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Individual Contributions to a Collective Effort: An Incentive Analysis

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Subjects were asked to generate uses for an object either alone or in a group. Half were offered a modest incentive for a good (individual or group) performance, and half were not. As predicted, evidence of social loafing was found when subjects worked as part of a group, but only when the incentive was not provided.

In the past decade, a host of experiments have demonstrated a tendency for people to exert less effort when performing collectively than when performing individually (e.g., Latané, Williams, & Harkins, 1979; Petty, Harkins, Williams, & Latané, 1977; Harkins & Petty, 1982). This tendency, termed social loafing, is commonly believed to occur in part because individuals can “hide in a crowd” when they work in groups. Because anonymous group members cannot be held directly accountable for their individual outputs, it is argued, they will loaf and rely on others to shoulder the responsibility for the group’s success. Consistent with this reasoning are data indicating that subjects performing in groups will work just as hard as subjects performing alone if group members’ responses are made personally identifiable (Kerr & Bruun, 1981, Experiment 2; Williams, Harkins, & Latané, 1981).

The studies above notwithstanding, there is reason to believe that anonymity per se is not sufficient to cause group members to restrict their contributions to a collective effort. For example, as Harkins, Latané, and Williams (1980) point out, Israeli kibbutzim demonstrate high productivity despite being located in remote areas and having only collective plots for farming. Similarly, in team activities where individual contributions are obscured (e.g., tug of war), participants often appear to be exerting as much effort as they can muster, at least when the stakes for doing well are high enough.

An analysis that could account for both types of effects stems from a consideration of the effect of *incentives* upon effort and performance. That is, when faced with a request to “do your best,” individuals are expected to take into

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account both the costs and benefits of doing so. If available incentives (benefits) are sufficient to justify the costs of a best effort, then a high level of performance would be expected. If available incentives are not sufficient in quantity and/or value, effort should be lower and performance should be poorer.

The reasoning above suggests an interesting alternative perspective on social loafing in the laboratory. Specifically, it may be that loafing effects have been observed not so much because subjects performing in groups can hide as because, more generally, they may have less reason to try than subjects working alone. This seems plausible when one examines carefully the incentives available in the typical social loafing experiment. In a word, they are limited. The experimental tasks (e.g., pulling rope, shouting, pumping air, generating uses for an object) usually are not interesting or otherwise motivating; indeed, this is frequently why they are selected for laboratory experiments. Further, extrinsic incentives such as cash are not provided. It is conceivable that subjects might work to help the experimenter, to help science, or to evaluate their abilities. However, these motives are likely to be impotent unless their significance is emphasized. All things considered, the most powerful motive operating would appear to be one of impression management—that is, the best reason to perform well is to impress the experimenter or at least avoid looking incompetent or lazy to him or her. Because subjects working together in this circumstance can, at best, get only a fraction of the credit for a good group performance and, at worst, get only a fraction of the blame for a poor group performance, there is relatively little justification for them to try hard. This situation contrasts with that for subjects working alone. For them, there is full credit for success and full blame for failure. Therefore, there is more incentive to do well.

An incentive approach also suggests that anonymity should not always produce loafing. In theory, loafing should not be found in circumstances where there are incentives other than impression management that are powerful enough to justify a maximum effort. To illustrate, imagine members of a crew team who are asked to do their best in a run down the river. If it is off-season, and an excellent racing time can only impress the coach, team members might be expected to loaf. As in the social loafing studies, a fraction of an already limited incentive (recognition by the coach) simply may not be perceived as worth an all-out effort. Now, by way of contrast, consider what would happen if the team members were told they would each receive several thousand dollars if they beat their fastest racing time to date. Here, there would be a substantial incentive for maximum exertion even if personal contributions were not recognized. As a consequence, a best effort would seem more probable.

