variables are repeated-measures, within-subject factors that should be orthogonal.

Once data are collected, they are analyzed using hierarchical models that take into account non-independence between the profile ratings provided by a single participant. Dummy variables represent each level of each attribute. The resulting regression coefficients, known in the context of conjoint analysis as part-worths, represent the importance of each parameter and can be compared directly in post hoc tests. More concretely, part-worths indicate the change in the dependent variable (e.g., desirability, willingness to pay) caused by changing an attribute of the product, compared to the base level of that attribute. If an attribute has more than two levels and therefore requires two or more dummy variables to represent the attribute, its importance is calculated by subtracting the smallest part-worth for that attribute from the largest part-worth. In the present research, I modify typical conjoint analysis by testing for interactions between attributes, which in market research are generally assumed to be independent.

In this study, I test Hypotheses 1a and 1b to determine whether people tend to place greater value on power or status by asking participants to evaluate the desirability of groups that differ in the

amount of power and status that the participant would have as a group member. I also test Hypothesis 2, that men will value power more than women, and Hypothesis 3, that women will value status more than men. In addition, the study tests Hypotheses 4 and 5, related to the effect of legitimacy on the value of power and status. Finally, I test Hypothesis 6, that legitimacy will affect the value of status more than the value of power. This hypothesis is based on the consensual nature of status – status must be conferred by peers – whereas an individual can have power over others regardless of their feelings about the power holder or the hierarchy.

Participants. Eighty participants (39 males) recruited from Amazon MTurk participated in exchange for \$1.00. They averaged 33.00 years of age ($SD = 11.50$) and 75.00 percent were Caucasian. Participants in this study reported working on an average of 5.33 project or task groups in the past five years ($SD = 2.54$), with the modal response being eight or more groups. Therefore, these participants are knowledgeable of task groups and should be able to evaluate groups with varying characteristics.

Procedure. Participants were asked to evaluate a series of groups that differed along four dimensions. The first dimension was level of power and authority in the group. In some groups the participant would have the authority to delegate work, make decisions, and evaluate other group members whereas in other groups the participant would not have that authority. Second, groups differed in the legitimacy of the authority structure. In some groups, the person with authority (in some cases this would be the participant) was seen as deserving his or her power but in other groups there was a perception that the authority may have obtained power through connections instead of qualifications. The third dimension was the relative level of status the participant would have in the group. In some groups, the participant would be more respected and admired than anyone else, and the group would often defer to the participant. In other groups, another group member was most respected and the group would likely defer to that person. Finally, groups differed in the legitimacy

of status hierarchy. The person apparently perceived as the most respected group member (in some cases this would be the participant) seemed like the most competent and experienced person, deserving of his or her respect and admiration from others, whereas in other groups the most respected group member merely seemed to be the most assertive, but was not the most competent.

Insert Table 1 here

Thus, the full design included a total of 16 teams, a 2 (power: high versus low) X 2 (power legitimacy: high versus low) X 2 (status: high versus low) X 2 (status legitimacy: high versus low) within-subject design. Because participants should rate at least two times the number of profiles as there are parameters in the model, and this model has five parameters (1 + 8 levels – 4 attributes), I asked participants to evaluate 10 profiles selected at random from the full set of 16 profiles.

Participants first saw the 10 profiles and were asked to put them into one of three categories, labeled “Most desirable groups,” “Moderately desirable groups,” and “Least desirable groups.” Participants were instructed to divide the group profiles among the three categories as evenly as possible, placing at least one profile in each category. Next, they rated these 10 profiles based on their desirability from 0 (*very undesirable*) to 100 (*very desirable*). To simplify the task, participants first saw the groups that they had categorized as most desirable and were asked to rate these groups from 65 to 100 using a slider with rating increments of one. Second, they saw groups categorized as moderately desirable and were asked to rate each one from 35 to 65. Finally, they saw groups categorized as least desirable and were asked to rate each one from 0 to 35.

Results

Balance and orthogonality. Because 10 group profiles were randomly selected from the full set of 16 profiles, I first tested number of times each level of each attribute was displayed to ensure display was balanced. Within each of the four attributes, neither level was displayed significantly more than 50 percent of the time (all t s < 1.38). Furthermore, correlations between all independent variables were non-significant at .05 or less, indicating that the profiles were displayed orthogonally as intended.

