

A social-functional account of overconfidence

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Abstract

In explaining why overconfidence pervades self-judgment, prior work has pointed to limitations in human cognition or the desire to maintain high self-esteem. A third possible explanation is that overconfidence provides adaptive social benefits. We examined this *social-functional* account by testing whether overconfidence along a given ability dimension leads to higher peer-perceptions of ability and elevated social status. Three studies of task-focused dyads and groups in laboratory and field settings found support for these hypotheses. Further, an experimental manipulation established the causal priority of overconfidence, and a longitudinal study found that the effects of overconfidence endured over time. This research contributes to our understanding of overconfidence, status distribution systems in groups, and the psychology of status.

Keywords: overconfidence, self-perception, status, power, groups, person-perception

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The pervasiveness of overconfidence is somewhat puzzling. Individuals very often believe they are more talented and competent than they actually are (for reviews, see Alicke & Govorun, 2005; Dunning, Heath, & Suls, 2004). For example, individuals have been shown to overestimate their occupational abilities (Haun, Zeringue, Leach, & Foley, 2000), social skills (Swann & Gill, 1997), and physical talents (Dunning, Meyerowitz, & Holzberg, 1989; for exceptions, see Kruger & Burrus, 2004; Moore & Small, 2007).

Yet as many scholars have pointed out, accurately perceiving one's abilities would seem more advantageous than possessing inaccurate, overly positive self-views (e.g., Alicke, 1985; Dunning et al., 2004; Larrick, Burson, & Soll, 2007). For example, recognizing one's limitations would help people set more realistic goals (Ehrlinger & Dunning, 2003), avoid overly risky ventures (Camerer & Lovallo, 1999), and select strategies that facilitate success (Neale & Bazerman, 1985).

Why then would individuals form overly positive judgments of their abilities? Two explanations have commonly been offered. First, people might simply be unable to accurately assess their own competence. For example, people make errors when accounting past successes and failures (Miller & Ross, 1975), are unable to recognize their own weaknesses or actual performance levels (Kruger & Dunning, 1999; Moore & Healy, 2008), and use favorable standards when assessing the self (Dunning et al., 1989). Second, individuals might be motivated to be overconfident because of its psychological benefits. For example, overconfidence can improve self-esteem (Alicke, 1985), mental health (Taylor & Brown, 1988), and task motivation and persistence (Waldman, 1994).

A third possible explanation, which has received less attention, is that overconfidence pervades self-judgments because it provides the individual social benefits. In particular, humans might have developed the tendency for self-favoring biases because of the advantages such biases provide individuals vis-à-vis their social environment (Alexander, 1987; Krebs & Denton, 1997; Leary, 2007; Trivers, 1985; Waldham, 1994).

This *social-functional* account suggests that overconfidence might help individuals appear more competent to others, and consequently lead to social rewards such as increased status in social groups. Status is the respect, prominence, and influence individuals enjoy in the eyes of others (Anderson, John, Keltner, & Kring, 2001; Berger, Cohen, & Zelditch, 1972; Goldhamer & Shils, 1939). Higher status comes with more autonomy, control over group decisions, access to scarce resources, social support, and better reproductive success (Berger et al., 1972; Blau, 1964; Ellis, 1994; Keltner, Gruenfeld, & Anderson, 2003; Savin-Williams, 1979).

Little research has examined the social-functional perspective of overconfidence. For example, studies have not directly tested its core hypotheses – that overconfidence on a given dimension leads to higher peer-perceptions on that dimension, and to the associated social benefits. The current research thus aimed to serve as a first step in filling this lacuna. Specifically, we tested the hypotheses that overconfidence in one’s abilities can lead to higher peer-ratings of abilities and increased social status in task groups.

Defining and Conceptualizing Overconfidence

Broadly speaking, overconfidence can be construed as the possession of inaccurate, overly positive perceptions of one's abilities (for a review, see Moore & Healy, 2008). Overconfidence has been measured by comparing individuals' self-perceptions of ability to objective, operational criteria such as task performance and test scores (e.g., Krueger & Mueller, 2002; Kruger & Dunning, 1999; Larrick et al., 2007; Moore & Healy, 2008). Individuals are overconfident when they believe they are better than objective measures indicate.

Overconfidence can thus be distinguished from self-presentation or impression management, which involve deliberate attempts to present oneself in a more positive light (Baumeister, 1982; Goffman, 1959; Leary & Kowalski, 1990). Self-presentation and impression management can involve behaviors that are consciously enacted. In contrast, overconfidence is construed as genuine, unintentionally flawed perceptions about one's own abilities. For example, individuals are overconfident when they genuinely believe they rank in the 90th percentile in ability even when they actually rank in the 30th.

The Social Benefits of Overconfidence

How might overconfidence lead to higher peer-ratings of competence and increased social status? Individuals' competence resides within them and is hidden from observers. People are thus often forced to judge others' abilities based on superficial cues such as each person's nonverbal behavior, attire, or style of speaking. For example, individuals are perceived as more competent when they appear more confident in their opinions, exhibit more comfort with a task, speak in a louder voice, and use more emphatic gestures when talking (Anderson & Kilduff,

2009; Carli, LaFleur, & Loeber, 1995; Driskell, Olmstead, & Salas, 1993; Imada & Hakel, 1977; Reynolds & Gifford, 2001; Ridgeway, 1987). A recent study found that individuals higher in personality dominance, who displayed more of these “competence cues,” were perceived by others as more competent – even though they were not in fact more competent (Anderson & Kilduff, 2009).

According to social-functional theorists, overconfidence should lead individuals to display more competence cues (Alexander, 1987; Leary, 2007; Trivers, 1985). Indeed, prior research has shown that self-perceptions are a powerful driver of social behavior (e.g., Swann, 2005), and self-perceived abilities can determine one’s behavior above and beyond one’s actual abilities (Bugental & Lewis, 1999; Campbell, Goodie, & Foster, 2004; McNulty & Swann, 1994). This suggests that when individuals perceive themselves as highly competent – even if they lack competence – they are likely to exhibit more behaviors that signal competence to others. Therefore, in situations where there is ambiguity in competence, overconfident individuals should be perceived as more competent by others, compared to individuals with more accurate self-perceptions of competence.

