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SOCIAL PSYCHOLOGY | SHORT COMMUNICATION

The impact of motive disposition on group performance

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Abstract: People exert less effort when performing in groups than when working alone. Based on the collective effort model's core principle that individuals are only willing to work hard if they expect their individual contribution to be instrumental in obtaining personally satisfying outcomes, this study demonstrates the strong influence of individual motive dispositions on group performance. Motive dispositions vary from person to person and, when triggered by appropriate cues in the environment, form the current motivation and determine behavior. In experimental ad-hoc groups designed to provoke social loafing for individuals with a high *need for achievement*, i.e. with few opportunities for self-evaluation, team-members with a *high need for achievement* ($N = 28$) substantially reduced their effort to participate in the task at hand. Contrary, in the same situation, team-members with a *high need for affiliation* ($N = 55$) showed no social loafing at all, but social laboring instead, resulting in nearly 50% better performance in the group task compared to their team members with a high *need for achievement*.

Subjects: Social Psychology; Personality; Group Processes

Keywords: social loafing; social laboring; need for achievement; need for affiliation; motive disposition

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PUBLIC INTEREST STATEMENT

Most teams fall short of their individual potential, they perform worse on a group-task than one would expect based on the team-members' individual performances. This is mainly due to motivational losses, meaning many team-members are less motivated and therefore exert less effort when they work in a group compared to when they work alone. However, people are motivated by different things: two of the main drivers of human behavior are need for achievement and need for affiliation. People with a high need for achievement seek opportunities for self-evaluation, whereas individuals with a high need for affiliation are incentivized by being with other people. The same group-task thus offers different incentives for individuals with different needs, leading to performance differences in the same group-task by nearly 50%. Incorporating these motivational needs into both team-member selection and design of the group-task at hand can have substantial implications for a work-team's performance and productivity.

1. Introduction

Groups and teams have become basic building blocks of modern organizations, performing all different types of tasks ranging from physical ones like manufacturing or maintenance to cognitive ones like decision making or problem solving. However, a host of previous research shows that most teams fall short of their individual potential, that is, they perform worse than one would expect based on the team members' individual performances when working coactively (for a meta-analysis, see Karau & Williams, 1993). Considerable evidence indicates that a substantial portion of the team's decreased performance is due to motivational losses, namely due to *social loafing* (for a recent review, see Simms & Nichols, 2014). This means, team members exert less effort when they work in a group compared to when they work alone. This reduction in effort is not necessarily a conscious decision, but seems to be the result of a number of social and situational factors (Williams, Karau, & Bourgeois, 1993). However, the same meta-analysis by Karau and Williams (1993) shows that more than one fifth of all reported effect sizes point in the opposite direction. Meaning that in these studies, teams actually increased effort and performance on a collective task compared to an individual condition (*social laboring*, Haslam, 2004).

These apparently contradicting findings of motivational losses and motivational gains have been subsumed in the collective effort model (CEM; Karau & Williams, 1993, 1997, 2001). As summarized by Karau and Williams (1997, p. 156), the CEM states that individuals are only willing to work hard on a collective task to the degree that they expect their individual efforts to be instrumental in obtaining outcomes that are personally satisfying. When the outcomes tied to the group's performance are not perceived as important or relevant, individuals are unlikely to work hard. The CEM further suggests that outcomes that have intrinsic importance (i.e. are personally involving, or have personal meaning; see Brickner, Harkins, & Ostrom, 1986) may be particularly important for individual motivation on collective tasks. The CEM thus opens a promising line of research examining the role of individual differences in motivational losses and gains (see Hart, Karau, Stasson, & Kerr, 2004; Stark, Shaw, & Duffy, 2007; Tan & Tan, 2008): Since it is the *perceived* intrinsic importance of the group outcome, individuals with different importance-standards should perceive the identical group situation differently and thus behave differently, resulting in different levels of performance. As Smith, Kerr, Markus, and Stasson (2001, p. 157) put it: "Future research would do well to identify other individual-differences variables as moderators of social loafing effects. By examining these phenomena empirically, we would better understand motivation in group and team performance [...]." Individual-difference constructs of special relevance should be the ones postulated by the motive disposition approach as represented in McClelland and colleague's research tradition (McClelland, 1987; also see Hart et al., 2004; Sorrentino & Sheppard, 1978). Within McClelland's research tradition, human needs, particularly need for achievement (*nAch*) and need for affiliation (*nAffil*) are conceptualized as stable motive dispositions that vary from person to person and, when triggered by appropriate cues in the environment, form the current situational motivation and determine behavior (e.g. Chun & Choi, 2014; McClelland, 1985, 1987; Schüler, Sheldon, & Fröhlich, 2010; Sheldon, Prentice, Halusic, & Schüler, 2015).