Relative importance of power and status. To test Hypotheses 1a and 1b, I used a mixed-effects regression model where observations were nested within each participant, regressing the participants' ratings of each group profile on dummy variables that represented power, power legitimacy, status, and status legitimacy. The part-worth for power was 20.20 ($\xi = 12.44, p < .01$) and the part-worth for status was 26.14 ($\xi = 16.12, p < .01$). The part-worth of status was significantly greater than that for power, $\chi^2(1) = 6.71, p < .01$, providing additional support for Hypothesis 1b. The part-worth for power legitimacy was 21.44 ($\xi = 13.22, p < .01$), and the part-worth for status legitimacy was 17.17 ($\xi = 10.58, p < .01$), indicating a preference for legitimate power and status structures.

Moderating effect of gender. To test Hypotheses 2 and 3 in these data, I added gender and interactions between gender and power, and gender and status. Gender did not have a significant main effect on profile ratings ($\gamma = -1.73, \xi = .60, n.s.$). Consistent with Hypothesis 2, gender interacted with power, $\gamma = -9.92, \xi = 3.10, p < .01$. The part-worth of power for men was 25.28 ($\xi = 10.99, p < .01$) whereas the part-worth of power for women was 15.35 ($\xi = 6.87, p < .01$). As expected, both men and women saw power as desirable, but men placed greater importance on having power than women. Consistent with Hypothesis 3, gender also interacted with status, $\gamma =$

10.07, $\lambda = 3.15, p < .01$. As predicted, the part-worth of status for men, equal to 20.96 ($\lambda = 9.15, p < .01$), was lower than the part-worth of status for women, equal to 31.03 ($\lambda = 13.89, p < .01$).

Therefore, women saw status as more desirable than men.

Moderating effect of legitimacy. To test Hypotheses 4, 5, and 6, I added interactions between power and power legitimacy, and between status and status legitimacy. The interaction between power and power legitimacy was not significant, $\gamma = .88, \lambda = .27, n.s.$ Thus, Hypothesis 4 was not supported because legitimate power was not seen as more desirable than illegitimate power. However, but the interaction of status and status legitimacy was significant, $\gamma = 6.52, \lambda = 2.04, p < .05$. Status was more desirable to participants in a legitimate status hierarchy ($\gamma = 29.47, \lambda = 12.86, p < .01$), than in an illegitimate status hierarchy ($\gamma = 22.95, \lambda = 10.29, p < .01$), which is consistent with Hypothesis 5. Moreover, this pattern provides support for Hypothesis 6 because legitimacy only interacted with the status and not with power, indicating that legitimacy has a larger affect on the desirability of status than on the desirability of power.

Insert Table 2 here

Discussion

Using conjoint analysis, I found support for most hypotheses. Consistent with Hypothesis 1b and Study 1, participants placed greater importance on status than on power when evaluating the desirability of groups. As in Study 1, Hypothesis 1a, that people see power as more desirable than status, was not supported. Men placed greater importance on power than women, which is consistent with Hypothesis 2, and women placed greater value on status than men, which supports Hypothesis 3. Although power legitimacy did not moderate the desirability of power, status

desirability was contingent upon the legitimacy of the status hierarchy. Thus, Hypothesis 5 was supported but Hypothesis 4 was not. Finally, Hypothesis 6 was supported because status legitimacy had a stronger effect on the desirability of status than power legitimacy had on the desirability of power.

This study has a number of notable strengths. Replicating the finding from Study 1 that status was more important in determining desirability of groups provides consistent evidence in support of Hypothesis 1b over Hypothesis 1a. Furthermore, using a tool like conjoint analysis allowed participants to evaluate group attributes simultaneously, which should produce more accurate results. Finally, because our participants were recruited from a non-academic sample and had a significant amount of experience working in groups, they were well suited to evaluate the groups presented and should be more representative of the general population.

It is important to note limitations present in the study. The primary limitation is that participants were evaluating hypothetical groups. Because their ratings would have no effect on a future group experience, they may differ from the choices these participants would make if asked to choose a group to join in a real-world setting. Second, although participants had worked in an average of five groups in the last five years, these may not have ranged in the same ways as the profiles used in this study. For example, participants may or may not have had firsthand experience working in groups with illegitimate power or status hierarchies. To the extent that participants did not have concrete experience working in groups similar to the ones they were rating, they may have struggled to accurately understand and indicate their true preferences.