Although the characteristics that can lead to higher status are multifaceted, a primary and consistent predictor of status in groups is perceived competence (e.g., Berger et al., 1972; Driskell & Mullen, 1990; Lord, De Vader, & Alliger, 1986). In general, groups give higher status to individuals who exhibit abilities that will help the group succeed (Berger et al., 1972; Goldhamer & Shils, 1939; Eibl-Eibesfeldt, 1989; Emerson, 1962). Because competent individuals can provide important contributions to the group’s success, they are given higher status.

In sum, based on the social-functional perspective, we hypothesized that overconfident individuals would be more likely to achieve higher status in groups than individuals with accurate self-perceptions of ability, partly because they would be perceived by others as more competent. That is, the relation between overconfidence and status would be mediated by peer-ratings of ability.

Prior Research

Although an abundance of research has examined the consequences of overconfidence and of overly positive perceptions more generally, studies have not directly tested these hypotheses. The literature on overconfidence has focused largely on mistakes in decision-making and their implications for performance or economic outcomes (Camerer & Lovallo 1999; Malmendier & Tate 2005; Odean, 1998; Odean 1999). For example, it has been shown that overconfidence can lead individuals to take on challenges beyond their ability and make worse economic decisions (Barber & Odean, 2000; Cheng 2007; Camerer & Lovallo, 1999; Koellinger et al., 2007; Malmendier & Tate, 2008). Little research on overconfidence has addressed interpersonal consequences such as status.

The related tradition on *positive illusions* has examined social consequences of positive self-perceptions. Work in that tradition has typically compared individuals' self-perceptions to their perceptions of others. Individuals possess overly positive views if they believe they are better than others (e.g., Bonanno, Field, Kovacevic, Kaltman, 2002; Taylor & Brown, 1988; Taylor, Lerner, Sherman, Sage, & McDowell, 2003). However, those studies have not often distinguished inaccurate, overly positive self-perceptions from those that are justifiably positive (cf. Kwan,

John, Kenny, Bond, & Robbins, 2004; Taylor et al., 2003). Therefore, people in those studies who believed they were better than others might have been in fact better than others. It is critical to assess whether *inaccurate* self-perceptions *per se* lead to those benefits.

Research on *self-enhancement* has typically compared individuals' self-perceptions to others' perceptions of them. Individuals whose self-perceptions are loftier than how others perceive them are considered to possess overly positive self-views (e.g., Anderson, Srivastava, Beer, Spataro, & Chatman, 2006; Colvin, Block, & Funder, 1995; John & Robins, 1994; Paulhus, 1998; Robins & Beer, 2001). Yet those studies addressed a different phenomenon than the one in which we are interested. Namely, they focused on the consequences of possessing self-perceptions that are more positive than *others' impressions*. In contrast, we are interested in the impact of inaccurate, overly positive self-perceptions of ability.

To test our hypotheses, an ideal measure of overconfidence would compare self-perceptions to an operational criterion – that is, an unambiguous, concrete index of ability. For example, an ideal measure of task ability would involve test scores, and an ideal measure of scholastic ability would involve grades (cf. Paulhus, Harms, Bruce, & Lysy, 2003). Using operational criteria would directly assess the accuracy of self-perceptions of competence. It would also help avoid some of the complications of using peer-ratings as both a benchmark of reality and as a dependent variable, such as the possibility of spurious correlations driven by common method variance (see Zuckerman & Knee, 1996).

Overview of Studies

We measured the three constructs of interest – overconfidence, peer-perceived competence, and status – using widely used, well-validated methods from prior research. Consistent with the overconfidence literature, we measured overconfidence by comparing individuals’ self-perceived ability to operational indices of their actual ability (e.g., Ackerman, Beier, & Bowen, 2002; Ames & Kammrath, 2004; Jones, Panda, & Desbiens, 2008; Krueger & Mueller, 2002; Kruger & Dunning, 1999; Larrick, Burson, & Soll, 2007; Moore & Healy, 2008). Consistent with the status literature, we first had individuals interact in dyads or groups and then collected peer-ratings of each other’s competence and status after they interacted (e.g., Anderson & Kilduff, 2009; Berger et al., 1972; Driskell & Mullen, 1990).

We conducted three studies using task dyads and groups. In each study, before participants interacted, we measured individuals’ self-perceived abilities as well as actual abilities. We focused specifically on task competence. Within task groups, task competence is a key determinant of status (for a review, see Driskell & Mullen, 1990). Moreover, task ability can be measured more unambiguously than other competences such as social skills, which are much more difficult and problematic to assess (cf. DePaulo & Friedman, 1998). In each study, we collected peer-assessments of task competence and status after the dyadic or group interaction.

In Study 1, we examined dyads that worked together in a laboratory person-perception task. In Study 2, we used an experimental design in which we manipulated individuals’ overconfidence levels to establish the causal priority of

overconfidence. In Study 3, we longitudinally examined project teams that met for 15 weeks to test whether the status benefits of overconfidence endure over time.

Study 1

Based on prior research, we used a person-perception task in which participants judged individual targets' personality traits from photographs (e.g., Aronson & Carlsmith, 1962; Mussweiler, Gabriel, & Bodenhausen, 2000). Person-perception tasks allow for the unambiguous measure of ability and its differentiation from self-perceived ability (Ames & Kammrath, 2004; Bernieri, Zuckerman, Koestner, & Rosenthal, 1994; Ickes, 1993; Levenson & Ruef, 1992; Realo et al., 2003; Swann & Gill, 1997). Thus we measured overconfidence by having participants individually judge a set of targets' personality traits and then estimate their own performance on the task. We compared participants' self-perceived ability to their actual ability.

In the second phase of the study, we randomly paired participants into dyads where they worked on a similar person-perception task together. After the dyads judged all targets, we separated them and had them privately rate each other's task competence and status in the dyad.

We predicted that overconfident participants (as measured in the individual task) would be perceived as more competent by their partner in the dyadic task, and would consequently be afforded higher status, as compared to participants with accurate self-perceptions of ability.

Method

Participants. Participants were 104 undergraduate students at a West Coast university (40.6 percent men and 59.4 percent women), who were divided into 52 dyads. They received partial fulfillment of course credit for participating. The participants were 22 years old on average ($SD = 2.8$); 3 percent were African-American, 71 percent Asian-American, 13 percent Caucasian, 4 percent Hispanic/Latino, and 9 percent who reported “other.”

