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Why Do Dominant Personalities Attain Influence in Face-to-Face Groups? The Competence-Signaling Effects of Trait Dominance

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Individuals high in the personality trait dominance consistently attain high levels of influence in groups. Why they do is unclear, however, because most group theories assert that people cannot attain influence simply by behaving assertively and forcefully; rather, they need to possess superior task abilities and leadership skills. In the present research, the authors proposed that individuals high in trait dominance attain influence because they behave in ways that make them appear competent—even when they actually lack competence. Two studies examined task groups using a social relations analysis of peer perceptions (D. A. Kenny & L. LaVoie, 1984). The authors found that individuals higher in trait dominance were rated as more competent by fellow group members, outside peer observers, and research staff members, even after controlling for individuals' actual abilities. Furthermore, frequency counts of discrete behaviors showed that dominance predicts the enactment of competence-signaling behaviors, which in turn predicts peer ratings of competence. These findings extend researchers' understanding of trait dominance, hierarchies in groups, and perceptions of competence and abilities.

Keywords: dominance, influence, power, status, competence

The personality trait dominance involves the tendency to behave in assertive, forceful, and self-assured ways (Buss & Craik, 1980; Gough, 1987; Wiggins, 1979). As an abundance of research has shown, individuals higher in trait dominance tend to attain more influence in face-to-face groups than others—they speak more, gain more control over group processes, and hold disproportionate sway over group decisions (for a review, see Judge, Bono, Illies, & Gerhardt, 2002). For example, one meta-analysis of 85 years of research found trait dominance to predict who emerges as the leader in groups more consistently than any other individual-difference dimension examined, including intelligence (Lord, De Vader, & Alliger, 1986).

At first glance, the reason why trait dominance leads to influence seems obvious: Individuals high in trait dominance are assertive and motivated to lead, and thus take control through the force of their personality. However, prior research has shown that individuals cannot take charge of groups simply through force; rather, they must seem to possess superior task and social competence (e.g., Berger, Cohen, & Zelditch, 1972; Ridgeway & Diekema, 1989; Van Vugt, 2006). Because trait dominance is unrelated to many of the task and social competencies required in leaders (e.g., Gough, 1949), it is unclear why dominance relates to influence in groups so strongly and consistently.

In the present research, we proposed that dominant individuals achieve influence because they tend to appear competent to others, even when they actually lack competence. Specifically, dominant individuals behave in ways that make them seem both expert at the task and socially skilled, which leads groups to afford them influence and control. We tested this hypothesis in two studies of task groups, using a social relations model analysis of peer ratings of competence and influence (Kenny & La Voie, 1984). We also used outside observers to rate individuals' competence and used frequency counts of discrete behaviors to measure the display of competence-signaling behaviors during group discussions.

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Influence in Face-to-Face Groups

Influence is a process in which individuals modify others' behaviors, thoughts, and feelings (Cartwright, 1959; Lewin, 1951). Although different variations of intra-group hierarchies (e.g., power, status, or leadership hierarchies) have been examined in prior work, each variation involves inequalities among group members' levels of influence. We thus focused on the concept of influence so that we could incorporate prior work on power, status, and leadership. Furthermore, as is commonly done, we use the term *influence* to mean both a social process and resource; for example, someone can be construed as "possessing" influence when they are able to modify others' behavior.

Most theories of intragroup hierarchies adopt a functionalist perspective (e.g., Berger et al., 1972; Blau, 1964; Hollander & Julian, 1969; Thibaut & Kelley, 1959; Van Vugt, 2006). Thus, these theories converge on the following points: First, an individual member's influence in a group is determined by the group. Second, groups give influence to members who possess superior competence and expertise. Following from these two points is the idea that individuals cannot take influence from the group simply by force. Third, by putting their most qualified members in charge, groups stand the best chance of achieving their collective goals.

Whereas the specific competencies required to attain influence may depend on the group's task (e.g., Hogan & Hogan, 1991), in

general individuals need to exhibit superior abilities in two domains (Lord, 1985): First, they must possess social skills that will allow them to lead the group, communicate the group's vision and strategy, and motivate others. Second, they must be skilled at the group's task. That is, they need to possess special knowledge of the technical problems faced by the group or possess superior cognitive abilities (Blau, 1964).

It is important to note that possessing social skills alone is not sufficient to attain influence. Individuals must also possess task-related abilities. "Low task ability disqualifies an individual almost immediately from leadership status" (Van Vugt, 2006, p. 362). Indeed, task groups more often prioritize task competence over social skills when allocating influence (Lord, Phillips, & Rush, 1980). On a team of engineers, for example, technical ability tends to be more important than the ability to communicate.

Ample evidence supports this functionalist perspective of influence. For example, numerous studies have shown that groups give influence to the members who possess superior task and social competence (for reviews, see Bass, 1981; Driskell & Mullen, 1990; Hollander & Julian, 1969; Mann, 1959). Furthermore, research has shown that groups prevent individuals from taking charge simply through force (Anderson, Srivastava, Beer, Spataro, & Chatman, 2006; Blau & Scott, 1962; Ridgeway & Diekema, 1989).

Why Does Trait Dominance Predict Influence in Groups?

Why trait dominance leads to influence in face-to-face groups is a mystery, therefore, because dominance is unrelated to many of the competencies required to attain influence. For example, in prior studies, individuals high in trait dominance attained influence in groups that discussed ethical dilemmas (Aries, Gold, & Weigel, 1983), worked on mechanical tasks (Megargee, Bogart, & Anderson, 1966; Smith & Foti, 1998), and allocated funds to employees in a hypothetical company (Anderson & Berdahl, 2002). It is difficult to believe that trait dominance correlates with expertise in all of these task domains. Moreover, previous studies suggest trait dominance is largely unrelated to general cognitive ability (Dodge, 1937; Donahue & Sattler 1971; Gough, 1949; Schippmann & Prien, 1989; Smith & Foti, 1998). It might be modestly related to some social skills, such as the ability to address conflicts and read others' emotions (Hall, Halberstadt, & O'Brien, 1997), but as already discussed, social abilities such as these are insufficient to attain influence in the absence of task expertise.

We propose that dominant individuals attain influence because they behave in ways that make them appear more competent along both task and social dimensions—even when they actually lack competence. We base this argument on two sets of findings.

First, because individual members' abilities are typically hidden from each other, groups can only allocate influence on the basis of what they believe each group member's competence to be (Berger et al., 1972; Driskell & Mullen, 1990; Lord, 1985). These beliefs are often based on superficial cues such as nonverbal behaviors. For example, individuals are perceived to be more competent when they use more certain and factual language (Driskell, Olmstead, & Salas, 1993; Ridgeway, 1987), speak more often and in a fluid and assertive manner (Carli, LaFleur, & Loeber, 1995; Reynolds & Gifford, 2001), use more direct eye contact (Mehrabian & Williams, 1969), and use a relaxed and expansive posture (Imada & Hakel, 1977).

Second, individuals higher in trait dominance tend to display more of these superficial "competence cues." In group settings, individuals higher in trait dominance make more suggestions and express their opinions more frequently (Kalma, Visser, & Peeters, 1993; Moskowitz, 1990), speak in more assertive tones (Aries et al., 1983; Buss, 1981), make more direct eye contact (Snyder & Sutker, 1977), and use a more relaxed and expansive posture (Buss, 1981).