General Discussion

The aim of the present research was to explore the relative value that people place on having power and status in the groups to which they belong. Although the needs for power and status are

both rooted in fundamental human motives, and recent work has argued for the distinctiveness of these social resources (Blader & Chen, 2012; Fragale, et al., 2011), little is known about the relative strengths of power and status needs. In two studies, one survey and one study using conjoint analysis, I found a general tendency to see status as more desirable than power, consistent with Hypothesis 1b. Although I did not find an effect of gender in Study 1, gender interacted with power and status in Study 2. In Study 2, men valued power more than women, which is consistent with Hypothesis 2, and women placed greater value on status than men, consistent with Hypothesis 3. Across the studies, therefore, I found mixed support for Hypotheses 2 and 3. The lack of any gender effects in Study 1 could be due to unique characteristics of an MBA student population where both genders are likely to be motivated by power and status. Furthermore, I found that hierarchy legitimacy is a situational moderator of power and status desirability. Although legitimacy did not interact with power, there was an interaction between status and legitimacy, with people seeing status as more desirable when it is legitimate compared to when it is illegitimate. This provides support for Hypothesis 5. The significant interaction between status and legitimacy and the non-significant interaction between power and legitimacy is consistent with the logic that legitimacy is more critical for status hierarchies than for power hierarchies because status is consensually conferred, supporting Hypothesis 6.

This research contributes to the current dialogue on similarities and differences between power and status. Both are ubiquitous forms of social hierarchy but individuals view them somewhat differently, and they have different effects on behavior. Whereas people view powerful others as dominant and cold but see powerless others as submissive and warm, people with high status are dominant and warm regardless of their power (Fragale, et al., 2011). Consistent with these perceptions, when people have power without status, they are more likely to derogate their low-power counterparts compared to when they have high power and status (Fast, et al., 2012). Perhaps

part of the response to having power without status is due to deprivation of the status need. If status is more valuable to people than power, deprivation of status should be more aversive than deprivation of power, potentially leading to aggressive responses as people seek to satisfy their need for status.

The present research has a number of practical implications for how organizations and managers reward their employees. Many organizations reward employees through pay and promotions, which often provide employees with increased power and status. In the event that an employee is not seen as deserving a promotion based on competence, this could undermine the value of the promotion as an incentive for performance in at least two ways. First, if the promoted employee senses that his or her power has increased without a commensurate increase in status, the promotion should be relatively less valuable to that employee. Alternatively, if the employee feels that the promotion boosted his or her status in the organization in an illegitimate way, the value of the promotion is similarly diminished. Another implication of the research is that organizations may be able to reward performance using more economical means than promotions. To the extent that a company can increase an employee's status by acknowledging his or her contributions, this could be as effective an incentive as offering a promotion, but without a corresponding pay increase.

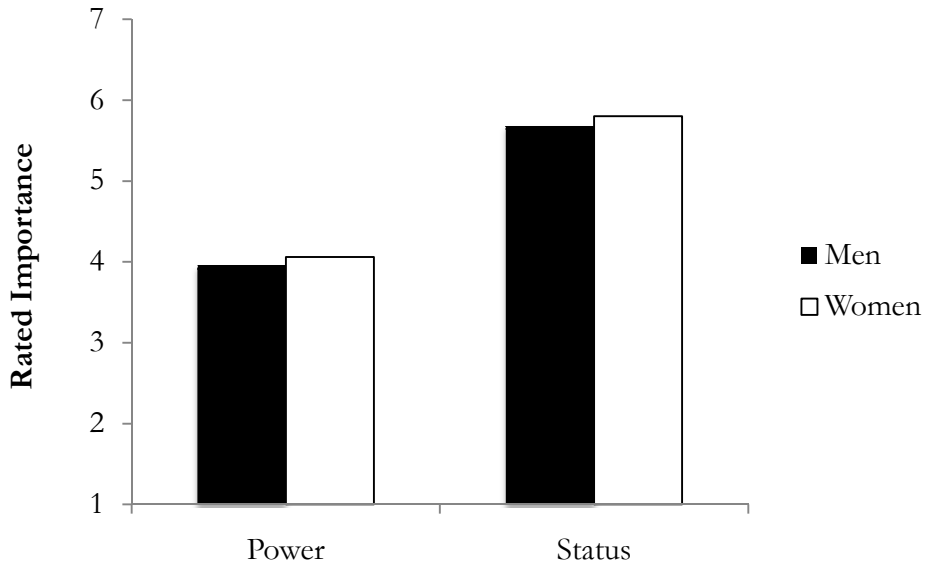
Although this research improves our understanding of how people value power and status, it is important to recognize its limitations. First, the studies exclusively rely on participants' reports of their attitudes about power and status. Market researchers use these types of measures in conjoint analysis to quantify the value that consumers place on various product attributes, but it is important that future research include behavioral dependent variables, such as asking participants to make choices that would lead to power or status in a real-life social interaction. Choice-based research showing similar patterns as the studies reported here would further increase the robustness of these findings. Second, it is important to broaden the sample of participants used to ensure that the