Procedure. All sessions were conducted in the laboratory. There were three phases to each laboratory session. In the first phase, the *overconfidence measurement*, participants were seated at their own individual workstations to work on a “social perception task.” To increase participants’ motivation, we told them that the task assessed social intelligence, which is critical to their career success (for a similar motivation induction, see Aronson & Carlsmith, 1962). Participants were presented, via computer, still images of 10 individuals.¹ Participants rated each individual target’s personality traits on 10 items from the Ten Item Personality Inventory (Gosling, Rentfrow, & Swann, 2003). After rating each target, participants estimated their own ability in accurately judging that target. Participants were never told their actual rank.

In the second phase of the study, the *dyadic task*, participants were randomly paired into dyads and completed a similar “social perception task” together. Each dyad was asked to reach consensus on their judgments of five target individual targets’ personality traits. Because more than two participants were typically scheduled for each laboratory session, we were always able to pair participants who were unacquainted with each other.

In the third phase of the study, dyad partners were separated and completed various *peer-ratings* privately. In this phase participants rated their partner's task abilities as well as status in the dyad.

Overconfidence measure. Prior research has distinguished different forms of overconfidence (Larrick, Burson, & Soll, 2007; Moore & Healy, 2008). For example, *overestimation* involves overestimating one's absolute level of ability or performance. Overestimation occurs when individuals believe they answered 10 items correctly, for example, when in fact they answered two correctly.

Overplacement involves overestimating one's rank in ability relative to others. Overplacement occurs when individuals believe they rank highest in performance among their classmates when they actually rank in the 30th percentile, for example.

In the context of status hierarchies in groups, overplacement is the most relevant form of overconfidence. Status in groups is contextually defined, based on individuals' perceived abilities relative to other group members, rather than on their absolute level of performance (Berger et al., 1972). For example, a high-performing individual would likely have low status on a team of individuals who are perceived to perform even better than him or her. Therefore, we focused on overplacement. In a sense, measures of overplacement are similar to measures of overly positive self-perceptions used in the positive illusions literature (e.g., Taylor & Brown, 1988), which focused on whether individuals believe that they are better than others. However, measures of overplacement go further and test the validity of these positive self-perceptions, by assessing whether individuals actually rank higher than others in their relative abilities.

During the individual task in the first phase of the study, after participants individually rated each target, they were asked to estimate their percentile rank relative to the other students at their university (where 90th percentile meant their answers were near the top ranking). Based on Swann and Gill (1997), participants were told that each answer was considered accurate if it was within .5 above or below the target's true score.² Their estimates of their percentile rank in abilities were reliable across the 10 targets they rated ($\alpha = .94$). Therefore, some participants reliably perceived themselves as higher performing than others. These estimates of percentile rank were combined to form an overall measure of self-perceived rank ($M = 58.22, SD = 13.99$).

We scored participants' actual performance on the task using the method described to them. The average number of items answered correctly was 16.87 ($SD = 5.66$). Participants showed reliability in their performance relative to others across the 10 targets, $\alpha = .67$, indicating that some participants performed reliably higher than others. We thus combined their scores across the targets to form an overall index of actual ability. We then transformed their performance scores into percentile rankings, which reflected where they actually ranked relative to other subjects. This allowed us to measure *overplacement* by comparing their self-perceived rank to their actual rank. It is worth noting that, consistent with prior research that has found weak correlations between self-perceived percentile rank and actual percentile rank, self-perceived rank and actual rank did not correlate here either, $r(102) = -.07, n.s.$ (e.g., see Ames & Kammrath, 2004; Burson, Larrick, &

Klayman, 2006; Ehrlinger & Dunning, 2003; Krueger & Mueller, 2002; Kruger & Dunning, 1999; Larrick et al., 2007; Moore, 2007).

Given the problems inherent in using difference scores (Edwards, 1994), we measured overconfidence with a regression residual technique (Bonanno et al., 2002; John & Robins, 1994; Paulhus, 1998). Specifically, we regressed participants' self-perceived rank on their actual rank, and then retained the standardized residual. The residual score represents the variance in self-perceived rank after the variance predicted by actual rank has been removed.³

Partner-rated task competence measure. In the peer-ratings phase, participants first estimated their partner's competence on the task using the same percentile-rank scale they used to assess their own ability. To increase the reliability of this peer-rating, participants also rated their partner using three items from the Mind-Reading Belief Scale (Realo et al., 2003): "A stranger's character is revealed to my partner at first sight," "It is hard for my partner to tell a person's thoughts by their looks," and "I do not think my partner is good at knowing human nature / judging people." These three items were rated on a scale from 1 ("*Disagree strongly*") to 7 ("*Agree strongly*"). After standardizing all four items and reverse-scoring the latter two, they correlated together ($\alpha = .73$) and were combined into a measure of partner-rated task competence, $M = .00$, $SD = .74$.

Status measure. Partners then rated each other's status in the dyad. Previous research (e.g., Bales, Strodtbeck, Mills, & Roseborough, 1951; Cohen & Zhou, 1991), and theoretical conceptions of status (e.g., Berger et al., 1972) have identified status in groups as involving respect, influence, leadership, and

contributions. Therefore, on four items, dyad partners rated each other on how much their partner earned their respect and admiration, had influence over the decisions, led the decision-making process, and contributed to the decisions. Each of these four items was rated on a scale from 1 (*Disagree strongly*) to 7 (*Agree strongly*). These four items correlated together ($\alpha = .71$) and were thus combined into one measure of status, $M = 4.36$, $SD = .83$.

Results and Discussion

Data collected in dyads can violate assumptions of independence. Therefore, we tested our hypotheses using a statistical technique outlined by Gonzalez and Griffin (1997), which involves calculating the correlation between the variables and translating the correlation into a z-score that accounts for the dependence in the data.