Individuals with a high *nAch* seek opportunities for self-evaluation, that is, situations in which they can get realistic feedback about their own level of (superior) performance, be it by comparing oneself to others or to a (normative or individual) standard (Atkinson, 1957; Brunstein & Heckhausen, 2008; McClelland, 1987). For instance, Hart et al. (2004) could show that participants with a high *nAch* did not engage in social loafing compared to participants with a low *nAch* when the collaborative task was directly related to both individual achievement and intelligence, presumably because participants with a high *nAch* perceived this task as a meaningful opportunity for self-evaluation and instrumental in obtaining personally satisfying outcomes, whereas participants with a low *nAch* did not. However, if the collaborative task would not offer such opportunities for self-evaluation, for instance by featuring low task difficulty (Huguet, Charbonnier, & Monteil, 1999), or low task meaningfulness (Williams & Karau, 1991), group members with a high *nAch* should perceive the task as not important and are therefore unlikely to work hard.

In contrast, individuals with a high *nAffil* are concerned “with establishing, maintaining, or restoring positive interactions with another person or group” (van Cappellen, Frederickson, Saroglou, & Corneille, 2017, p. 24). They seek social contact and are incentivized by being with other people, even strangers (McClelland, 1987). As Wiesenfeld, Raghuram, and Garud (2001) could demonstrate, members of virtual working groups with a high *nAffil* showed higher identification (i.e. a stronger sense of belonging) towards their group. These individuals are therefore more likely to work for the group’s interest, irrespective of the effort and performance they expect from their fellow group members and of the identifiability of their own contribution (Barreto & Ellemers, 2000; Fielding & Hogg, 2000; van Knippenberg, 2000; Worchel, Rothgerber, Day, Hart, & Butemeyer, 1998). Group members with a high *nAffil*, “need and want to belong” (Wiesenfeld et al., 2001, p. 217), thus for these individuals, a group situation per se, even a virtual one or one of low cohesiveness, elicits a feeling of “groupiness” and should trigger affiliate cues that promise to be rewarding (e.g. Hill, 1987; Høigaard, Boen, De Cuyper, & Peters, 2013; McAdams & Constantian, 1983).

The focus of the present *short communication* is therefore to test the influence of motive disposition – a factor that is “likely to be centrally linked to one’s motivation across a range of settings” (Hart et al., 2004, p. 987)—on group performance. Understanding individual motive disposition as a moderator that should interact with the situational incentives offered by the group situation to shape behavior “might help in the development and implementation of interventions designed to eliminate motivation losses in group endeavors” (Smith et al., 2001, p. 157). To test this moderator-effect, the present experiment is provoking social loafing for individuals with a high *nAch*. As detailed in the Method Section later, the group situation is therefore designed in a way that it should not offer appropriate incentives for individuals with a high *nAch*, by (a) minimizing saliency and cohesiveness of the ad-hoc-groups (Karau & Hart, 1998), (b) using a task that is relatively easy and depends on participants’ efforts rather than abilities (van Knippenberg, 2000), and (c) not allowing opportunities for self-evaluation (Karau & Williams, 1997; Lount & Wilk, 2014; Williams et al., 1993). In contrast, group members with a high *nAffil* should be more incentivized by the group situation itself and thus show social laboring compared to an individual coactive situation (van Knippenberg, 2000; Wiesenfeld et al., 2001). However, the design of the present group condition does not offer additional incentives for individuals with a high *nAffil* other than being a group-situation per se, suggesting a rather small social-laboring effect. More formalized, the hypothesis of the present study are as follows:

H1: In a given group-situation that does not offer cues relevant to individual achievement, individuals with a high *nAch* should reduce performance compared to a situation that offers such opportunities.

H2: In the same group situation, individuals with a high *nAffil* should increase performance compared to the individual achievement-cues situation.