findings can be generalized. The participants in the present research were recruited from two sources – an MBA classroom and Amazon MTurk – which strengthens the conclusions we can draw, but also highlights the differences between even these two samples. Whereas there were no gender differences in the value of power versus status in an MBA sample, there were predicted gender differences in the more diverse MTurk sample (Buhrmester, Kwang, & Gosling, 2011). Replication in other samples, including perhaps a field study conducted within an organization where power and status differences have meaningful consequences, is a worthy endeavor for future research.

Given the prevalence of power and status hierarchies in the human experience, gaining a fuller understanding of how people value and respond to positions of power and status is important for scholars of organizations and human behavior. This research and other work that distinguishes power and status begin to answer these important questions but many intriguing questions remain.

Chapter 4: Figure 1

Reported Importance of Power and Status (Study 1)



Chapter 4: Table 1

Attributes and Levels Used in Conjoint Analysis (Study 2)

Attribute	Level 1	Level 2
Power (authority and control)	High	Low
Power legitimacy	High	Low
Status (respect and admiration)	High	Low
Status legitimacy	High	Low

Chapter 4: Table 2

Results of Mixed-Effects Regression (Study 2)

Variable	Model 1	Model 2	Model 3
Power	20.20 **	25.28 **	24.77 **
Power legitimacy	21.44 **	21.66 **	21.15 **
Status	26.14 **	20.96 **	17.56 **
Status legitimacy	17.17 **	17.17 **	13.85 **
Gender		-1.73	-1.87
Power x Gender		-9.92 **	-10.05 **
Status x Gender		10.07 **	10.50 **
Power x Power legitimacy			.88
Status x Status legitimacy			6.52 *
Wald χ^2	691.83 **	732.50 **	740.17 **
df	4	7	9
N	80	80	80

* $p < .05$

** $p < .01$

Chapter 5

Conclusion

At work, in the community, at the store, and in daily interactions with others, social hierarchies guide our decisions and actions. In some cases, we defer to or follow someone with higher power or status. In other cases, we take the lead and subordinates follow. And in still other situations, we engage in contests with others whom we believe are our subordinates but who do not necessarily see the hierarchy in the same way.

Mirroring this reality, and demonstrated throughout this dissertation in the volume of references to prior work, an immense body of literature exists on social hierarchy, in particular power and status hierarchies. I would argue that the efforts dedicated to understanding social hierarchy are appropriate, given the ubiquity of hierarchy and its prevalence in our lives (Henrich & Gil-White, 2001). Although scholars have made enormous strides in understanding how hierarchies come into existence, are maintained, and how these structures affect those who are part of them, our understanding is incomplete. I identified three specific limitations in prior research that inspired the projects in this dissertation: a limited understanding of hierarchy modification attempts because of a general focus on hierarchy-stabilizing processes, a paucity of research on structural characteristics like dispersion and legitimacy due to an emphasis on the presence or absence of hierarchy, and a tendency to confound power and status. This dissertation begins to address these limitations.