Overconfidence predicted peer-ratings of competence, $r(101) = .42$ ($z = 4.29$, $p < .01$). Therefore, overconfident individuals were perceived by their partner as more competent than were individuals with accurate self-perceptions of ability. To illustrate the magnitude of this effect in an intuitive way, we examined the relation between overconfidence and partners' ratings on the percentile rank measure of competence only. The regression coefficient was $B = .36$, $SE = .09$ ($p < .01$), suggesting that if individuals overestimated their percentile rank by three percentile points, their partner viewed them as scoring more than a full percentile point higher.

Overconfidence also predicted status in the dyad, $r(101) = .21$ ($z = 2.14$, $p < .05$). Therefore, overconfident individuals achieved more status in the dyad than

individuals with accurate self-perceptions of ability. We next examined whether the relation between overconfidence and status was mediated by partners' ratings of competence. This mediation effect is illustrated in Figure 1. Controlling for overconfidence, partners' ratings of competence predicted participants' status, $r(101) = .43$ ($z = 4.47, p < .01$), whereas the relation between overconfidence and status was reduced almost to zero (.02) after controlling for partner-rated competence ($z = .22, n.s.$). This suggests that the relation between overconfidence and status in the dyad was fully mediated by partner-ratings of competence.

Finally, along an exploratory vein, we examined whether overconfidence interacted with actual ability in predicting peer-perceived competence and attained status. For example, did individuals need to possess at least a moderate level of actual ability for overconfidence to serve any social benefits? We predicted two separate regressions predicting status and peer-rated competence as criteria, with self-perceived ability, actual ability, and their interaction as predictors. However, the interactions were not significant, $B = -.06$ ($SE = .08$ *n.s.*) and $B = -.04$ ($SE = .07$ *n.s.*) when predicting status and peer-perceived competence, respectively. Therefore, the benefits of overconfidence extended to all levels of actual ability.

In sum, overconfident individuals were perceived by their partner as more competent than were individuals with more accurate self-perceptions of ability. Further, this boost in peer-perceived competence predicted attaining higher status in the joint task.

Study 2

In testing whether overconfidence leads to attaining higher status, ideally one would establish the causal effects of overconfidence through experimental designs. One way to do so would be to present participants with vignettes of individuals who exhibit accuracy or overconfidence in their self-perceived abilities; such designs allow for tight control over the experimental stimuli. However, methods such as vignettes also suffer from lower external validity, and might fail to adequately test whether individuals who were made to be overconfident enjoy improved peer-perceptions and higher status.

Therefore, in Study 2, we aimed to manipulate overconfidence in actual individuals before they interacted on a joint task. To do so, we provided randomly selected participants with information that would allow them to believe that they were more competent than they actually were. We reasoned that the most direct way of doing so would be to provide those participants with false, overly positive feedback about their task abilities. Previous research has used similar false feedback manipulations to induce a more positive self-concept (e.g., Harmon-Jones et al., 1997). Though much of that work provided broader self-relevant feedback about general personality traits and focused on the effects on self-esteem, we provided more specific feedback about abilities on a specific task in the hopes of influencing overconfidence on that task only. Accordingly, we used very similar methods to those in Study 1, but this time gave randomly selected participants overly positive performance feedback and gave others accurate performance feedback. We also measured self-esteem to ensure we did not inadvertently manipulate self-esteem more generally.

Method

Participants. Participants were 80 undergraduate students (47.5 percent men and 52.5 percent women) at a West Coast university who received course credit. The participants were 21 years old on average ($SD = 1.0$); 70 percent were Asian-American, 20 percent Caucasian, and 10 percent who reported “other.”

Procedure and design. The procedure was very similar to that in Study 1. The laboratory sessions again involved three phases: an individual person-perception task in which participants individually rated 10 targets’ personality traits (the same targets used in Study 1), a dyadic person-perception task in which pairs of participants rated five targets’ traits together (the same targets used in Study 1), and a final phase in which participants completed a set of peer-ratings in which they rated their partner’s task competence and then status in the dyad.

A critical difference from Study 1 was an experimental manipulation of overconfidence administered halfway through the individual task. After judging the first five targets, randomly selected participants received overly positive feedback about their performance up to that point (i.e., those in the *overconfident* condition), whereas others received accurate performance feedback (i.e., those in the *accurate* condition). We administered this feedback halfway through the individual task so we could check its effectiveness in manipulating overconfidence on the remainder of the individual task. We expected that after the feedback was given, participants in the *overconfident* condition would exhibit higher levels of overconfidence than participants in the *accurate* condition.

In the second phase, the dyadic task, we paired participants in the *accurate* condition with participants in the *overconfident* condition. We expected participants in the overconfident condition to be perceived as more competent than participants in the accurate condition and thus achieve higher status in the dyad.

Overconfidence manipulation. Because we were focused specifically on the overplacement form of overconfidence, at first glance, the most appropriate way to manipulate overconfidence would be to provide participants with overly positive feedback on their percentile rankings. However, doing so would have meant providing some participants in the *overconfident* condition overly negative, rather than overly positive, feedback. For example, telling participants in the *overconfident* condition that they scored in the 95th percentile would require providing overly negative feedback to individuals who actually ranked in the 97th percentile. To avoid this problem we conducted pilot tests to examine whether providing participants with feedback about their absolute performance scores would also manipulate their overplacement. These pilot tests showed that such a method was effective, so we used it in Study 2.

Specifically, participants in the *overconfident* condition were told that they answered 37 out of 50 responses correctly on the first five targets (we described our scoring technique the same way as in Study 1). No participant in Study 1 answered more than 26 ratings correctly out of the first 50, so 37 seemed an unattainable yet plausible score. In the *accurate* condition, participants were told the actual number of items they answered correctly for the first five targets, which on average was 8.8 out of 50 ($SD = 3.03$). A suspicion check at the end of the study

showed that no participant in either condition suspected the performance feedback to be false. Further, following the study, participants were debriefed regarding the false performance feedback.

To ensure that participants in both conditions interpreted their scores using the same metric, we also provided all participants with an intuitive translation of their scores. For example, we told them that 8 correct answers was performing “as well as chance (the same as guessing randomly),” and that 32 correct answers was performing “extremely well.” To avoid the possibility that dyad partners would simply exchange their feedback scores, participants were instructed not to share their scores with their partner. An experimenter was present while dyads worked together to ensure no partners exchanged this information.