In summary, we argue that dominant individuals tend to display competence-related cues—independent of their actual competence—and these cues inform the perceptions of the other group members, which in turn leads to higher influence. Therefore, we believe dominant individuals achieve influence by exhibiting self-confidence and apparent competence rather than by behaving in bullying and intimidating ways. As such, we agree with prior theorists who have argued that individuals who use aggressive and abusive behavior fail to achieve influence (Ridgeway, 1987; Ridgeway & Diekema, 1989; Van Vugt, 2006).

Overview of Studies

In two studies of task groups, we tested the hypotheses that group members would perceive individuals higher in trait dominance as more competent along task and social dimensions and that these perceptions would mediate the link between trait dominance and influence. The null hypothesis was that peer perceptions of competence would fail to mediate the link between trait dominance and influence in the group.

Ruling Out a "Motivated Perception" Explanation

If we were to find that groups perceived dominant individuals as possessing superior competence, then it is possible that these perceptions might reflect motivated perceptual biases rather than dominant individuals' display of competence cues. For example, Lee and Ofshe (1981) argued that dominant individuals tend to attain influence through force and intimidation. However, once they attain influence, other group members construct overly positive perceptions of their competence to rationalize the emergent hierarchy (see also Jost & Banaji, 1994; Lord, 1985). In other words, dominant individuals might first achieve influence, and be subsequently perceived as more competent, rather than vice versa.

Therefore, in order to show more conclusively that individuals higher in trait dominance actually appear more competent, we asked independent, outside observers to rate participants' competence as well. Outside observers should feel no need to rationalize the groups' hierarchies, and thus their perceptions should not suffer from any related biases. Again, reflecting an actual increase in competence-signaling behaviors, we expected trait dominance to predict being perceived as more competent by outside observers and that these outside observers' ratings would also mediate the effect of trait dominance on influence in the group.

Measuring Competence

To measure task competence, we included ratings of task expertise and general cognitive abilities. To measure social competence, we included ratings of leadership and verbal skills.

We also included ratings of personality dimensions associated with task and social competence. We focused on the Big Five personality dimensions, presently the most widely used personality taxonomy (John & Srivastava, 1999; McCrae & Costa, 1999). In terms of task competence, the dimensions of Conscientiousness and Openness to Experience are most relevant. *Conscientiousness* refers to "socially prescribed impulse control that facilitates task- and goal-directed behavior" (John & Srivastava, 1999, p. 121) and relates to a stronger work ethic and higher performance on most tasks (Barrick & Mount, 1991). *Openness to Experience* describes "the breadth, depth, originality, and complexity of an individual's mental and experiential life" (John & Srivastava, 1999, p. 121) and relates to creativity and originality (McCrae, 1987). We thus expected trait dominance to predict higher perceptions of Conscientiousness, generally, and higher perceptions of Openness to Experience among groups working on creative tasks.

In terms of social competence, Extraversion is the most relevant Big Five dimension. Extraversion implies an "energetic approach to the social and material world and includes traits such as sociability, activity, assertiveness, and positive emotionality" (John & Srivastava, 1999, p. 121). Extraverts are better communicators, more persuasive, and better at decoding others' emotions than introverts (Akert & Panter, 1988; Riggio, 1986). Therefore, we expected that individuals higher in trait dominance would be perceived as more extraverted.

Study 1

Method

Participants

Our sample consisted of 68 undergraduate students at a West Coast university (35.3% men, 64.7% women), who were assigned to 1 of 17 four-person groups. According to Lashley and Kenny (1998), a sample of this size provides 80% statistical power for estimates of peer ratings in a round-robin design. Participants were assigned to groups in such a way that group members were unacquainted with each other. To avoid the complexities introduced by mixed-sex interactions (Aries et al., 1983), only same-sex groups were created. Participants were 21 years old on average (SD = 3.30); 1.5% were African American, 74.2% were Asian/Asian American, 8.8% were Caucasian, 12.1% were Latin American, and 3% reported "other." They received course credit for their participation.

Procedure

Upon arrival, participants privately completed a pretask self-report questionnaire. They then worked together in groups for 45 min, while being videotaped, on a task that involved creating an organization and outlining its strategy. Some groups invented a non-profit environmental organization, wheras other groups invented a for-profit Web site. Participants were told that the group with the best proposal, as determined by the researchers, would win $400. The task was designed to be engaging and evoke a lot of discussion. After the task, group members privately rated each other on a number of dimensions. After all group sessions had been conducted, outside observers watched a videotape of the sessions and rated group members on the same dimensions on which group members rated each other. Two additional judges also ranked the groups' ideas, and the highest ranked group was paid $400.

Pretask Self-Report Measure of Trait Dominance

Participants rated their trait dominance with three items from the Revised Interpersonal Adjective Scales (IAS-R; Wiggins, Trapnell, & Phillips, 1988) at the core of the dominance scale—dominant, assertive, and forceful. These three items have shown high item-total correlations with the full eight-item Dominance Scale (e.g., average r = .91; Anderson & Berdahl, 2002), and thus adequately measure trait dominance. The items were rated on a scale ranging from 1 (*does not describe me at all*) to 7 (*describes me very well*). The three items were highly intercorrelated and were thus combined into one overall measure of trait dominance (coefficient α = .80).

Posttask Peer-Ratings Made by Group Members

Influence in the group. Group members rated each other on the extent to which each person had influence on a scale ranging from 1 (*does not describe this person at all*) to 7 (*describes this person very well*), and ranked each group member in terms of who led the group and who shaped the group's decisions and processes (1 being the highest rank and 4 being the lowest).

Competence dimensions. In terms of task competence, group members rated each other on the "skills and expertise that would allow him/her to perform well on the group task (e.g., creativity, analytical abilities)" as well as on general intelligence and quantitative skills. In terms of social competence, they rated each other's "leadership ability (i.e., the ability to coordinate group activities and motivate a group to pursue a common goal)" and verbal skills. On the basis of past research (e.g., Paulhus & Morgan, 1997), general intelligence, quantitative, and verbal skills were rated on a scale ranging from 1 (*not that high*) to 15 (*extremely high*). The other competence items were rated on a scale ranging from 1 (*does not describe this person at all*) to 7 (*describes this person very well*).

Big Five personality dimensions. Participants rated each other's Big Five personality dimensions with the Ten Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003). The TIPI converges with longer Big Five measures and shows strong test–retest reliability, in addition to considerable convergent and discriminant validity (Gosling et al., 2003). All personality items were rated on a scale ranging from 1 (*does not describe this person at all*) to 7 (*describes this person very well*).

Ratings Made by Outside Observers From Videotape

Ratings made by independent peer judges. In selecting outside observers who would rate the group members, there was a preference to avoid confounding group membership (i.e., being a group member vs. an outside observer) with judges' characteristics. For example, if outside observers were older or more extensively trained in psychology than group members, then they might perceive group members differently than group members perceive each other. To avoid this potential confound, outside observers were selected who were as similar to the group members as possible by recruiting them from the same subject pool from which

the group members were recruited. Furthermore, to prevent any potential confounds due to differing levels of consensus among groups of judges, three outside peer observers judged each target, just as each individual was judged by three teammates.