In Chapter 2, I demonstrate that status hierarchy dispersion and legitimacy affect group members' responses to hierarchy and group performance. Hierarchy dispersion motivates people to attain high status, leading to competition between group members in the form of status challenges. These status challenges are important because they are detrimental to group performance. Moreover, hierarchy legitimacy influences group member behavior by interacting with dispersion;

the effect of dispersion on status challenges and performance is strongest in the least legitimate hierarchies, and is absent in the most legitimate hierarchies. Thus, people do not always reinforce and defend hierarchies. Instead, when people are particularly motivated to attain high status, as they are in dispersed hierarchies, people are likely to challenge the hierarchy and attempt to modify it. Whether people are more likely to defend or challenge a status hierarchy is a function of structural characteristics of the hierarchy, specifically its dispersion and legitimacy.

Chapter 3 indicates that hierarchy legitimacy can also alter the experience of having high or low power. Although power typically increases independence and decreases conformity, illegitimacy can reverse this effect. People with illegitimate power conform more than people who are illegitimately powerless. Moreover, people with illegitimate power conform similarly to those who are legitimately powerless, and people who are illegitimately powerless conform similarly to those with legitimate power. This suggests that climbing one's way to the top of a power hierarchy through any means necessary may not be entirely satisfying. If a person acquires illegitimate power, he or she may not have the same sense of independence as someone with legitimate power. Instead, illegitimately powerful individuals may feel as inhibited as if they had no power at all. Consistent with Chapter 2, whether people reinforce a power hierarchy by conforming to group norms or challenge a hierarchy through non-conformity is a function of their power and the legitimacy of that hierarchy.

In Chapter 4, I build on an emerging body of work related to the conceptual and empirical distinctness of power and status. Although power and status often go together, this chapter demonstrates that people distinguish between them and value them differently. Overall people seem to see status as more desirable than power, but this is moderated by individual differences such as gender and situational factors like legitimacy. Men place greater value on power than women, whereas women value status more than men. Consistent with the previous chapters, hierarchy

legitimacy is part of the calculus, at least when the value of status is involved. Status is more valuable when legitimate, but legitimacy may have little or no effect on the desirability of having power. Along with prior research showing that people behave differently if they have power with versus without status (Fast, et al., 2012), and work showing that people perceive others' dominance and warmth as an interactive function of power and status (Fragale, et al., 2011), this project provides further evidence that power and status are conceptually and empirically distinct and should be treated as such in future research.

Implications

The primary implication of this collection of studies is that, although there are many stabilizing forces at work in power and status hierarchies, which often lead to stable and self-reinforcing structures, individuals do not leave their desire for power and status at the door when they enter a group setting. In some cases, individuals may exercise personal restraint and support an existing hierarchy because they benefit as members of a well-functioning collective, because they fear social repercussions for stepping out of line, or both. These forces may explain why people so often support hierarchies in which they hold a disadvantaged position. However, when the personal benefits people receive from having power or status outweigh the collective benefits they receive from their group membership, their upward ambitions may overwhelm their tendencies to conform and support the existing structure. In addition to individual differences such as the need for power (McClelland, 1975), trait dominance and extroversion (Anderson & Kilduff, 2009b), and need for status (Flynn, et al., 2006) that increase the value someone places on power or status, structural characteristics like hierarchy dispersion may lead to stronger upward ambitions and more challenges to the hierarchy. Therefore, situational factors can intensify or ameliorate the desire for power and status, and the actions taken in service of that goal.

When people believe they can successfully negotiate higher power or status for themselves with minimal risk of negative consequences, they may choose to challenge and seek to modify the hierarchy rather than defend and reinforce it. To the extent that a hierarchy is perceived as illegitimate, people may feel that there is minimal downside risk to non-conformity and status challenges. Thus, status-oriented behavior may resemble expected value or risk calculations, accounting for the relative value of the “prize” and the probability of obtaining that prize. When value and probability are high enough, challenges ensue.

Aside from a need for more attention to hierarchy modification and destabilization efforts, these projects suggest that the relative stability of many hierarchies may belie significant, ongoing hierarchy maintenance processes. Although not always stated explicitly, many scholars use stability as evidence that people tend to accept and reinforce hierarchies. While that may be true in some cases, this dissertation indicates that there are often attempts to modify the hierarchy. Through this lens, stability may instead reflect that challenges and modification efforts are often unsuccessful because those with privileged positions in the hierarchy enjoy an advantage in negotiations over power and status.