Self-perceived and actual competence rankings measures. As in Study 1, in the individual task, participants estimated their percentile rank in performance in terms of their ability to judge each target’s personality relative to other students at their university. Before participants were given performance feedback, across the first five targets, their estimates of their own abilities relative to other students were reliable ($\alpha = .93$), and were thus combined into one aggregate *pre-feedback self-perceived ranking* measure. After they were given the performance feedback, across the second set of five targets, participants’ estimates of their rank in abilities relative to others were again reliable ($\alpha = .96$), and were thus combined into one aggregate *post-feedback self-perceived ranking* measure. Participants’ actual percentile rank in performance was measured the same way as in Study 1.

Participants again showed reliability in their actual accuracy across targets, $\alpha = .70$.

Therefore, once again some participants were reliably better at the person-perception task than others.

Partner-rated task competence measure. In the peer-ratings phase, participants first rated their partner's task competence with the same four items used in Study 1. After standardizing all items and reverse-scoring negatively worded ones, the items showed satisfactory internal consistency ($\alpha = .63$) and were combined into one measure of *partner-rated task competence*.

Status in the dyad. Participants then rated their partner's status in the dyad with the same four items as in Study 1. The item measuring respect and admiration had a low item-total correlation (.13) and was excluded from the measure. The remaining three items showed sufficient reliability ($\alpha = .62$) and were thus combined into one measure of status in the dyad.

State self-esteem measure. One concern about our experimental manipulation was that it might induce differences in self-esteem rather than in overconfidence per se, as prior studies have shown that providing individuals with positive feedback about the self can boost self-esteem (e.g., Harmon-Jones et al., 1997). Therefore, any effects of the manipulation might be due to self-esteem rather than to overconfidence. To alleviate this concern, we measured state self-esteem in the peer-ratings phase using Heatherton and Polivy's (1991) 20-item measure ($\alpha = .87$).

Results and Discussion

Manipulation checks. As expected, before the performance feedback was administered, self-perceived rankings in competence did not differ between

participants in the *overconfident* condition ($M = 61.61, SD = 14.84$) and in the *accurate* condition ($M = 61.23, SD = 14.76$), $F(1, 39) = .02, n.s.$ This reassured us participants did not differ in overconfidence across conditions simply by chance, before the feedback was administered.

However, after the feedback was administered, participants in the *overconfident* condition had higher self-perceptions of their competence ranking relative to others ($M = 62.82, SD = 15.82$) than did participants in the *accurate* condition ($M = 57.14, SD = 15.25$), $F(1, 39) = 3.92, p = .05$. Further, participants in the *overconfident* condition overestimated their rank in competence, $F(1,39) = 17.37, p < .01$, whereas participants in the *accurate* condition did not, $F(1,39) = 1.70, n.s.$ This suggests the feedback manipulation was effective.

Finally, we tested whether the manipulation inadvertently induced self-esteem in addition to overconfidence. This analysis showed that participants in the *overconfident* condition ($M = 3.76, SD = .58$) did not have higher state self-esteem than participants in the *accurate* condition ($M = 3.76, SD = .49$), $F(1, 39) = .00, n.s.$ Thus, the manipulation had a more targeted effect on overconfidence and did not have broader effects on self-esteem.

Hypotheses tests. Participants in the *overconfident* condition were perceived by their partners as more competent at the task ($M = .23, SD = .63$) than were participants in the *accurate* condition ($M = -.25, SD = .68$), $F(1,39) = 13.20, p < .01$. Therefore, this provides evidence that overconfidence led to being perceived as more task competent. This effect is shown in Figure 2.

Participants in the *overconfident* condition ($M = 4.74, SD = .85$) also attained higher status in the dyad than participants in the *accurate* condition ($M = 4.10, SD = .88$), $F(1, 39) = 7.80, p < .01$. Therefore, this provides evidence that overconfidence also led to achieving higher status. This effect is illustrated in Figure 3. We next examined whether partner-rated ability mediated the effect of overconfidence on status. According to Judd, Kenny, and McClelland (2001), to establish mediation in a repeated measures design, one calculates whether the experimental manipulation affected both the dependent variable and proposed mediator, which we have already done. One then calculates difference scores for the dependent variable and the proposed mediator across the two experimental conditions, and calculates a summed score for the proposed mediator across the two conditions; this summed score is then centered. One then predicts the dependent variable difference scores with the mediator difference scores and the mediator summed (and centered) scores.

The regression coefficient of the difference score for the mediator was significant ($B = .44, SE = .26, \beta = .26, p = .05$), which indicates partner-rated competence mediated the effect of overconfidence on status. The intercept was also significant ($B = -.43, SE = .26, p = .05$), indicating the effect of overconfidence on status was still significant, controlling for the mediating effect of partner-rated competence (Judd et al., 2001). Therefore, this suggests overconfidence led to status in part because it led to being perceived as more competent.

Finally, as in Study 1, we again explored whether overconfidence interacted with actual ability in predicting peer-perceived competence and attained status. We

conducted two mixed-within ANOVA's predicting peer-rated competence and status, with experimental condition and actual ability as predictors. However, none of the interactions approached significance, all F 's < 1.7. Therefore, the benefits of overconfidence extended to all levels of ability, just as in Study 1.

In sum, overconfident individuals were perceived as more task competent and achieved higher status than individuals with more accurate self-perceptions of ability. Critically, Study 2 used an experimental design and thus provided more direct evidence that overconfidence led to higher peer-perceptions of competence, and in turn, higher status. A mediation analysis confirmed that the effect of overconfidence on status was partially mediated by peer-perceived ability.

Study 3

We extended the findings from Studies 1 and 2 in four important ways. First, some theorists have suggested that the interpersonal benefits of overly positive self-perceptions might fade over time as individuals get to know each other better (Colvin et al., 1995). Indeed, Paulhus (1998) found that narcissistic individuals, and those who perceived themselves more positively than close acquaintances did, were perceived as high performers in groups initially, but that this effect eroded over time.

However, as Paulhus (1998) also points out, the waning benefits of narcissism he observed might have been due to specific aspects of narcissism, rather than to overly positive self-perceptions per se: "Narcissists have an interpersonal style characterized by a competitive and domineering social presence (Morf & Rhodewalt, 1993), which may be increasingly offensive over time" (p. 1201).