Therefore, 51 undergraduate students, recruited from the same subject pool as the target participants, were used to serve as independent peer judges. Three separate independent peer judges were assigned to each videotape, and steps were taken to ensure that judges did not know any of the participants they were rating. Each judge watched a single group's interaction in its entirety, and any judges watching a videotape at the same time were instructed not to interact. Each independent peer judge rated each of the four group members in their assigned group on the same dimensions on which group members rated each other.

Ratings made by research staff members. Recruiting outside observers from a subject pool generated an additional concern, however—namely, that these judges might lack sufficient motivation to make accurate judgments of competence. When judges are less motivated to make accurate ratings, they are more likely to base their judgments of a person's competence on that person's influence, using it as a crude heuristic for how competent the person must be (Lord, 1985). In other words, unmotivated observers might infer individuals' competence from whether they were influential rather than judge competence and influence independently, thus potentially inflating the correlation between trait dominance and perceptions of competence.

To address this concern, members of the research team served as a second set of outside observers. Specifically, six members of the research staff, blind to the hypotheses, rated the participants. These research staff members were highly interested in behavioral research and were instructed explicitly and repeatedly on the importance of making accurate ratings. Three staff members were assigned to each videotape on the basis of schedule constraints and the goal of not allowing judges to rate participants they knew. After watching each videotape, the research staff members rated each group member on the same dimensions on which group members rated each other.

Social Relations Model (SRM) Analyses

SRM analyses of group member ratings. The group members' ratings of each other constituted a *round-robin* design, so the software program SOREMO (Kenny, 1995) was used to implement the SRM analyses of these peer ratings. To measure the level of consensus in peer ratings, the variance partitioning analysis provided by the SRM (Kenny & La Voie, 1984) was used. Specifically, SOREMO estimates the extent to which the total variance in peer ratings of each dimension is due to *target variance*. Target variance reflects the role of the target or "ratee" on peer ratings. Larger target variance indicates that some targets consistently elicit higher ratings than others. Accordingly, larger target variance also indicates higher consensus among perceivers. For example, if some group members are consistently perceived as more competent than are other group members, then this demonstrates higher consensus among group members in their judgments of competence. More specifically, *relative target variance* was used as the index of consensus in peer ratings, which is the proportion of total variance in peer ratings that is accounted for by targets because it provides a more intuitive measure of consensus.

SOREMO also calculates a *target score* for each participant on each peer-rated dimension. A participant's target score is essentially the average of the ratings given to him or her on that dimension. Higher target scores indicate being perceived as higher on that dimension by others. SOREMO removes group differences from target scores, making them statistically independent of group membership.

SRM analyses of outside observer ratings. The ratings by the two sets of outside observers, the independent peer judges and the research staff members, constituted two *half-block* designs. Therefore, the software program BLOCKO (Kenny, 1995) was used to implement the SRM analyses of their ratings. Similar to SOREMO, BLOCKO calculates a target score for each participant on each dimension, which is the average of the judges' ratings of him or her on that dimension. BLOCKO also removes group differences, making target scores statistically independent of group membership.

Aggregate Measures

Group member ratings of influence. The relative target variance was significant for the three influence items, 60% on average across the three items (Kenny, Kashy, & Cook, 2006).[1] After reverse scoring the rankings-based target scores, the target effects for these three dimensions were also highly correlated with each other (coefficient $\alpha = .94$), so they were combined into one overall measure of influence in the group.

Peer ratings of competence. When target variance is not significant, judges have not achieved consensus on a particular dimension, and target effects are too unreliable to provide meaningful correlations (Kenny, 1994). Therefore, a dimension was included in the analyses only when there was significant consensus within at least two of the three sets of judges (group members, independent peer judges, and research staff members).

Four task competence-related dimensions met this threshold, and were thus included in the analyses: "skills and expertise that would allow him/her to perform well on the group task (e.g., creativity, analytical abilities)," "general intelligence," "dependable and self-disciplined," and "conventional and uncreative." The relative target variances (i.e., consensus among judges) within each of the three sets of judges are displayed in Table 1. After reverse scoring the negatively worded item, the target effects for these dimensions were also highly intercorrelated within each set of judges. Therefore, three aggregate measures were created, one for each set of judges: *group-rated task competence*, *independent peer-rated task competence*, and *research staff member-rated task competence*. The coefficient alpha reliabilities (i.e., interitem consistency) are displayed in Table 1.

[1] It is important to note that target effects should not be interpreted as alpha reliability coefficients (Kenny, Albright, Malloy, & Kashy, 1994); the magnitude of relative target variance reflects the proportion of variance explained by targets. As an example, group members tend to exhibit high consensus in perceiving each other's extraversion, and thus produce alpha reliabilities above the .70 level; yet, the relative target variance in ratings of extraversion tends to be in the low .30s in group contexts (Kenny et al., 1994). Target effects should be interpreted only when they are statistically significant (Kenny, 1994).

Table 1
Study 1: Interjudge and Interitem Reliability of the Peer-Ratings Measures

Measure	Group members' ratings	Independent peer judges' ratings	Research staff members' ratings
Peer-rated task competence			
Interjudge consensus (SRM relative target variance)	13%	24%	29%
Interitem consistency (coefficient alpha reliability)	.76	.82	.92
Peer-rated social competence			
Interjudge consensus (SRM relative target variance)	42%	47%	50%
Inter-item consistency (Coefficient alpha reliability)	.88	.89	.93

Note. Independent peer judges' and research staff members' ratings were based on a videotape of the group session. "SRM relative target variance" refers to a social relations model (SRM) analysis (Kenny & La Voie, 1984) estimate of the proportion of total variance in peer ratings that is accounted for by "ratees" or targets. Larger target variance indicates higher consensus among perceivers.

Four social competence-related dimensions met the consensus threshold, and were thus included in the analyses: "leadership ability (i.e., the ability to coordinate group activities and motivate a group to pursue a common goal)," "verbal skills," "extraverted and enthusiastic," and "reserved and quiet." The relative target variances for each of the three sets of judges are displayed in Table 1. After reverse scoring the negatively worded item, the target effects for these dimensions were also highly intercorrelated within each set of judges. Therefore, three aggregate measures were created, one for each set of judges: *group-rated social competence*, *independent peer-rated social competence*, and *research staff member-rated social competence*. The coefficient alpha reliabilities for each of the three sets of judges are also displayed in Table 1.

Post hoc analyses indicated that the ratings made by independent peer judges correlated highly with those made by the members of the research staff. The independent peer judge-rated task competence aggregate correlated with the research staff member-rated task competence aggregate (coefficient $\alpha = .80$), $r(62) = .67$, $p < .01$, and the independent peer judge-rated social competence aggregate correlated with the research staff member-rated social competence aggregate (coefficient $\alpha = .94$), $r(62) = .88$, $p < .01$). In light of this agreement across the two sets of outside observers, the ratings made by these two sets of judges were combined, leaving two overall aggregate measures of *outside observer-rated task competence* and *outside observer-rated social competence*.