2. Method

2.1. Pretest

A convenience sample of 246 students from the economics department of a medium-sized University in Germany, all native in the German language, was recruited for course-credit and pretested on implicit achievement and affiliation motives using the short form of the Multi-Motive-Grid (Schmalt, Sokolowski, & Langens, 2000; Sokolowski, Schmalt, Langens, & Puca, 2000). The MMG-S is a semiprojective measure, which presents 14 ambiguous line drawings of everyday situations followed by statements describing feelings, thoughts and action tendencies. For instance, one line drawing shows two couples, each dancing with one another. This line drawing is followed by 10 statements, for example, “Feeling good about meeting other people” (representing *nAffil*), or “Feeling confident to succeed at this task” (representing *nAch*). Participants have to indicate with a simple binary choice whether each statement fits with the situation or not. Agreements are then aggregated to form sum scores for *nAch* and *nAffil*,

respectively, which are then transformed into T-scores (Schmalt et al., 2000). Reliability and validity of the MMG and MMG-S has been shown previously. For instance, the retest correlations for the motive scores range from .77 to .92 (Sokolowski et al., 2000), whereas Puca and Schmalt (1999) could find support for criterial validity of the *nAch* score by predicting performance in a simple reaction task.

2.2. Main experiment

The main experiment involved two within-subject conditions: individual and group. In the individual condition, participants were told that their personal performance on a task would be compared with the performance of other individuals in the group, thereby creating an interpersonal context. In the group condition, participants were told that the unidentifiable individual performance of all group members would be combined to form the group score which would be compared with the scores of other groups, thereby creating an intergroup context (see Smith et al., 2001 for a similar [but between-subjects-] design).

Performance in both the individual as well as in the group condition was measured using an anagram word-puzzle. From a nine-letter grid, participants had to find as many words of four letters or more within three minutes (see Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001 for a similar performance task). The letters of the grid changed between conditions, while keeping difficulty the same: Each 9-letter grid contained 18 words in total.

2.3. Participants

In the pretest, 186 students showed T-scores of ≥ 56 on either *nAch* or *nAffil* and were thus contacted via e-mail and asked to return to the lab for another study. Students who preliminarily agreed to participate in the main experiment were invited to the lab in random groups of four, approximately one to two weeks after the pretest. When at least three students showed up at the appointed time, the research assistant proceeded with the experiment. Of the 83 final participants, 55 were classified as high *nAffil* and 28 as high *nAch* (correlation between *nAch* and *nAffil* T-scores: $r[81] = -.09, p = .44$; mean difference between the *nAch* and *nAffil* T-scores: $M = 8.76, SD = 6.61$).¹

2.4. Design and procedure

Upon arrival, the three or four participants of a given session were seated at separate desks and were told by the research assistant that they were part of a larger study about a newly designed performance task (i.e. the anagram-task) to be potentially used in an upcoming assessment center of a large firm to select apprentices. However, before this task could be integrated into the assessment center, the research assistant's job was to determine the strength of the training effect of this new performance task: If performance would strongly increase with repeated training of the task, the task would be inapplicable for the assessment center. However, if repeating the task would not increase performance, the task would be implemented into the assessment center. To determine the strength of the training effect, participants therefore had to perform the task twice in succession.

As an incentive to do their best, participants could earn raffle tickets for a 100€ shopping voucher in addition to their guaranteed course credit. Participants were told in advance that on the first run (the individual condition), the individual scores of all members of their group would immediately be analyzed, compared to each other and announced; and the *individual with the highest score* in the anagram-task within the group would get an extra raffle ticket. Therefore, participants had to sign their task-sheet with their name.

After completing the individual condition and individual scores were announced, participants came together at a larger table and the research assistant informed them that they now, as instructed, had to perform the task a second time. However, that after this second run (the group condition) the research assistant would just gather the individual results, and analyze and combine them later on. Then, after the whole study was completed, the research assistant would compare the group's collective performance to the performance of all other groups taking part in the

experiment and inform the members of the group with the highest *combined group-score* via email that they would each get an extra raffle-ticket. After each member of this newly formed group again received a task sheet and signed it with the group name instead of its individual name, the second run started. After they performed the individual as well as the group condition, participants were thanked for their participation and fully debriefed.