Therefore, narcissists might have been viewed less positively over time because they behaved in a highly domineering or condescending way, not necessarily because they were objectively overconfident in their abilities. In Study 3, we tested whether the effects of overconfidence on status endure over time by assessing student project teams that met over 15 weeks.

Second, by studying student project teams we focused on a task setting in which individuals' abilities might be less ambiguous than in the previous studies. In Studies 1 and 2, it was difficult for participants to accurately assess each other's actual abilities, which might have allowed for the effects of overconfidence to be stronger. However, in student project teams, academic ability is likely a key competence and source of status. Furthermore, academic ability is likely less ambiguous than person-perception ability. We therefore tested whether individuals overconfident in their academic ability would be seen as being more academically able by others and have higher status in student teams.

Third, the use of groups rather than dyads also served as a more conservative test of our hypotheses. As opposed to dyads, in groups, coalitions can form and resist individuals who unfairly try to claim higher status (Keltner et al., 2008). Therefore, Ridgeway (1984) has argued that status is based more on actual competence in groups than it is in dyads.

Finally, because we returned to a correlational design as we had used in Study 1, we aimed to address a possible alternative explanation for our findings in Study 1 – that positive emotion acted as a third variable and drove the results. In Study 1, individuals with higher levels of dispositional positive affect might have

been more overconfident (Lerner & Keltner, 2001), and more likely to attain status (Stogdill, 1948). To address this possibility, in Study 3 we measured participants' positive affect and controlled for it in hypothesis tests.

Method

Participants. Participants were 111 undergraduate students in an introductory business course at a West Coast university (46.8 percent men and 53.2 percent women) Participants were 22 years old on average ($SD = 1.6$); 51 percent Asian-American, 32 percent Caucasian, 5 percent Hispanic/Latino, 3 percent Middle Eastern, 3 percent Native American, and 6 percent who reported "other."

Procedure. The data were collected as part of a semester-long team project. At the beginning of the semester, students completed an on-line survey, in which we measured overconfidence. They were randomly assigned to project teams of 4-5 people. Each team conducted a study of a real-life organization, reported their findings in a coauthored paper and presentation. After the projects were completed, students rated their team members on various attributes via an on-line survey. To encourage honest ratings, students were told that their ratings of teammates would remain anonymous, and that their teammates would be provided only with aggregate feedback from their fellow team members as part of their course learning.

Overconfidence measure. At the beginning of the semester, participants completed Taylor and Gollwitzer's (1995) index of overly positive self-perceptions, the "How I See Myself" measure (HSM). Consistent with our focus on overplacement, the HSM asks participants to indicate whether they rank above or below other students at their university on various qualities and skills using a 1 to 7 scale (see

Taylor & Gollwitzer, 1995). We focused on items that related to academic ability, specifically: academically able, intellectually self-confident, and ability to obtain personal goals. These items showed high internal consistency ($\alpha = .87$) and were thus combined to yield an overall measure of self-perceived academic competence relative to other students, ($M = 5.67, SD = 1.09$).

As suggested by prior researchers (Paulhus et al., 2003) we used overall grade point average (GPA), $M = 3.54 (SD = .29)$ as an index of actual overall academic ability. We transformed participants' GPA into percentile rankings to reflect where they ranked relative to others. We again derived an overconfidence measure the same way as in Studies 1 and 2, by regressing self-perceived competence ranking on actual competence ranking, and retained the standardized residual.

Peer-rated competence measure. After the group project was completed, participants rated each of their team members on six dimensions related to task ability: the same three items from the HSM on which participants rated themselves, whether the participant possessed expertise that was important to the group task, had unique skills and abilities to add, and had unique resources to contribute. We used the software program SOREMO (Kenny, 1994) to implement a social relations model analysis of these round-robin ratings. SOREMO calculated a *target score* for each participant on each competence dimension, which reflects how the participant was perceived by other team members on average. SOREMO also removed group differences, making target scores statistically independent of group membership

and thus appropriate for conventional least squares procedures that assume independence (see Kenny & La Voie, 1984).

The target scores of each competence dimension showed statistically significant amounts of relative variance ($M = 12\%$, $p < .05$), which indicates sufficient inter-judge reliability in the ratings of competence. 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 in ratings explained by targets. To illustrate, 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). The six competence dimensions correlated with each other ($\alpha = .89$), so we combined them to yield an overall measure of peer-rated competence. As expected, peer-ratings of competence predicted participants' actual performance on the task, $r(109) = .23$, $p < .05$.

Status measure. Participants then rated each of their team members on five dimensions related to status in task groups, which were based on prior research and theory (Berger et al., 1972): the respect and admiration each received from other group members, who led the group (the degree to which the person made decisions, coordinated group activities, and motivated the group), who should have led the group, who contributed useful ideas, and who contributed overall.

We again used the software program SOREMO (Kenny, 1994) to implement a social relations model analysis of these round-robin ratings. The target scores of

each status dimension showed statistically significant amounts of relative variance ($M = 51\%$), which indicates very high inter-judge reliability. The five status dimensions also correlated with each other ($\alpha = .88$), so we combined them to yield an overall measure of status.

Positive affect measure. To help rule out positive affect as a potential third variable, we used the positive affect scale of the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). Participants reported how much they felt 10 emotions in general, or on average: interested, excited, enthusiastic, proud, alert, strong, inspired, determined, attentive, and active, on a scale from 1 (“None”) to 5 (“Extreme”). The scale showed satisfactory internal consistency, $\alpha = .85$; the mean score was 3.65 ($SD = .56$).

Results and Discussion

Consistent with hypotheses, overconfidence again predicted peer-ratings of competence, ($\beta = .29, B = .11, SE = .04, p < .01$). Therefore, overconfident individuals were perceived by their teammates as more skilled than were individuals with accurate self-perceptions of ability, even after the group had worked together for 15 weeks. Furthermore, in a multiple regression including both overconfidence and positive affect, overconfidence still predicted peer-ratings of ability, ($\beta = .29, B = .13, SE = .04, p < .01$), whereas positive affect did not ($\beta = .00, B = .00, SE = .05, n.s.$). This lends some reassurance that the relation between overconfidence and peer-rated ability was not due to positive affect.