Results and Discussion

Did Group Members' Perceptions of Competence Mediate the Link Between Trait Dominance and Influence in the Group?

Consistent with prior research, trait dominance predicted influence attained in the group, $r(66) = .45$, $p < .01$. Thus, individuals high in trait dominance attained influence more than individuals lower in trait dominance. We next tested our primary hypothesis, whether the relation between trait dominance and influence in the group was mediated by groups' perceptions of competence.

We first tested whether trait dominance predicted the proposed mediator; in separate regression analyses, we found that trait dominance predicted the group-rated task competence aggregate ($\beta = .34$), $t(66) = 2.93$, $p < .01$, and the social competence aggregate ($\beta = .38$), $t(66) = 3.35$, $p < .01$. We then tested whether the mediator predicted the outcome variable while controlling for the predictor variable; in separate regression analyses, we found that the group-rated task competence aggregate ($\beta = .59$), $t(65) = 6.69$, $p < .01$, and the social competence aggregate ($\beta = .78$), $t(65) = 11.79$, $p < .01$, each predicted influence after controlling for trait dominance. The effect of trait dominance on influence in the group dropped to $\beta = .28$, $t(65) = 3.18$, $p < .01$, and $\beta = .19$, $t(65) = 2.81$, $p < .01$, respectively, after controlling for the group-rated task and social competence aggregates. We used a Sobel (1982) test of the indirect effects. In separate regressions, we found that the indirect effects were significant for the group-rated task competence aggregate ($\beta = .20$), $t(65) = 2.68$, $p < .01$, and for the social competence aggregate ($\beta = .29$), $t(65) = 3.22$, $p < .01$. Therefore, each variable partially mediated the relationship between trait dominance and influence in the group.

We next examined the relative mediating strength of group-rated task and social competence. Following Leonardelli and Tormala (2003), we predicted the influence variable with the two mediators simultaneously. This full analysis is displayed in Figure 1. (Note that the two mediators correlated highly with each other, $r(66) = .72$, $p < .01$, and thus this analysis should be interpreted with caution, given problems introduced by multicollinearity.)

In this analysis, the mediated effect of group-rated task competence approached significance ($\beta = .25$), $t(64) = 1.49$, $p = .07$, whereas the mediated effect of group-rated social competence remained significant ($\beta = .69$), $t(64) = 7.69$, $p < .01$. Sobel tests showed that the indirect effect of group-rated task competence was not significant, $t(65) = 1.32$, *ns*, but that the indirect effect of group-rated social competence was, $t(65) = 3.07$, $p < .01$. These analyses suggest that group-rated social competence might have played a stronger mediating role in the effects of trait dominance on influence in the group than did group-rated task competence.

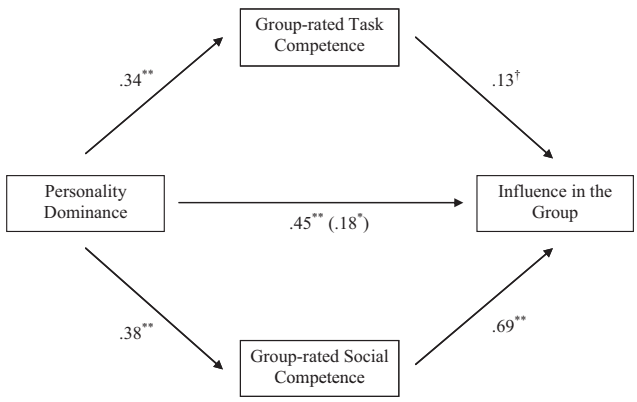

Figure 1. Mediation by group-rated task and social competence in Study 1. * $p < .05$. ** $p < .01$. † $p < .10$.

The effect of trait dominance on influence in the group dropped to $\beta = .18$, $t(64) = 2.67$, $p < .01$. These analyses suggest that the combined effects of group-rated task and social competence partially mediated the effect of trait dominance on influence in the group and that group-rated social competence might have played a stronger mediating role than group-rated task competence.

Did Trait Dominance Predict Being Perceived as Competent by Outside Observers?

It was important to rule out the possibility that group members' perceptions of dominant individuals' superior competence were simply post hoc constructions, formed to rationalize the hierarchy after it emerged (e.g., Lee & Ofshe, 1981). To do so, we tested whether outside observers also perceived more dominant individuals as more competent. More specifically, we tested whether outside observers' perceptions of competence also mediated the relation between trait dominance and influence in the group.

Just as it predicted group members' perceptions of competence, trait dominance predicted both perceptions of task competence ($\beta = .39$), $t(64) = 3.32$, $p < .01$, and social competence ($\beta = .38$), $t(64) = 3.27$, $p < .01$, as rated by our outside observers. Following Leonardelli and Tormala (2003), we again entered both proposed mediators into the equation simultaneously. This analysis is displayed in Figure 2. The inclusion of the two proposed mediators in the model caused the effect of trait dominance on influence in the group to drop to $\beta = .18$, $t(64) = 2.67$, $p < .01$. Sobel tests showed that the indirect effect of outside observer-rated task competence approached significance, $t(65) = 1.66$, $p < .10$, and that the indirect effect of outside observer-rated social competence was significant, $t(65) = 2.07$, $p < .05$. These analyses suggest that the effects of group-rated task and social competence partially mediated the effect of trait dominance on influence in the group. They also suggest that both outside observer-rated task and social competence played mediating roles because both still had significant effects on influence while controlling for the other.

Summary

We found support for our primary hypothesis, in that the relation between trait dominance and influence in the group was partially mediated by group-rated competence. This suggests that more dominant individuals achieved influence in their groups in part because they were seen as more competent by fellow group members. Furthermore, we also found outside observers' ratings mediated the link between trait dominance and influence in the group. This suggests group members' perceptions of dominant individuals' competence were not biased distortions that were constructed to justify the emergent hierarchy. Rather, dominant individuals seemed to truly appear more competent than their less dominant teammates.

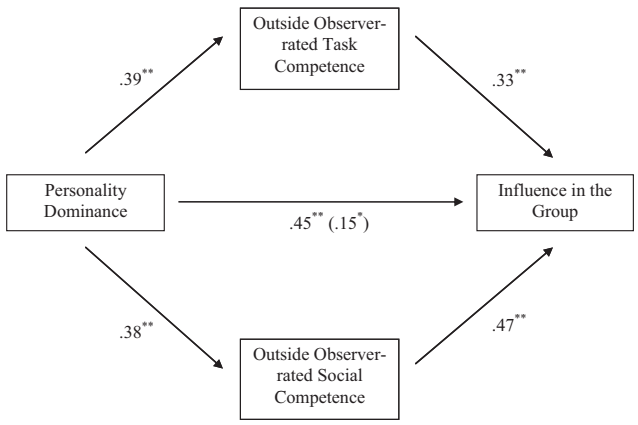

Figure 2. Mediation by outside observer-rated task and social competence competence in Study 1. * $p < .05$. ** $p < .01$.