This, of course, could explain the apparent high levels of effort in the real-life examples cited earlier. Although members of a kibbutz may not be able to put the fruits of their personal labors on display, they can promote the community and the nation as a whole (and thus themselves, indirectly) by working hard. If these latter goals are viewed as worthwhile enough, then a high level of effort should follow. Likewise, although members of a tug-of-war team cannot

demonstrate how powerful they are individually, they can help the group win and therefore enhance the general reputation of their school, class, or company. In a few cases, they might even avoid getting dragged through a stream or a pool of mud. Again, if these achievable goals are perceived as important, they can serve to justify a maximum effort.

To our knowledge, only one existing social loafing experiment provides data immediately pertinent to this general line of thought. Brickner, Harkins, and Ostrom (1986) asked college students to generate as many ideas as they could about a senior comprehensive exam that ostensibly was being considered by administration officials. Half the subjects generated ideas by themselves and half generated ideas with a partner. Moreover, subjects were subdivided in terms of how relevant the issue was to them personally. In some cases, the issue was highly relevant—instructions stated that the exam might be introduced at the present university in the coming year. In the other cases, the issue was less relevant—instructions stated that the exam might be adopted some years later or (in replications) at a different institution. As expected, social loafing appeared only when the thought-generation task was not highly relevant to the subjects.

The relevance manipulation in this study was cast originally in terms of the notion of personal involvement (Petty & Cacioppo, 1979, 1981). Specifically, the investigators reasoned that when the experimental task was personally involving, subjects might be willing to invest relatively great amounts of effort even though their individual outputs would not be measured. This is not unreasonable and may in fact be the best way to interpret the data. However, it seems possible that a richer understanding of these issues might be attained if the findings are conceptualized in terms of the broader incentive theoretical framework. That is, when the experimental issue was not relevant, the main incentive for performance is likely to have been impression management. Because subjects working in pairs had to fractionate this incentive, they should have been less motivated than subjects working alone. In contrast, when the issue was relevant, presumably there was ample justification for working hard whether or not ideas were personally identifiable. As a result, performances should have been, and indeed were, very good in the pair as well as the alone condition.

The present experiment examined the incentive analysis in the most straightforward manner we could devise. As has been done in previous research, subjects were asked to do their best on a mundane task either alone or as a member of a group. In addition, however, half the subjects were offered a modest incentive for a “best” (individual or group) effort, while the rest were not. It was expected that the extra incentive would justify a high level of effort even when responses were anonymous. Consequently, it was predicted that group members would show performance deficits associated with social loafing only when the incentive was not provided.

METHOD

Subjects

Subjects were 83 introductory psychology students (41 male, 42 female) at the University of Missouri-Columbia who received class credit for their participation. Subjects signed up for a given session in groups ranging from three to six. Data for three participants (one male, two female) were discarded because of their failure to follow instructions.

Procedure

The study employed a variation of a procedure used in a previous investigation by Harkins and Petty (1982). Upon arriving for the experiment, subjects were seated in cubicles that permitted them to see the experimenter but not one another and then were given packets containing experimental materials. Shortly thereafter, they were told by the experimenter to take a five-page questionnaire from the packet and complete it.¹ Instructions on the first page of the questionnaire differed for subjects in the individual performance condition and the group performance condition. In the former case, instructions stated that subjects should put their names at the top of the cover page. In the latter case, instructions said that names and any other identifying marks should not be included on the questionnaire. Once the questionnaires were completed, they were collected by the experimenter and then taken outside the room, ostensibly to be scored by another member of the research team.

When the experimenter returned, she or he directed subjects to remove from the packet and read an information sheet describing the task to be performed during the first part of the study. The task was described as a brainstorming exercise in which subjects would generate as many uses as they could for an object. It was emphasized that the goal of the exercise was to produce a quantity of uses, and therefore the quality of ideas should not be a matter of concern. At this point subjects in the individual performance condition were instructed that they alone would be generating uses for their object, while subjects in the group performance condition were instructed that they would be brainstorming with the other subjects in the session and that, therefore, the uses generated would be combined with the uses generated by the other participants.