Overconfidence also predicted status in the group ($\beta = .19, B = .17, SE = .08, p < .05$). Therefore, overconfident individuals had more status in the group than

individuals with accurate self-perceptions of ability. In a multiple regression including both overconfidence and positive affect, overconfidence still predicted status ($\beta = .19, B = .16, SE = .08, p = .05$), whereas positive affect did not ($\beta = .03, B = .03, SE = .09, n.s.$).

We next examined whether the relation between overconfidence and status was mediated by peer-ratings of competence. To establish mediation, four conditions had to be met (Kenny, Kashy, & Bolger, 1998). First, overconfidence must predict status; second, overconfidence must predict peer-rated competence. These two conditions have been met as described above. Third, the mediator must predict the outcome variable when controlling for the independent variable; a multiple regression showed that status was predicted by peer-rated competence ($\beta = .76, B = 1.54, SE = .14, p < .01$), but not by overconfidence ($\beta = -.01, B = -.01, SE = .06, n.s.$). Finally, a Sobel test of the reduction in the predictive power of peer-rated competence (i.e., the indirect effect) achieved significance ($z = 1.99, p < .05$), thus satisfying the final condition for mediation. As displayed in Figure 4, the relationship between overconfidence and status in these student project teams was mediated by peer-rated ability.

Finally, we again explored whether overconfidence interacted with actual ability in predicting peer-perceived competence and attained status. However, as in Studies 1 and 2, the interactions were not significant, $B = .04 (SE = .08 n.s.)$ and $B = -.01 (SE = .04 n.s.)$ when predicting status and peer-perceived competence, respectively. Therefore, the benefits of overconfidence again extended to all levels of actual ability.

In sum, the findings in Study 3 again suggested that overconfident individuals were seen as more able and achieved higher status in collaborative tasks than individuals with accurate perceptions of their abilities. Further, the findings suggested that the relation between overconfidence and status was mediated by peer-perceptions of competence: overconfident individuals attained higher status because their partner perceived them as more academically skilled. Finally, these findings held up even though the teams had worked together for 15 weeks, suggesting that overconfidence has a positive effect on status that endures over time.

General Discussion

Summary of Findings

Across three studies we found consistent support for the hypotheses that in task groups, overconfident individuals are perceived as more competent by others and that they attain higher status. In Studies 1 and 2, individuals who were overconfident in their person-perception abilities attained higher status in a joint person-perception task than individuals who perceived their abilities accurately. This effect emerged regardless of whether such overconfidence was naturally occurring or experimentally manipulated. In Study 3, individuals who were overconfident in their academic abilities attained more status in their student project groups than individuals who perceived their academic skills accurately.

Furthermore, in all three studies we found that the relation between overconfidence and status was mediated by peer-rated competence. That is, the results suggest that overconfident individuals attained more status than accurate

self-perceivers because others perceived them as more competent. Finally, these results held up even in longer-term groups where individuals worked together for 15 weeks.

The current studies had a number of strengths. First, the data were extensive. In the dyads and groups we assessed, we obtained self-reports of abilities, objective indices of actual ability, and peer-ratings of competence and status. Therefore, the diverse sources of data helped avoid problems associated with shared method variance. Second, we obtained highly consistent results even though the studies were conducted in the laboratory as well as field, used correlational as well as experimental methods, used different tasks (person-perception tasks and class projects), and the data were collected cross-sectionally as well as longitudinally. Third, a critical feature of our study designs is that we used operational measures of actual ability to distinguish between overconfidence and justifiably high confidence. This provides some assurance that actual ability was not driving a spurious relation between self-confidence and status.

While the current studies had a number of strengths, there were of course limitations. For example, we cannot know with certainty whether overconfident individuals truly believed that they were highly competent, or whether they were merely reporting what they wished to believe about themselves (and expressing to others a demeanor that reflected their desired self). Were “overconfident” participants genuinely overconfident, or were they merely engaging in impression management (Paulhus et al., 2003)? Previous research suggests that the overconfidence we observed was genuine. Specifically, our overconfidence

measures were based on questions completed privately, and participants were explicitly told their answers were anonymous and would not be shared with other participants. Under similar experimental conditions, Hoorens (1995) found that overconfidence was a product of genuine delusions about the self and not impression management concerns. Moreover, we used standard measures from the overconfidence literature that scholars treat as genuine (e.g., Krueger & Mueller, 2002; Kruger & Dunning, 1999; Larrick et al., 2007; Moore & Healy, 2008

Because our studies examined laboratory dyads and student project groups they allowed for relatively greater methodological control and precision in measures than field studies typically afford. However, they also limit the ecological validity of the findings. Although the student project groups might be deemed “real world” in that they were not constituted for study purposes and involved real stakes (e.g., grades, reputation with classmates), it is possible that the same findings might not emerge in other real world teams where the stakes are higher. For example, in organizational teams, groups might be more skeptical of teammates who seem highly confident because their own job career success depends on the team’s performance. However, task contexts in organizations often do not allow for perfect detection of others’ competence. Therefore, we propose that the findings we observed would replicate in organizations as well. Future research should follow up by examining other naturally occurring teams.

Contributions to the Overconfidence Literature

The current findings make important contributions to the literature on overconfidence. First, our findings speak to arguments regarding the origins of

overconfidence. In explaining why overconfidence is so pervasive in judgment and decision-making, many theorists have focused on limitations in human cognition (Miller & Ross, 1975), or on the psychological benefits that overconfidence provides, such as higher self-esteem (Alicke, 1985; Taylor & Brown, 1988). An additional possibility that has received less attention, however, is that people might tend to engage in overconfidence because of the social benefits it provides. More specifically, humans might have evolved the tendency to form false self-beliefs because doing so helps convince others of their positive value. While empirical research has examined the first two explanations, our studies provide some of the first empirical investigation of this social-functional account of overconfidence.

In addition, overconfidence has been widely considered an impediment to individual success, hampering work performance, undermining learning and development, and threatening health (Dunning, Heath, & Suls, 2004). While we agree that overconfidence can have these effects, the current findings suggest that the effects of overconfidence are likely more nuanced. Indeed, we found that overconfidence helped people gain status and be perceived as more competent by peers. Thus, whether overconfidence brings benefits or costs might depend on the person, the context, and the outcome under consideration.