Study 2

We had two primary aims in Study 2. First, we addressed a potential alternative explanation for the findings in Study 1. Namely, it is possible that even outside observers' perceptions of dominant individuals' competence were post hoc constructions, formed only after dominant individuals achieved influence in the groups. Research on implicit leadership theory has shown that after watching a group work together, outside observers recalled that the leaders exhibited more "leaderlike" behaviors than they actually did (Rush, Phillips, & Lord, 1981). Accordingly, it is possible that even the outside observers in Study 1 inaccurately recalled dominant individuals as exhibiting more competence than they actually did. In other words, outside observers might have inferred individuals' competence from the influence those individuals attained, rather than judging competence and influence independently.

To account for this possibility, we took the additional step in Study 2 of tallying the number of times participants engaged in specific, discrete behaviors that conveyed competence. Such an objective measure should not be prone to the potential biases that subjective ratings of competence might be shaped by. We expected that trait dominance would predict higher frequencies of competence-signaling behaviors, confirming the idea that dominant individuals do indeed display more behaviors that signal competence.

Second, we wanted to show more conclusively that trait dominance predicts higher peer-rated competence, above and beyond individuals' actual competence. That is, does trait dominance predict peer ratings of competence even when controlling for an objective measure of competence? Given the difficulties researchers have had in constructing a single valid, objective measure of social skills (cf. DePaulo & Friedman, 1998), we focused on task skills and selected a group task that would allow for the objective measurement of task abilities. Specifically, we had groups work together on math problems and measured participants' quantitative skills with two separate indices: participants' scores on standardized aptitude tests and the accuracy of participants' answers in the group task. We hypothesized that individuals higher in trait dominance would achieve increased influence even when controlling for these objective measures of task competence.

An additional benefit of using math problems was that we could examine whether the effects in Study 1 generalize to tasks in which individuals' competence may be less ambiguous. When competence is more clear-cut and easily perceived by others, the effects of trait dominance on peer-rated competence might be attenuated because people can accurately discern who is actually more or less competent. Using math problems as the group task therefore presents a stronger test of our hypotheses.

Method

Participants

Our sample included 100 undergraduate students (44% men, 56% women) at a West Coast university who were assigned to one of 25 four-person same-sex groups; in assembling groups, efforts were made to ensure that members were unacquainted with each other. Participants were 21 years old on average ($SD = 1.77$); 13% were African American, 42% were Asian/Asian American, 26% were Caucasian, 6% were Latin American, and 13% reported "other." They received course credit for their participation.

Procedure

The procedure was nearly identical to that in Study 1. Participants completed a self-report measure, worked together in four-person groups while being videotaped (this time for 30 min), and rated fellow group members after the task. Participants were again told that the highest performing group would be paid $400, and were again rated by independent peer judges and members of the research staff on the basis of the videotapes of their group interactions.

Study 2, however, was different in three important ways. First, rather than inventing an organization, groups worked together on a set of math problems taken from previous versions of the Graduate Management Aptitude Test (GMAT), which is used primarily for selection into graduate schools of business (Hecht & Schraeder, 1986). The highest performing group (i.e., the group that answered the most problems correctly and fewest problems incorrectly) was again paid $400. Second, an independent judge blind to the research questions tallied the number of behaviors participants exhibited that signaled competence or incompetence at the task. Third, a second independent judge recorded each participant's specific answer suggestions, allowing us to calculate the accuracy of each participant's answers.

Therefore, there were a total of 12 sources of ratings of data per participant in Study 2. It incorporated a round-robin design, two half-block designs, an independent coder's frequency counts of participant behavior, and a measure of the accuracy of participants' answers in the group task, as derived from a second independent coder.

Pretask Self-Report Measures

Participants rated their own trait dominance with the same three items used in Study 1. The three items were intercorrelated and thus combined into one measure (coefficient α reliability = .83). Participants also reported their Scholastic Aptitude Test (SAT) score on the math component. The problems used in the GMAT are highly similar to those in the SAT; thus, participants with higher scores on the math component of the SAT were expected to be more capable of solving the GMAT math problems.

Posttask Peer Ratings Made by Group Members

Influence in the group. Group members rated and ranked each other's influence using the same three items as in Study 1. The average relative variance across the three items was $M = 73\%$, indicating group members agreed highly on who had more influence in the group than others. After reverse scoring the rankings-based target scores, the three dimensions had a coefficient alpha reliability of .90, indicating high internal consistency of the overall influence measure, and were thus combined into one overall measure of influence in the group.

Competence and personality dimensions. After the group task, participants rated each group member on the same competence and personality dimensions as in Study 1.

Ratings of Competence Made by Outside Observers From Videotape

Seventy-five undergraduate students served as independent peer judges, and again there were three outside peer judges per videotape (a different set of judges than those in Study 1). These judges were again recruited from the same subject pool as the participants; they also received course credit for their participation. Six new members of the research staff (a different set of research staff members than those in Study 1) blind to the research questions served as outside observers.

Deriving Aggregate Peer-Ratings Measures

SOREMO and BLOCKO were again used to implement the SRM analyses of the group members' and outside observers' ratings, respectively. As in Study 1, only a dimension in the analyses was included if at least two of the three sets of judges showed significant target variance (i.e., consensus) in rating that dimension.

Two task competence dimensions met this threshold, and were thus included in the analyses: math-related skills and "dependable and self-disciplined." The relative target variances (i.e., consensus among judges) within each of the three sets of judges are displayed in Table 2. The target effects for these dimensions were also highly

Table 2
Study 2: Interjudge and Interitem Reliability of the Peer-Ratings Measures

Measure	Group members' ratings	Independent peer judges' ratings	Research staff members' ratings
Peer-rated task competence			
Interjudge consensus (SRM relative target variance)	24%	34%	34%
Interitem consistency (interitem correlation)	.67	.82	.83
Peer-rated social competence			
Interjudge consensus (SRM relative target variance)	28%	53%	48%
Interitem consistency (coefficient alpha reliability)	.90	.88	.92

Note. Independent peer judges' and research staff members' ratings were based on a videotape of the group session. "SRM relative target variance" refers to a social relations model (SRM) analysis (Kenny & La Voie, 1984) estimate of the proportion of total variance in peer ratings that is accounted for by "ratees" or targets. Larger target variance indicates higher consensus among perceivers.

intercorrelated within each set of judges, so three aggregate measures were created, one for each set of judges: *group-rated task competence*, *independent peer-rated task competence*, and *research staff member-rated task competence*. The interitem correlations are displayed in Table 2.

Three social competence dimensions also met this consensus threshold: "leadership ability (i.e., the ability to coordinate group activities and motivate a group to pursue a common goal)," "extraverted and enthusiastic," and "reserved and quiet." The relative target variances for each of the three sets of judges are displayed in Table 2. After reverse scoring the negatively worded item, the target effects for these dimensions were also highly intercorrelated within each set of judges, so three aggregate measures were created, one for each set of judges: *group-rated social competence*, *independent peer-rated social competence*, and *research staff member-rated social competence*. The coefficient alpha reliabilities for each of the three sets of judges are also displayed in Table 2.

As in Study 1, the independent peer judge-rated task competence aggregate correlated with the research staff member-rated task competence aggregate (coefficient α reliability = .78), $r(98) = .64$, $p < .01$, and the independent peer judge-rated social competence aggregate correlated with the research staff member-rated social competence aggregate (coefficient α reliability = .85), $r(98) = .64$, $p < .01$. Thus, ratings made by these two sets of judges were again combined to form two overall aggregate measures of *outside observer-rated task competence* and *outside observer-rated social competence*.