As previously discussed, this relatively simple performance task as well as the general design was chosen to facilitate possible social loafing effects. As for instance stated by van Knippenberg (2000), motivational influences on performance are enhanced when the task in question is relatively easy and mostly depends on participants' efforts rather than abilities. To further facilitate social loafing for individuals with high *nAch*, the group condition lacked opportunities for self-evaluation: not analyzing individual scores on the second run (the group condition) undermines social comparison, whereas telling subjects that a practice-effect might be expected undermines realistic feedback about their own level of performance improvement (Karau & Williams, 1997; Lount & Wilk, 2014; Williams et al., 1993). Independent of individual motive disposition, the competitive environment in which only one group could gain the extra raffle-tickets might trigger social identity and thus facilitate social loafing (i.e. motivational gains, see Kerr & Hertel, 2011; Worchel et al., 1998). However, this potential effect should be diminished by minimizing saliency and cohesiveness of the ad-hoc-groups (Karau & Hart, 1998): Even in the group condition, participants each worked on their own anagram-task. Moreover, the other groups were not physically present (i.e. reducing the likelihood to categorize oneself as a group member). Lastly, the delayed announcement of the winner only to the group that actually won, without any information to all other groups, should make it hard for individuals to see their coparticipants as members of a relevant ingroup, especially since they competed against these coparticipants moments ago (for a review, see Haslam & Ellemers, 2005).

3. Results

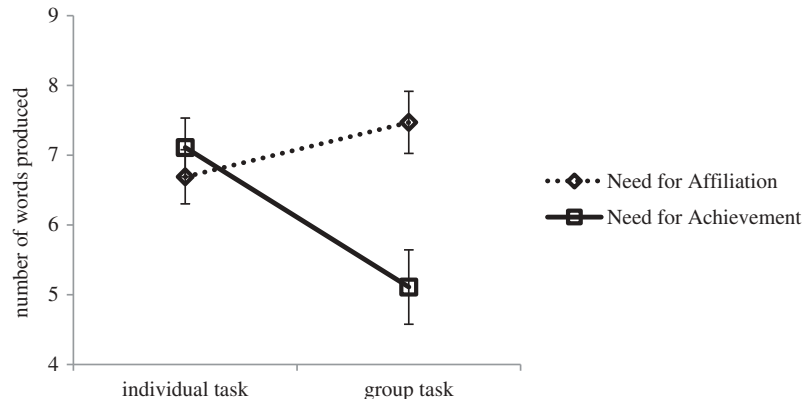
Motivational losses (i.e. social loafing) and motivational gains (i.e. social laboring) were assessed by a two-way ANOVA on number of words produced in the word puzzle with the within-subjects factor condition (individual vs. group) and the between-subjects factor motive disposition (*nAch* vs. *nAffil*).

As shown in Figure 1, overall performance of the anagram word puzzle did not change significantly between the individual and the group condition ($M = 6.83$, $SD = 2.88$, range 1–14, max number of words = 18 vs. $M = 6.67$, $SD = 3.32$, range 1–16, max number of words = 18; $F[1, 81] = 2.81$, $p = .10$). However, the interaction between the two factors was significant ($F[1, 81] = 15.77$, $p < .01$). This interaction reflects the fact that participants with a high *nAch* indeed showed social loafing ($M = 7.11$, $SD = 2.23$ in the individual task vs. $M = 5.11$, $SD = 2.82$ in the group task; Holm–Bonferroni corrected one-sided paired t -test $t[27] = 4.46$, $p < .01$). Moreover, participants with a high *nAffil* showed no loafing at all, but social laboring instead ($M = 6.69$, $SD = 2.88$ vs. $M = 7.47$, $SD = 3.30$; $t[54] = 1.76$, $p < .05$), i.e. participants with a high *nAffil* performed better in the group condition compared to the individual condition. In the group condition, individuals with a high *nAffil* performed nearly 50% higher than group members with high *nAch* ($M = 5.11$, $SD = 2.82$ vs. $M = 7.47$, $SD = 3.30$; $t[81] = 3.10$, $p < 0.01$).

To further corroborate the relationship between underlying motivational needs and (group) performance, the relative strength of the motivational need was correlated with performance both in the individual and in the group condition. A stronger *nAch* relates to higher performance in the individual condition ($r[81] = .32$, $p < .01$); the correlation between the strength of the *nAch* and the performance in the group condition is negative but nonsignificant ($r[81] = -.16$, $p = .15$).

The opposite pattern is shown for *nAffil*: the strength of *nAffil* is not related to performance in the individual task ($r[81] = .11$, $p = .34$); however, it correlates with performance in the group task at least by trend ($r[81] = .18$, $p = .10$). Moreover, the more pronounced the achievement motive is

Figure 1. Average number of words produced by group members with high need for achievement (solid line) and high need for affiliation (dotted line). Error bars represent standard error of the mean.



compared to the affiliation motive within an individual ($nAch$ T-score minus $nAffil$ T-score), the stronger the social loafing effect ($r[81] = .36, p < .01$).