Following the individual/group manipulation instructions, subjects read a paragraph informing them that the questionnaire they had completed at the beginning of the session included a creativity subscale, which, among other things, had proved to be highly predictive of performance on the particular brainstorming task used in this study. Accordingly, a person's creativity score could be used to predict the number of uses he or she could generate for the object assigned. In the individual performance conditions, subjects were informed that because their individual creativity scores were known, it would also be known whether the number of uses they generated was likely to be the best they could do. In the group performance conditions, subjects were told that

because the investigators could calculate the creativity score for the *group* (by combining anonymous individual scores), it would be known whether the group's performance was likely to be the best the group could do.

For subjects who were not offered the extra incentive for good performance, the only remaining instructions on the information sheet were to reread the previous material and then wait for further directives from the experimenter. For subjects in the extra incentive conditions there was one additional paragraph. Supposedly, on the basis of previous research, it had been established that people perform more naturally when they have a reason to do well than when they do not. Therefore, the investigators were offering an incentive for a good performance on the brainstorming task. Subjects expecting to work by themselves were told that if they generated at least as many uses as their creativity score suggested they should be able to, they would be allowed to leave the experiment early, and thereby avoid a tedious memorization task later in the session. Subjects expecting to work together were informed that if their *group* generated at least as many uses as their collective creativity score suggested they should be able to, group members would be allowed to leave the experiment early. Following were instructions to reread the previous material and wait for a directive from the experimenter.

When it was clear that all subjects had read and understood their instructions, the experimenter asked them to remove a consent statement from the information packet, read it, and sign it if they agreed to participate. Once the forms were signed, subjects were directed to remove from the packet the brainstorming task sheet, at the top of which was written, "You are to generate as many uses as you can for ———. Remember to try to generate as many uses as you can." In the blank was written, "a knife." The signal to begin work was given soon thereafter.

Because in pretesting a few subjects continued generating uses for over 30 min, it was decided in advance to limit the task period to 10 min. When that amount of time had passed, the experimenter asked subjects to stop work and then complete a short questionnaire. Afterward, participants were debriefed, thanked, and dismissed.

RESULTS

All data were analyzed using 2×2 analyses of variance (ANOVAs) with type of performance (individual vs. group) and incentive (extra-present vs. extra-absent) as between-subject variables.²

The mean number of uses for the knife in each condition is presented in Table 1. As can be seen, the means are highly congruent with expectation. An ANOVA on those data revealed a marginal main effect for type of performance $F(1,76) = 3.14$, $p < .08$, qualified by a significant type of performance incentive interaction, $F(1,76) = 3.76$, $p = .05$. Pairwise comparisons using the pooled error term indicated that fewer uses were generated in the group/extra-absent

TABLE 1 Mean Number of Uses Generated as a Function of Type of Performance and Incentive

	<i>Extra (Incentive) Absent</i>	<i>Extra (Incentive) Present</i>
Individual	27.75 _a (20)	26.45 _a (20)
Group	18.90 _b (20)	26.85 _a (20)

Note: Cell *N* in parentheses. Means that do not share a common subscript differ by the *t* test, $p < .05$, $MSE = 113.6$.

condition than in each of the other conditions ($p < .05$), which did not differ from one another in this respect.

Embedded among several distracter questions on the questionnaire administered at the end of the session were two relevant items (9-point Likert scales). One asked subjects to indicate the extent to which they believed the experimenter was aware of their personal contribution to the brainstorming task. The ANOVA performed on those ratings revealed a type-of-performance main effect, $F(1,76) = 10.94$, $p < .001$. As would be expected, subjects who worked individually believed the experimenter was more aware of their efforts ($M = 5.40$) than did subjects who worked in groups ($M = 3.60$). The other item asked subjects to indicate how great of an incentive there was for them to perform well on the brainstorming task. The analysis of those ratings yielded a marginally reliable type of performance \times incentive interaction, $F(1,76) = 3.01$, $p < .09$. Although pairwise comparisons were not significant, the pattern of means indicates that subjects in the group/extra-absent condition felt there was less incentive for them to perform well ($M = 4.60$) than did subjects in the group/extra-present ($M = 6.00$), individual/extra-absent ($M = 5.75$), and individual/extra-present ($M = 5.30$) conditions.