Codes of Discrete Behaviors From Videotape

An independent coder blind to the research questions tallied participants' discrete behaviors that were related to the display of competence. The coder tallied behaviors from the first 10 min of each videotape because previous research has shown that individuals who contribute early in a group's deliberation, rather than later, are particularly likely to emerge as leaders (Bass, 1981; Shaw, 1961). To ensure reliability of codes, a second independent judge coded five of the groups (20% of the entire sample; a total of 20 individuals). The two judges reached satisfactory levels of agreement on the number of times participants exhibited the following behaviors: putting forth an answer to a problem (e.g., "I think the answer is A"; coefficient α reliability = .97; $M = 3.60$, $SD = 3.06$), putting forth an answer to a particular problem before any other group member did (coefficient α reliability = .93; $M = 1.99$, $SD = 2.11$), putting forth an answer to a problem after at least one answer had already been suggested (this could include agreeing or disagreeing with an answer already provided; coefficient α reliability = .68; $M = 1.61$, $SD = 1.58$), providing information relevant to the problem (this could include suggesting how to approach the problem or calculating the intermediate steps necessary to solve the problem; coefficient α reliability = .86; $M = 2.41$, $SD = 2.06$), and making a statement about his or her low math ability (coefficient α reliability = .71; $M = 0.47$, $SD = 0.81$). Statements about high math abilities were coded as occurring only once by one judge and zero times by the other judge, and statements about the ease or difficulty of the task were coded as never occurring by either judge. It is worth noting that in 94% of cases (in 171 occurrences out of all 182 problems coded), groups used the first answer provided as their final answer; therefore, there seemed to be little disagreement among group members in their deliberations. Rather, groups tended to commit to the first answer provided by any group member.

The Accuracy of Individuals' Answers in the Group Task

To calculate the accuracy of participants' answers they offered in the group task, an independent coder (different from the previous independent coders) tallied the number of correct and incorrect answers participants provided. Behavior from the first 10 min of the videotape was tallied. To establish reliability, a second independent coder also coded 24% of the videotapes (a total of 24 individuals). The coders exhibited satisfactory levels of agreement in tallying how many correct answers participants provided (coefficient α reliability = .80) as well as in tallying the incorrect answers participants provided (coefficient α reliability = .78).[2] An accuracy index was derived by dividing the number of accurate answers participants provided by the total number of answers they provided so that higher scores indicated providing relatively more correct than incorrect answers.[3] Of the 100 participants, 11 did not answer any questions at all, thus preventing measurement of their accuracy. Therefore, in analyses of accuracy, the focus was solely on individuals who provided at least one answer.

Results and Discussion

Did Group Members' Perceptions of Competence Mediate the Link Between Trait Dominance and Influence in the Group?

As in Study 1, trait dominance predicted influence attainment in the group, $r(98) = .46$, $p < .01$. This indicates that individuals higher in trait dominance attained higher levels of influence. It is worth noting that the correlation was nearly identical to that in Study 1, even though the task involved in the two studies required very different competencies.

We next examined whether the link between trait dominance and influence in the group was mediated by group members' perceptions of competence. Trait dominance predicted the group-rated task competence aggregate ($\beta = .34$), $t(98) = 3.53$, $p < .01$, and the group-rated social competence aggregate ($\beta = .32$), $t(98) = 3.35$, $p < .01$. We also found in separate regression analyses that the group-rated task competence aggregate ($\beta = .72$), $t(97) = 11.51$, $p < .01$, and the group-rated social competence aggregate ($\beta = .53$), $t(97) = 6.65$, $p < .01$, each predicted

[2] The reader might wonder why interrater agreement for the tallies of correct and incorrect answers was not even higher, given the apparent ease of determining whether a particular answer is correct. These raters were asked both to establish anew whether an answer was offered and to judge the meaning of what were sometimes quite ambiguous comments. Both of these ambiguities worked against rater reliability.

[3] Sometimes participants stated an answer to a problem and then later changed their mind and provided a different answer. In these situations, we coded the final answer they provided so that participants would get credit for a correct answer if they first gave an incorrect answer but then changed their mind and argued for the correct answer; at the same time, participants were penalized if they first gave the correct answer but changed their mind and argued for an incorrect answer.

influence after controlling for trait dominance. The effect of trait dominance on influence in the group dropped to $\beta = .22$, $t(96) = 3.52$, $p < .01$, and $\beta = .29$, $t(96) = 3.69$, $p < .01$, respectively, after controlling for the group-rated task and social competence aggregates. Finally, using a Sobel (1982) test, we found that the indirect effects were significant for the group-rated task competence aggregate ($\beta = .24$), $t(97) = 3.37$, $p < .01$, and the group-rated social competence aggregate ($\beta = .17$), $t(97) = 2.99$, $p < .01$). Therefore, each variable partially mediated the relationship between trait dominance and influence in the group.

As in Study 1, we also examined the relative mediating strength of group-rated task and social competence. In this study, the two mediators were correlated at $r(66) = .44$, $p < .01$, and thus did not present the same multicollinearity problems as did the mediators in Study 1. The full analysis is displayed in Figure 3. In a simultaneous regression analysis, the mediated effects of both group-rated task competence, $t(97) = 10.15$, $p < .01$, and group-rated social competence, $t(97) = 5.14$, $p < .01$, were significant. The effect of trait dominance on influence in the group dropped to $\beta = .16$, $t(96) = 2.81$, $p < .01$. Sobel (1982) tests showed that the indirect effects were significant for the group-rated task competence aggregate, $t(97) = 3.33$, $p < .01$, and the group-rated social competence aggregate, $t(97) = 2.81$, $p < .01$. Thus, both group-rated task and social competence played a partially mediating role in the effects of trait dominance on influence in the group. This finding differs from Study 1, in which group-rated social competence seemed to play a stronger mediating role.

Did Trait Dominance Predict Being Perceived as Competent by Outside Observers?

Again, it was important to rule out the possibility that groups constructed positive perceptions of individuals higher in trait dominance to justify the influence hierarchies that had emerged (e.g., Lee & Ofshe, 1981). As in Study 1, we again examined whether outside observers' perceptions of dominant individuals' competence mediated the relation between trait dominance and influence in the group.

Following Leonardelli and Tormala (2003), we again entered both mediators into the equation simultaneously. This analysis is displayed in Figure 4. Using Sobel tests, we found that the indirect

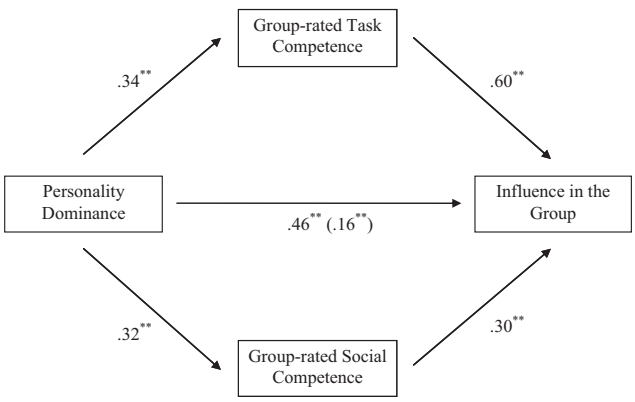

Figure 3. Mediation by group-rated task and social competence in Study 2. ** $p < .01$.

