

Social Loafing and Social Compensation: The Effects of Expectations of Co-Worker Performance

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Previous research has suggested that people tend to engage in social loafing when working collectively. The present research tested the *social compensation* hypothesis, which states that people will work harder collectively than individually when they expect their co-workers to perform poorly on a meaningful task. In 3 experiments, participants worked either collectively or coactively on an idea generation task. Expectations of co-worker performance were either inferred from participants' interpersonal trust scores (Experiment 1) or were directly manipulated by a confederate coworker's statement of either his intended effort (Experiment 2) or his ability at the task (Experiment 3). All 3 studies supported the social compensation hypothesis. Additionally, Experiment 3 supported the hypothesis that participants would not socially compensate for a poorly performing co-worker when working on a task that was low in meaningfulness.

People often work together in groups to accomplish various goals. Many group tasks are collective tasks, in which members' contributions are pooled with those of their co-workers. Committees, sports teams, juries, marching bands, quality control teams, and government task forces are but a few examples of groups that combine their efforts to form a single product. Possibly the first social psychological study, conducted in the 1880s by Ringelmann (cited in Kravitz & Martin, 1986), examined the effects of working collectively on a rope pulling task. At present, more than 55 studies have examined the effort expended by individuals when working on individual versus collective tasks (see Jackson & Williams, 1989).

The results of these studies indicate that people expend less effort collectively than coactively (working individually but in the presence of other co-workers), a phenomenon referred to as social loafing. A number of variables have been demonstrated to moderate social loafing. For example, social loafing can be reduced or eliminated by increasing the identifiability or evaluability of the individual members' contributions¹ (Szymanski & Harkins, 1987; Williams, Harkins, & Latané, 1981), enhanc-

ing personal involvement with the task (Brickner, Harkins, & Ostrom, 1986), elevating the uniqueness of individual contributions (Harkins & Petty, 1982), or strengthening group cohesiveness (Williams, 1981).

Consider an example of a teacher who divides a class into small groups and assigns them to work together on a project, hand in one paper, and share the grade. The social loafing literature would lead one to expect that each student's motivation and effort would decrease compared with a situation in which the teacher assigned individual papers and projects. In fact, the first author often uses this example as an illustration of social loafing in his lectures, and students remember how awful those types of assignments were because the "others in their groups always loafed." Ironically, and almost without exception, the students claimed that they were the ones left to "carry the load" for the others in their group. Of course, it is easy to view this response as an example of students desiring to present themselves in a favorable light. It is also likely, however, that certain people do exert more effort on collective tasks or that, under certain circumstances, most people will feel it necessary to shoulder the burden for others. Not too long ago in a class in which this type of assignment was given, a student who had done exceptionally well in the prerequisite course approached the instructor after class and, fighting back tears, stated that she knew she would end up doing all the work for the others in her

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¹ Some researchers (Harkins, 1987; Harkins & Szymanski, 1989; Kerr & Bruun, 1983) have defined social loafing as motivation loss in groups caused by reduced identifiability or evaluation. We agree that evaluation plays an important role in social loafing but choose not to define social loafing in these terms because (a) defining the phenomenon in terms of its causes prevents, by definition, the discovery of new causes for the same effect; and (b) evidence suggests there are other causes of social loafing, such as redundancy of contribution (Harkins & Petty, 1982) and dispensability of effort (Kerr & Bruun, 1983). We prefer to adopt a less restrictive definition of social loafing consistent with the original formulation: the tendency to reduce one's effort when working collectively compared with individually on the same task.

group. She felt that she could not rely on the others because they would take advantage of the collective task and loaf. She also believed that her co-workers were probably not as motivated or able as she. She felt she had no choice but to do everything that the group was supposed to do to merely share an A on the paper. Despite attempts to assure her that this did not have to happen, she ended up doing almost all of the work. Why?

We are proposing that under some conditions, people may actually work harder in a collective setting than in a coactive setting in order to compensate for the others in their group, an effect we refer to as *social compensation*. One factor that might produce social compensation is the expectation that other group members are performing insufficiently. Under these circumstances, we propose that individuals will feel compelled to contribute more to the collective goal to compensate for the inadequate contributions of their co-workers. The perception of inadequate co-worker contributions may be derived from a general lack of trust in the reliability of others to perform well when their contributions are pooled with those of others or from direct knowledge of co-workers' insufficient efforts or abilities.

The second factor we believe may be necessary to produce compensation is that the group product is in some way important to the individuals involved. If the task or the group product is seen as meaningless, then there is no need to compensate for poorly performing co-workers, because the evaluation of the group product simply does not matter to the individual. If, however, the evaluation of the group product is important to the individual, then he or she will be motivated to avoid a poor group performance by compensating for the poorly performing co-workers.