Pearson coefficients computed within each of the experimental conditions revealed significant positive correlations between uses generated and experimenter awareness ratings in the individual/extra-absent and the individual/extra-present conditions (both $r_s = .44$, $p_s < .05$). Number of uses did not correlate reliably with experimenter awareness ratings for subjects working in groups and did not correlate with the incentive ratings in any of the experimental conditions.

DISCUSSION

The results of this study show a difference in the behavior of subjects working together as a function of whether they were provided an incentive for a good group performance. When the extra incentive was not provided, the usual performance deficit indicative of social loafing was obtained. However, when

the extra incentive was made available, loafing was diminished. These findings are consistent with the hypothesis that anonymous group members will not reduce their efforts when there is sufficient justification for a high level of effort apart from impression management.

Generally speaking, the results from the ancillary measures support our interpretation of the performance data. Congruent with the position that impression management is a more viable motive for people working alone than for people working together is the finding that subjects in the individual conditions felt their responses were more public than subjects in the group conditions. Perhaps even more telling in this regard were the within-cell correlations, which showed positive relationships between (perceived) experimenter awareness and uses generated in the individual conditions but not in the group conditions. Although the analysis of the incentive results did not produce significant effects, those ratings did tend to be lower in the group/extra-absent conditions than in the group/extra-present condition and the two individual conditions. This suggests that both impression management and the chance to leave early were perceived as inducements for performing well.

Although the performance data were in accordance with predictions for the most part, it is of some note that performance was not better in the individual/extra-present condition than in the individual/extra-absent and group/extra-present conditions. On the face of it, this seems puzzling, since subjects in the former condition should have had two good reasons to work, whereas subjects in the latter conditions should have had only one. Several explanations seem plausible. For example, it could be that there simply was a ceiling effect for performance or that the two incentives somehow interfered with each other. However, the explanation we find most compelling is that individual subjects who had the opportunity to leave *attended* to only one outcome during the work period. This seems reasonable if one assumes that when behavior is overdetermined (i.e., when there are multiple reasons to behave), people are not necessarily equally aware of various performance incentives. If subjects in the individual/extra-present condition were primarily cognizant of one or the other of the incentives available to them (probably impression management, given the within-cell correlations), their performance should have reflected the perceived value of the incentive to which they were attending. Consistent with this are the incentive ratings, which were no higher in the individual/extra-present condition than in the individual/extra-absent and group/extra-present conditions.

Regarding alternative interpretations, there is one that could be applied to both the current performance data and the performance data collected by Brickner, Harkins, and Ostrom (1986). Briefly, Kerr and Bruun (1983) have obtained evidence that if members of a group believe their outputs are dispensable for achieving group goals, they will reduce their effort and rely on others whose outputs are more essential. Complicating matters is further evidence (Kerr, 1983) that group members who think that capable others are

“free riding” will reduce their efforts in order to restore equity and to avoid playing the role of the “sucker.” This is potentially relevant to the present research if one assumes that group members’ perceptions of how hard everyone else is trying differ depending on whether an extra incentive is provided. That is, if group members believe that other people are less likely to try when an incentive is not available than when an incentive is available, then reduced efforts in the former circumstances might be expected.