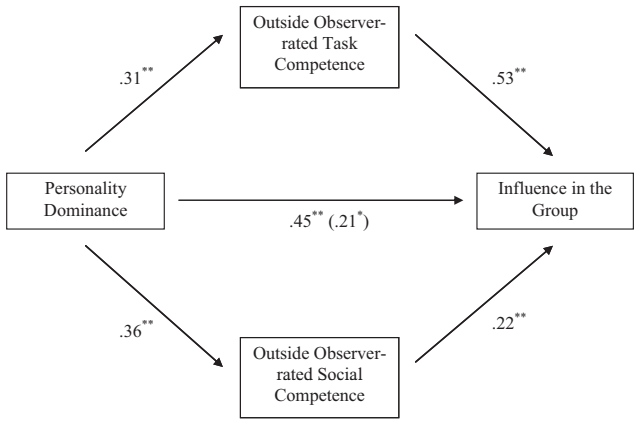

Figure 4. Mediation by outside observer-rated task and social competence in Study 2. * $p < .05$. ** $p < .01$.

effect for group-rated task competence remained significant when first controlling for group-rated social competence, $t(97) = 3.33$, $p < .01$, as did the indirect effect for group-rated social competence when controlling for group-rated task competence, $t(97) = 2.81$, $p < .01$. The effect of trait dominance on influence in the group dropped to $\beta = .18$, $t(64) = 2.67$, $p < .01$. These analyses suggest that the combined effects of group-rated task and social competence partially mediated the effect of trait dominance on influence in the group. They also suggest that both outside observer-rated task and social competence played a mediating role.

Did Individuals Higher in Trait Dominance Behave in Ways That Signaled Superior Quantitative Skills?

We next wanted to show more conclusively that individuals higher in trait dominance behaved in ways that signaled high quantitative skills to help rule out the possibility that even the outside observers' judgments of dominant individuals' competence were biased. As expected, trait dominance predicted putting forth more answers to problems, $r(98) = .23$, $p < .01$. This correlation was driven largely by the correlation between trait dominance and providing an answer before any other group member did, $r(98) = .27$, $p < .05$. In contrast, trait dominance did not predict putting forth an answer after someone else had already suggested one, $r(98) = .08$, *ns.* Trait dominance also predicted providing information relevant to the problem, $r(98) = .19$, $p < .05$, but it did not relate to the frequency of statements about low math abilities, $r(98) = .12$, *ns.*

Also as expected, being perceived by group members as having higher quantitative skills was predicted by providing more answers to problems, $r(98) = .58$, $p < .01$, providing first answers to problems, $r(98) = .57$, $p < .01$, and providing information relevant to problems, $r(98) = .48$, $p < .01$.

Finally, we conducted a mediation analysis to examine whether individuals high in trait dominance were perceived as having higher quantitative skills because they displayed more competence-related behaviors. We found in separate regression analyses that putting forth first answers ($\beta = .52$), $t(97) = 6.17$, $p < .01$, and providing problem-relevant information ($\beta = .44$), $t(97) = 5.02$, $p < .01$, each predicted peer-rated quantitative skills

after controlling for trait dominance. In Sobel (1982) tests, the indirect effect for putting forth first answers was significant ($\beta = .14$), $t(97) = 2.52$, $p < .01$, although the indirect effect for providing problem-relevant information only approached significance ($\beta = .08$), $t(97) = 1.75$, $p = .08$. So, these findings suggest dominant individuals indeed exhibited behaviors that signaled competence; it helps rule out the possibility that they were simply perceived as more competent due to motivated biases.

Did Trait Dominance Predict Peer Ratings of Competence Even When Controlling for Their Actual Competence?

Finally, we examined whether individuals high in trait dominance were perceived by their groups as more competent, even when controlling for their actual competence. Because we had objective measures of quantitative abilities, we focused specifically on perceptions of individuals' quantitative skills.

Focusing first on participants' SAT math scores, we first found that trait dominance did not correlate with their SAT math scores, $r(98) = .18$, *ns*, suggesting that trait dominance was unrelated to task competence. Furthermore, controlling for individuals' actual SAT math scores, trait dominance still predicted the group's perception of their math abilities, $r(94) = .28$, $p < .01$. Thus, trait dominance seemed to provide individuals with a boost in peer-rated competence above and beyond their actual competence.

Trait dominance was also unrelated to the accuracy of participants' answers in the group task, $r(87) = .06$, *ns*, in addition to the accuracy of the first answers they provided, $r(70) = -.05$, *ns*. Therefore, although individuals higher in trait dominance tended to provide more first answers and answers overall, their answers were no more accurate than those provided by other members.

Finally, controlling for the accuracy in individuals' answers in the group task, trait dominance still predicted the group's perception of their math abilities, $r(86) = .24$, $p < .05$. Thus, even when controlling for individuals' objective task performance, individuals high in personality dominance were perceived as having higher task competence.

Summary

As in Study 1, we found that the relation between trait dominance and influence in the group was partially mediated by group-rated competence, suggesting that more dominant individuals achieved influence in their groups because they were seen as more competent by fellow group members. Furthermore, perceptions of competence by outside observers also partially mediated the link between trait dominance and influence in the group. This suggests group members' perceptions were not biased distortions that were shaped by the motivation to justify the emergent hierarchy. Finally, these patterns held up even after controlling for objective indices of actual task skills. Therefore, dominant individuals achieved higher levels of influence in part because they acted in ways that caused them to be perceived as more competent, despite not actually being any more competent than their less dominant counterparts.

General Discussion

In two studies of face-to-face groups, we found that individuals higher in trait dominance attained influence in part because they were perceived as more competent by their fellow group members. Moreover, trait dominance predicted elevated peer perceptions of competence across two very different kinds of group tasks—one that involved creativity and analytical thinking (Study 1) and another that involved a set of math problems with definitive answers (Study 2). In fact, in Study 2 we found that individuals higher in trait dominance were perceived as more competent even when controlling for their actual competence, using two benchmarks of ability (standardized test scores and the accuracy of individuals' answers provided in the group task).

We also ruled out an important alternative explanation for these findings. Namely, it was possible that dominant individuals were perceived as more competent because of their achieved influence, rather than the other way around. Our studies ruled out this possibility in two ways. First, we found that outside independent observers rated dominant individuals as more competent, just as fellow group members did. This suggests that dominant individuals truly appeared competent—not that they achieved influence and in turn were seen as competent by group members. Second, using frequency counts of discrete behaviors, we found that dominant individuals exhibited more competence-signaling behaviors such as providing answers and problem-relevant information.

Implications

The present findings are important in part because they shed light on the personality trait dominance itself. It has been argued that the primary "function" of dominance is to establish control and influence in social settings (Gough, McClosky, & Meehl, 1951; Horowitz et al., 2006; Wiggins, 1979). That is, the behaviors associated with trait dominance first and foremost aim to achieve influence vis-à-vis others. In support of this contention, an abundance of studies have found strong correlations between trait dominance and social influence (for reviews, see Judge et al., 2002; Lord et al., 1986).