4. Discussion

Taken together, the present *short communication* suggest that different motive dispositions lead to different perceptions of a given (group) situation, thus have a strong impact on exerted effort and therewith performance. As predicted, if a group situation offers few opportunities for self-evaluation, group members with high $nAch$ perform less. Group members with a high $nAffil$ on the other hand show no performance reduction in the same group situation. On the contrary, the group situation per se seems sufficient to induce a small social laboring effect.

As stated by the CEM (Karau & Williams, 2001) as well as McClelland (1987), the present results reiterate that individuals are only willing to work hard if the situational cues fit the dispositional need and thus individual efforts are expected to be instrumental in obtaining outcomes that are personally satisfying. This line of argumentation can also account for the apparently opposing results of Hart et al. (2004). As discussed in the introduction, in Hart et al., participants with a high $nAch$ did not engage in social loafing compared to participants with a low $nAch$. However, unlike in the present experiment, Hart et al. told participants that performance in the coactive as well as in the collaborative task was directly related to both achievement and intelligence. Thus, for Hart et al.'s participants with a high $nAch$, the group-task represented a meaningful opportunity for self-evaluation as well, and thus did not lead to any performance reduction (also see Smith et al., 2001 for similar findings regarding need for cognition).

However, while interpreting the present results, one should keep a number of study-limitations in mind. The most obvious ones being the low number of participants, the use of university students in ad-hoc groups, the fixed order of presentation of conditions, and the use of a rather arbitrary maximizing task that might become dull after participants had proven to themselves they could do the task sufficiently (Simms & Nichols, 2014). Using established work-groups might have addressed many of these limitations, but might also have shifted the results by a) attenuating the strong social-loafing effect shown by individuals with a high $nAch$, and b) enhancing the social-laboring effect for individuals with a high $nAffil$. Established work-groups should show increased cohesiveness (Lount & Wilk, 2014): members spend more time on the group task, have positive interactions within the group, as well as opportunities to increase one's status within the group. All factors that can reduce social loafing or facilitate social laboring (Høigaard et al., 2013; Karau & Williams, 1993; Sorrentino & Sheppard, 1978, respectively).

To further support the moderating effect of individual differences in motive disposition on performance, future experimental research should overcome the limitations of the present study and aim for a more comprehensive design, integrating between-subjects conditions that should result in either

motivational gains or motivational losses (Karau & Williams, 1993), for both individuals with high or low *nAch* and individuals with high or low *nAffil* (Hart et al., 2004; Stark et al., 2007; Wiesenfeld, et al., 2001), in collocated workgroups as well as in virtual ones (Blaskovich, 2008).

Since more and more organizations allocate tasks to distributed temporary project-teams, the latter differentiation might prove especially promising (Gilson, Maynard, Young, Vartiainen, & Hakonen, 2015): As previously shown, social loafing poses a particular critical problem for virtual teams. Thus, understanding how to select and incentivize individuals in virtual group settings is critical to future organizational success (Blaskovich, 2008). However, virtual-work-group environments in principle also allow for an individualized configuration of a shared group situation, that is, offer an individualized vantage point on the identical group situation or task. Using the CEM's credo that effort motivation depends on individual's *perceived* meaningfulness as a guiding principle, the well understood motive dispositions *nAch* and *nAffil* tested here should enable researchers and practitioners to design virtual-work-group environments (i.e. groupware) in a way that appropriate cues for any given motive disposition become more salient. For instance by showing group member with a high *nAch* different information than group members with a high *nAffil*, for example, different (individual- or group-) statistics on task progress, or highlighting different goals and outcomes. Such a customized vantage point on the shared group-situation and -task, based on individual differences in motive disposition, should increase individual motivation while simultaneously increasing group productivity.

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Note

1. To contrast the effects of motive disposition on performance, it was planned to only invite students with T-scores of ≥ 60 in one motive disposition to the main experiment. However, due to the distribution of *nAch* and *nAffil* T-scores in the pretested sample, the more lenient selection criterion stated above was used to reach a sufficient sample at all. This more lenient selection criterion leads to a bias against our hypotheses: Since the respective individual motives are not as pronounced, the hypothesized effects will most likely be reduced, that is, the resulting effects sizes should be interpreted with this caveat in mind.

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