This dissertation also has a number of implications for those who manage organizations. At a high level, managers should not take for granted that employees will accept and enact a formal hierarchy, or that formal hierarchies will always govern employee behavior. Instead of accepting a hierarchy and focusing on their jobs, employees may devote significant effort to challenging the hierarchy and negotiating a better place for themselves within a structure. That people seek to move up in a hierarchy is not new – hierarchies have long been used to motivate (Lazear & Rosen, 1981; Magee & Galinsky, 2008) – but this dissertation provides additional evidence that people may not always channel their efforts in the way desired by an organization. Employees may be as concerned with navigating the hierarchy as they are with their actual jobs.

A second implication of this work may remedy problems caused by attempts to move up in organizational hierarchies. Hierarchy legitimacy is crucial to make the most of the coordination and motivation functions hierarchies can serve. Managers should be cognizant of the legitimacy of hierarchies they oversee, and make that legitimacy explicit to others. Aside from the obvious benefits of having competent and deserving employees in roles with high power or status, managers may want to explain to employees why the people in power are qualified for those positions, and how decisions were made based on sensible criteria. Emphasizing the legitimacy of the hierarchy can help in at least two ways. First, a hierarchy that is perceived to be very legitimate is less likely to be challenged. Because challenges are detrimental to performance, an organization benefits from minimizing challenges. Second, to the extent that a power hierarchy is perceived as legitimate, an organization can take advantage of complementary psychologies associated with high and low power (Halevy, et al., 2011a). Those with high power can feel relatively independent and unconstrained to make changes and lead organizations in new directions, whereas people in low power positions will conform and follow along, executing the plans laid by managers.

Third, this research indicates that informal hierarchies, such as status hierarchies, can either be leveraged productively or hinder performance depending on how they are constructed and managed. Informal hierarchies can serve many of the same functions as formal hierarchies. People with high status can influence others, not by promising rewards or threatening punishment, but because those others seek to imitate high-status group members (French & Raven, 1959). In many ways status-based influence is desirable compared to power-based influence because people are likely to internalize the influence of the high-status person rather than complying with a high-power individual but only when being monitored (Kelman, 1958). If the high-status person is the most competent and group-oriented individual, the group benefits from affording that person greater influence in decision processes. Moreover, if those with status are seen as more competent and

group-oriented, challenges to the hierarchy are unlikely to follow. However, illegitimate status hierarchies can lead to arguments, challenges, and politicking that are ultimately detrimental for the group (Loch, et al., 2000; Milgrom & Roberts, 1988). Managers should monitor status dynamics to ensure they are healthy and that status challenges are not diverting group resources away from the task at hand.

Fourth, as noted in the general discussion of Chapter 4, organizations should make the most of informal hierarchies by rewarding people with status. Organizations seem to think most about how to structure their formal hierarchies to accomplish the desired task, and also to motivate those at the bottom of the hierarchy with the promise of promotions and prestigious titles. However, to the extent that people care about status, and may even care about status more than power, employers can efficiently reward employees with positions on high-status task forces that do not require changes to the organization's structure or pay increases. This may be particularly useful in light of today's flatter organizations, where fewer promotions are possible, and given the increasing use of cross-functional groups carrying out complex tasks (Gowers & Nielsen, 2009; Wuchty, Jones, & Uzzi, 2007).

Limitations

As with all research, this dissertation has a number of limitations. First, despite clear relevance of this research to organizations, none of the projects contained within the dissertation include a field study. The populations and settings vary across the studies – from undergraduates to MTurkers and from people working on experimental tasks to groups working on consulting projects for long periods of time – which allows some degree of generalization. However, conducting a study in an organization with working adults would add robustness to these findings. I am currently working to extend the projects contained here to use field and archival data.

Second, I have necessarily chosen certain conceptualizations of hierarchy dispersion and legitimacy and excluded other conceptualizations. For example, in Chapter 2 dispersion was operationalized as inequality in the student survey (Study 2) and distance from top to bottom of the hierarchy in the experiment (Study 3). Future research should consider other forms of dispersion. Holding distance from top to bottom of a hierarchy constant, a group could have one person at the top and many at the bottom or many people at the top and one at the bottom. Although distance would remain the same, status-related behaviors may differ. Likewise, in Chapters 2 and 3, legitimacy was operationalized as congruence of a power or status hierarchy with relative competence as the normative basis for assigning placement in that hierarchy. Legitimacy could also be operationalized as a hierarchy that is constructed by an authority, or as congruence between power and status hierarchies. Future research should investigate similarities and differences between different forms of legitimacy.