Exactly how dominant individuals attain social influence has never been fully explained, however. Our studies suggest that the term *dominance* could be somewhat misleading in this regard because it implies a more aggressive approach than dominant individuals might actually adopt in attaining influence. The term *dominance* implies behaviors such as bullying and intimidation, and indeed, some theorists have argued that dominant individuals do attain influence through these heavy-handed tactics (Lee & Ofshe, 1981; Mazur, 1985). Yet, we found that dominant individuals attained influence through a very different path, by displaying competence and signaling their value to the group. These findings suggest that dominant individuals may ascend group hierarchies by appearing helpful to the group's overall success as opposed to aggressively grabbing power. Indeed, it seems that dominance leads to influence at least in part because it entails more confident and initiative-taking behaviors, such as putting forth answers to problems before others do.

We do not wish to argue that the core feature of personality dominance is to send a misleading signal of competence to others. Rather, trait dominance might be best defined by its primary social outcome, the establishment of influence in interpersonal settings (Gough et al., 1951; Wiggins, 1979). Individuals higher in trait dominance are perhaps defined by their striving and attainment of control and power in dyads and face-to-face groups.

In contributing to researchers' understanding of trait dominance, the present research also helps solve another long-standing puzzle. Though functionalist theories of influence have received ample empirical support, one prominent and pervasive finding seemed to contradict the functionalist perspective. Namely, trait dominance consistently emerges as one of the strongest predictors of influence. By linking personality dominance to displays of competence, our findings confirm that perceptions of competence indeed lie at the heart of influence allocation processes in groups—groups do try to put the most competent people in charge. Thus, our findings lend further support to functionalist theories of group hierarchies.

However, our findings in Study 2 also suggest a potential byproduct of the link between perceptions of competence and influence: More assertive individuals might sometimes gain influence above and beyond what their actual competence warrants, and skilled members who are low in trait dominance might be unjustifiably ignored. Such a dynamic would likely hamper group productivity and performance, as it would fail to leverage the group's collective competences to the fullest. In short, although groups strive to construct functional hierarchies on the basis of competence, differences in trait dominance might hamper this goal.

The present work also extends research on competence perceptions, which has focused on factors that shape self- and peer perceptions of competence, intelligence, and abilities (e.g., Borkenau, Mauer, Riemann, Spinath, & Angleitner, 2004; Dunning, Meyerowitz, & Holzberg, 1989; Paulhus & Morgan, 1997; Todorov, Mandisodza, Goren, & Hall, 2005). That work has often addressed the accuracy with which individuals perceive their own and others' competence and the variables that affect the accuracy of such perceptions. Past work has discovered a number of variables that may shape perceptions of competence such as the target's age, gender, or physical attributes (Berger et al., 1972; Todorov et al., 2005). Our findings indicate that a target individual's personality traits, even those unrelated to competence, can also shape perceptions of competence. Indeed, it seems that certain personality traits (in this case, dominance) can distort perceptions of abilities and make it more difficult to detect who is more or less competent.

Strengths, Limitations, and Future Directions

The present research had a number of strengths. First, the data were extensive. We obtained 10 different sources of data for each participant in Study 1 (self-report, ratings by three other group members, three outside peer observers, and three research staff members), and 12 sources of data for each participant in Study 2 (by adding frequency counts and accuracy calculations from other outside coders). Second, we used two tasks that were quite different from each other, which helped increase the generalizability of results. Third, the data were collected in the controlled setting of the laboratory, allowing us to assemble groups of strangers who did not possess prior knowledge of each other's abilities, videotape group interactions, and use the social relations model (Kenny & La Voie, 1984) to construct precise measures of group member perceptions.

Collecting data within the laboratory, however, meant that there were also limitations that future research should address. For example, because we studied groups that worked together for a relatively short time, we do not know whether our effects would remain over longer durations. Would dominant individuals retain their influence in the long run, even if they lacked abilities related to the task? On one hand, some research shows that once hierarchies develop in groups, they are extremely stable over time (Anderson, John, Keltner, & Kring, 2001; Bell & French, 1950; Fiske & Cox, 1960; Kalma, 1991; Nelson & Berry, 1965). This is partly because individuals who are presumed to be more competent at the group task receive more chances to contribute and are more likely to put forth answers and ideas, whereas individuals lower in the hierarchy stay silent (e.g., Berger et al., 1972). Accordingly, dominant individuals might continue to behave in competence-signaling ways and retain their influence in the long run.

On the other hand, some findings suggest that when groups work closely together, influence becomes more closely tied to actual abilities. For example, one study of groups found that initially, shy individuals were perceived as less intelligent by fellow group members because they spoke less; however, over time shyness was unrelated to peer ratings of intelligence, and, instead, actual intelligence predicted peer-rated intelligence (Paulhus & Morgan, 1997). These findings suggest that dominant individuals may not continue to behave in ways that signal competence over time, but in fact might speak less and less. Thus, dominant individuals may eventually gain a place in the hierarchy more appropriate to their abilities.

On a related note, future research should examine whether the effects we observed hold up in real-world contexts such as organizational teams, where the stakes are higher. In such settings, dominant individuals might be more motivated to defer to those who actually have high levels of competence because their own job performance may depend on their whole team's success. Less dominant individuals might similarly be more motivated and thus less likely to defer to others when they possess high task competence. It is possible, therefore, that trait dominance will not lead to the same competence-signaling behavior in such contexts. However, research suggests that trait dominance does lead to influence even in real-world groups where the stakes are high (Judge et al., 2002). Therefore, dominant individuals might not defer to others, even when others possess abilities superior to their own.

Furthermore, although we focused on small face-to-face group settings, future research should examine the effects of trait dominance on influence in larger, more complex social systems, such as work organizations. In organizations, influence is determined by a host of factors, including one's position of authority and the prestige of one's subunit (Perrow, 1970). Thus, the effects of trait dominance might be attenuated; however, this remains an interesting question for future research. Recent research also found that individuals' influence is partly determined by the fit between their personality traits and their organization's culture (Anderson, Spataro, & Flynn, 2008), suggesting that trait dominance might have differing affects in different organizations.

Finally, how might trait dominance affect the influence of political leaders? Of course, defining the "influence" of leaders such as elected officials is much more complicated than defining the influence of individuals in small face-to-face groups. For example, one must specify the constituents the leader is trying to influence. The influence a U.S. President has over his cabinet is distinct from the influence he wields over his nation's citizens,

which in turn is distinct from the influence he has vis-à-vis other heads of state. As such, the effects of trait dominance might depend on the constituents under consideration. Furthermore, even when just considering a politician's influence over his or her electorate, trait dominance might help attain influence only among citizens who share the same political ideology.

Conclusion

Trait dominance is one of the strongest predictors of influence in face-to-face settings. Why this is so has long been a mystery because individuals gain influence primarily by exhibiting competence. We found that dominant individuals behaved in ways that made them appear competent to others, above and beyond their actual competence levels. In turn, this apparent competence helped them ascend social hierarchies.

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