Contributions to the Status Literature

The current findings have a number of important theoretical implications for the status literature as well. First, they inform us about the psychology of those who possess high status. One commonly asked question about those who possess status is: does their behavior reflect their position or their preexisting personality? For

example, in the case of narcissistic CEOs (Chatterjee & Hambrick, 2007), did their status make them more narcissistic or did their narcissism help them rise in the hierarchy? With regard to overconfidence, our findings suggest that the answer might be “both.” That is, previous research suggests that higher rank leads to inflated self-perceptions (e.g., Pfeffer, Cialdini, Hanna, & Knopoff, 1998; Sachdev & Bourhis, 1987). Our findings suggest that overconfident individuals are also more likely to attain status in the first place.

Our findings also help us understand some of the systematic biases and inefficiencies that exist in status distribution systems. That is, groups and organizations strive to put their most competent members in charge (Berger et al., 1972; Lord, 1985). However, as we know from prior research – and perhaps personal experience – groups and organizations frequently get it wrong. The link between individuals’ status and their underlying competence is not always strong in that individuals who are not the most competent often take charge, and highly talented individuals are often relegated to the bottom of the hierarchy (Anderson & Kilduff, 2009; Berger, Rosenholtz, & Zelditch, 1980). How does this occur? The current findings suggest that such “dysfunctional” hierarchies can emerge in part because it is often difficult for group members to ascertain each other’s true competence levels. In such contexts, status is based on each member’s self-perceived abilities, which may or may not be based on his or her actual abilities.

The current findings also contribute to the resurgent social-psychological literature on status and power, which has demonstrated many ways in which possessing positions of high rank shapes individuals’ thoughts, emotions, and

behavior (for a review, see Keltner et al., 2003). Much of that research randomly assigns participants to positions of high or low status and authority. Such study designs afford greater control and help establish causality, but they might also lead us to underestimate the differences in behavior patterns that exist in the real world between high- and low-ranking individuals. For example, prior studies have shown that individuals randomly given higher rank prefer riskier courses of action (Anderson & Galinsky, 2006; Keltner et al., 2003). Our findings suggest that in the real world, overconfident individuals are more likely to achieve positions of status. And because overconfidence also promotes risk-taking (e.g., Chatterjee & Hambrick, 2007), the actual relation between high rank and risk-taking might have been underestimated by those prior studies. People in positions of status and power – corporate or government leaders for example – would be subject to two forces that encourage them to take risks: their elevated social position and their pre-existing propensity for overconfidence. Our findings therefore suggest that gaining a clearer picture of the magnitude of differences across high- and low-ranking individuals requires field studies of individuals in real-world high- and low-ranking positions as well as laboratory studies.

Future Directions

The current findings generate a number of questions for future research. First, research should explore additional possible mediating mechanisms for the effects of overconfidence on peer-perceived ability and status attainment. For example, perhaps overconfidence leads individuals to be more engaged in tasks, persist in the face of difficulties, and work harder – all of which would lead to actual

increases in actual ability through practice (Taylor & Brown, 1988). Additionally, perhaps overconfident individuals are viewed by others not only as task competent but as engaged in the task and thus motivated to help the group succeed – which is another determinant of status (Ridgeway, 1982).

Second, when will overconfidence lead to social benefits such as the ones we described, when will it not, and when will it lead to social costs? One possibility is that overconfidence leads to social benefits only when others are uncertain about an individual's actual abilities. As Swann and Ely (1984) found, individuals' self-perceptions influenced perceivers' ratings of them only when the perceivers were uncertain about their preexisting views of the individual; in contrast, when perceivers were more certain in their view of the individual, individuals' self-views had no effect. This suggests that overconfidence might have the strongest status benefits when others are unsure of the individual's actual abilities.

Another possibility is that overestimating one's abilities to a mild or moderate degree, but not an extreme amount, is optimal (Baumeister, 1989). As evidence for this idea, studies often find, as did this one, that the average level of overconfidence across individuals tends to be just slightly unrealistic, but not dramatically so (John & Robins, 1994). Extremely high levels of overconfidence might backfire for the individual.

Third, more research needs to test the social-functional account of overconfidence. For example, the notion that overconfidence pervades human self-judgment because it provides the individual with social benefits suggests that overconfidence should increase in situations where the social benefits of

overconfidence are particularly high, and that individuals who are particularly motivated to achieve rewards such as status should engage in even more overconfidence than the average individual (Paulhus & John, 1998).

One counterargument to the social-functional account is that the potential social benefits of overconfidence are outweighed by its potential social costs. It is possible that if overconfident individuals are “exposed” as overconfident and in fact not highly competent, they will be socially ostracized and punished (Anderson et al., 2006). If so, this would suggest that overconfidence should not have evolved in humans because the expected value is not positive – thus casting doubt on the social-functional account as a whole. Future research should thus test whether overconfident individuals are punished after others learn of their actual ability levels.

On a more general level, the notion that overconfidence can lead to more positive peer-perceptions, and in turn, to social resources such as status, is highly intriguing yet has not been given much empirical attention. Future research should further examine the mechanisms underlying the effects we observed, the boundary conditions, as well as the other social domains in which overconfidence may lead to social success.

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Footnotes

1. We thank Daniel Ames for these photographed targets.
2. The data for each target's "true" personality were obtained from Daniel Ames. Each target's "true score" was derived by averaging the ratings of the target made by him/herself and by eight knowledgeable informants.
3. Because participants performed somewhat poorly on the task on average, one concern might be that any effect of overconfidence would be due to one of two statistical artifacts. First, the actual competence variable might have suffered from a floor effect and thus a restriction of range. If so, any effect of overconfidence might be due simply to the higher variance in self-perceived competence relative to actual competence. However, the variance in actual competence percentile ranking was larger ($SD = 28.94$) than the variance in perceived competence percentile ranking ($SD = 13.99$), thus alleviating that concern. Second, the task might have been so difficult that any variance across participants in their actual performance might be random – akin to dice-throwing scores in a game of chance. If so, the actual competence variable might be meaningless and unable to predict anything, thus allowing for self-perceived competence to have greater predictive power. However, the reliability of the actual competence measure indicates that variance across participants in their actual ability was systematic and not random; some participants reliably performed better than others.