Third, the projects contained here focus on challenge (direct or manifest as non-conformity) as the means of seeking power and status. However, generosity can also be a means of acquiring power and status (Bendersky & Shah, 2012; Flynn, et al., 2006; Hardy & Van Vugt, 2006). A fuller picture of power and status seeking should examine both competitive challenges and generosity, investigating when people might use one approach versus the other. Perhaps generosity is the most viable means when the hierarchy is legitimate as people seek to ingratiate themselves to other group members with power or status. In illegitimate hierarchies, generosity may not be reliable and causing people to use competitive challenges instead. Additional research is required to convert these speculations into empirical evidence.

Future Directions

In addition to work that remedies the limitations described above, I hope to address other questions related to the quest for power and status at multiple levels of analysis. At the individual level, there are likely many other factors that strengthen the desire for power and status aside from hierarchy dispersion and legitimacy. For example, situational cues that prime importance of self relative to others, greed, or money may strengthen individuals' desire for power and status, even if at the expense of group performance. Structural characteristics other than dispersion and legitimacy may also play a role. For example, consensus about the hierarchy may affect the likelihood that group members will initiate status challenges. To the extent that everyone agrees about the hierarchy, people may be unwilling to challenge that hierarchy directly because their challenge is unlikely to succeed (Anderson, et al., 2008; Ridgeway & Diekema, 1989). However, if people disagree about people's relative power or status, challenges could be successfully used to convey competence and group orientation.

Moving up a level of analysis, this research raises interesting questions about how desire for power and status could affect interpersonal interactions between two or three people. Previous research indicates that people engage in dominance complementarity, deferring to dominant others and dominating over submissive others (e.g., Tiedens & Fragale, 2003; Tiedens & Jimenez, 2003). However, complementarity may not always happen. When faced with a dominant other, individuals' desire for power and status may lead them to engage in a challenge with that dominant person instead of submitting. Understanding when people are willing to defer versus when they "lock horns" in a dominance contest is a worthwhile endeavor for future research.

At the group level, scholars should investigate how power and status seeking affect group decision-making. The present research suggests that challenges may harm performance, but this dissertation is silent on how challenges may affect specific types of group decisions. Perhaps groups

with several members who are actively seeking power and status make riskier decisions as people try to “out-risk” each other to demonstrate their confidence or competence. Groups with legitimate hierarchies may take greater risks because people with legitimate power who are more influential are also more risk-seeking (Lammers, et al., 2008). Alternatively, groups with illegitimate hierarchies may take greater risks because people with illegitimate power feel unstable in their positions and take risks as a result (Jordan, et al., 2011).

Another interesting topic to address in future research is the possibility that status challenges could be beneficial. When status challenges occur at certain points in time, perhaps early a group’s life, they may help with the status sorting process, ultimately allowing the group to assess each member’s relative competence and confer the proper amount of status them. Status challenges could also surface information that is helpful in deliberation processes. As group members attempt to assert their dominance, they may share facts that are useful in the decision-making process. Thus, in some cases status challenges may simply distract a group from working on its focal task whereas in other cases they could have (perhaps unintended) benefits for group functioning.

Finally, at a societal level, future research should address how the power and status dynamics investigated here are similar to and different from large-scale challenges, such as those observed in the Arab Spring, or the Occupy movement. Focusing momentarily on the Occupy movement, the stated objective was to reduce the inequality that exists in this country and others. That is, the protesters are challenging economic dispersion with the goal of decreasing dispersion. Is it possible that instead of wanting to flatten the economic hierarchy, they actually want more for themselves instead? If Occupy protesters really do want greater equality, this raises a question about when people challenge hierarchies to move up in those hierarchies versus to eliminate them.

Because hierarchies have existed throughout history and across species, logic dictates that they will not disappear as the dominant organizing form at any point in the near future, or ever. Because we all live and work in these hierarchies on a daily basis, having a full and accurate understanding of how hierarchies function, and how they affect the individuals who are part of them is a vital task for scholars.

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