Since neither this experiment nor the experiment by Brickner, Harkins, and Ostrom (1986) included measures to assess subjects’ impressions of how hard others were working, this interpretation is difficult to evaluate. There is, in point of fact, reason to believe that subjects might reach the conclusions above. Nevertheless, it seems unlikely that these perceptions alone could account for the effects that have been obtained. Theoretically, the probable behavior of others is but one piece of information that will be taken into account when the decision is made whether or not to exert a best effort, and it should be considered in relation to all other relevant information. Presumably, the more substantial the benefits that are contingent upon a maximum effort, the less important should be the risk of playing the sucker.

In summary, the present study provides reasonably direct evidence that people will not loaf in anonymous groups when there are sufficient reasons for performance besides impression management. The present procedure utilized a “selfish” individual incentive (leaving the session early), but other kinds of incentives should also be effective. For example, members of a group might be moved to heroic exertions to help their country (as in the kibbutz), “the people of the world,” or simply another individual who is needy and deserving. Relatively selfless behavior such as this seems most likely under conditions where group members are caused to experience empathy with the beneficiaries of their effort (e.g., Batson & Coke, 1983). An interesting aim for future research would be to examine empirically the effect of these and other types of incentives.

NOTES

¹The questionnaire subjects completed was the Jenkins Activity Survey (Jenkins, Zyzanski, & Rosenman, 1971). It was mistitled in case some subjects had heard of it in their psychology classes.

²All analyses were performed originally including sex of subject as a factor. Since that variable produced no reliable effects, it is ignored in the present report.

REFERENCES

- Batson, C. D., & Coke, J. S. (1983). Empathic motivation of helping behavior. In J. T. Cacioppo & R. E. Petty (Eds.), *Social psychophysiology: A sourcebook*. New York: Guilford Press.
- Brickner, M. A., Harkins, S. G., & Ostrom, T. M. (1986). Effects of personal involvement: Thought-provoking implications for social loafing. *Journal of Personality and Social Psychology*, 51, 763-769.

- Harkins, S. G., Latané, G., & Williams, K. (1980). Social loafing: Allocating effort or taking it easy? *Journal of Experimental Social Psychology, 16*, 457-465.
- Harkins, S. G., & Petty, R. E. (1982). Effects of task difficulty and task uniqueness on social loafing. *Journal of Personality and Social Psychology, 43*, 1214-1229.
- Jenkins, C. D., Zyzanski, S. J., & Rosenman, R. H. (1971). Progress toward validation of a computer-scored test for the Type A coronary-prone behavior pattern. *Psychosomatic Medicine, 33*, 193-202.
- Kerr, N. L. (1983). Motivation losses in small groups: A social dilemma analysis. *Journal of Personality and Social Psychology, 45*, 819-828.
- Kerr, N. L., & Bruun, S. E. (1981). Ringelmann revisited: Alternative explanations for the social loafing effect. *Personality and Social Psychology Bulletin, 7*, 224-231.
- Kerr, N. L., & Bruun, S. E. (1983). Dispensability of member effort and group motivation losses: Free-rider effects. *Personality and Social Psychology Bulletin, 44*, 78-94.
- Latané, B., Williams, K., & Harkins, S. (1979). Many hands make light the work: The causes and consequences of social loafing. *Journal of Personality and Social Psychology, 37*, 822-832.
- Petty, R. E., & Cacioppo, J. T. (1979). Issue involvement can increase or decrease persuasion by enhancing message-relevant cognitive responses. *Journal of Personality and Social Psychology, 37*, 1915-1926.
- Petty, R. E., & Cacioppo, J. T. (1981). *Attitudes and persuasion: Classic and contemporary approaches*. Dubuque, IA: Brown.
- Petty, R. E., Harkins, S. G., Williams, K., & Latané, B. (1977). The effects of group size cognitive effort and evaluation. *Personality and Social Psychology Bulletin, 3*, 579-582.
- Williams, K., Harkins, S. G., & Latané, B. (1981). Identifiability as a deterrent to social loafing: Two cheering experiments. *Journal of Personality and Social Psychology, 40*, 303-311.

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