These hypotheses are consistent both with expectancy-value models of effort and with self-validation theories. For example, expectancy-value models of effort (e.g., Heckhausen, 1977; Vroom, 1964) suggest that individuals will be willing to exert effort on a task only to the degree that they expect their effort to result in performance that is instrumental in obtaining valued outcomes. Applied to social loafing, we would expect an individual's motivation and effort to be greatest when working on a task in which the group performance is strongly contingent on his or her individual effort and when group performance is expected to lead to outcomes that are highly valued by the individual (e.g., a favorable evaluation). Thus, expectations of co-worker performance are likely to strongly influence individual motivation on collective tasks. When individuals expect their co-workers to perform well, the contingency between their own effort and the group performance is reduced because the group is likely to perform well even if the individuals reduce their own inputs. However, when individuals expect their co-workers to perform poorly, the contingency between their own effort and the group performance is actually enhanced. Thus, when outcome valence and the instrumentality of performance to outcomes are held constant, people are likely to work harder when they expect their co-workers to perform poorly and less hard when they expect their co-workers to perform well.

However, the mere expectation that one's co-workers will not perform well may not be sufficient to increase motivation. Individuals will be concerned with the quality of the group performance only when it is instrumental to obtaining valued out-

comes. In accord with an expectancy-value framework, if individuals expect their co-workers to perform poorly, they will not be willing to compensate unless they expect their performance on the task to lead to highly valued outcomes. Thus, individuals are more likely to compensate when they find the task to be intrinsically meaningful or are concerned with the evaluation of the group's performance by the experimenter, themselves, or co-workers. We do not mean to imply that the task must be viewed as vital or highly meaningful in order for compensation to occur. It is likely, however, that individuals will be unwilling to compensate for poorly performing co-workers if they expect their performance on the task to be irrelevant to obtaining an outcome that has at least some personal value.

Theoretical orientations focusing on the self also suggest that the desire for self-validation could lead people to compensate for co-workers on a collective task. Several theories suggest that people desire positive evaluation, especially in comparison with others. Most research has focused on social comparison at the individual level, but Goethals and Darley's (1987) revision of social comparison theory suggests that people not only compare themselves with others for self-validation, but they also compare the groups to which they belong with other groups for the same reasons. Similarly, social identity theory (Tajfel & Turner, 1986) suggests that often people gain positive self-identity through the accomplishments of the groups to which they belong (see also Cialdini et al., 1976). Goethals and Darley (1987) stated that "individuals experiencing negative social identity are predicted to leave their groups or attempt to make them better" (p. 33). Presumably, a negative social identity could be anticipated if one is performing on a collective task with unproductive co-workers. One way to make the group better would be to work harder, that is, to compensate.

Consistent with the notion that people are concerned for their group's evaluation even when their individual performances cannot be evaluated, Harkins and Szymanski (1989) found that on collective tasks people are less likely to loaf if they believe the performance of their group is being compared with the performance of other groups. In the present context, when working on a collective task with others who are expected to perform poorly, individuals will be motivated to bolster the performance of their group by increasing their own efforts. This would be true only to the extent that performance on the task is perceived as pertinent to self-validation, hence, only when the task (or the evaluation of the task performance) is perceived as meaningful. On the other hand, if the performance of the others is expected to be good, then individuals can opt to reduce their efforts and still receive a favorable group evaluation.

Both of these theoretical perspectives also explain why social compensation has not emerged in previous research. According to the expectancy-value model, loafing occurs because there is a higher contingency between individual effort and valued outcomes coactively than collectively. As group size increases, factors other than individual effort (e.g., the effort of other group members and attributes of the task) increasingly determine group performance, and valued outcomes (e.g., a favorable evaluation) are diffused among all of the group members. Consistent with this point, the self-validation approach suggests that people can more effectively control their evaluations when working

coactively than when they work collectively because collectively they only share a diffused evaluation. On collective tasks, individuals are provided with an opportunity to obtain a positive evaluation without working hard themselves when they expect their co-workers to perform adequately. Indeed, studies that have measured participants' perceptions of their co-workers' performance indicate that they do not expect their co-workers to loaf (e.g., Harkins, Latané, & Williams, 1980; Jackson & Harkins, 1985; Latané, Williams, & Harkins, 1979; Williams et al., 1981). Therefore, both perspectives suggest that participants will demonstrate social compensation only if there is a strong reason for them to believe the group will do poorly and only if they care about the evaluation.

Only a few studies have directly examined the effects of expectations of co-worker performance on individuals' effort in collective tasks. Moreover, studies that have manipulated expectations of co-worker performance are in disagreement, both with each other and with our predictions. Kerr (1983) studied individual effort on a disjunctive air-pumping task in which at least one member in the group had to reach an explicit criterion level for the group to succeed.² He suggested that loafing would occur with a co-worker who is expected to perform well because individuals would view it as an opportunity to "free ride." He also predicted that loafing would occur with a capable co-worker who is not expected to perform well because individuals would not want to be taken for a "sucker." In both collective conditions with a capable co-worker, individual participants reached the criterion fewer times (on average, seven of nine trials) than in the alone control condition (eight of nine trials). Although there were no differences between the two collective conditions, Kerr reasoned that in the success condition, participants were free riding, allowing their co-worker to carry the load, whereas in the failure condition, participants felt exploited and refused to play the role of the sucker.

Although Kerr (1983) focused on the two trials in which his collective participants failed to reach criterion, we prefer to focus on the fact that participants, and hence their groups, succeeded on seven of nine trials when their co-worker consistently failed. We feel that participants actually compensated by being responsible for their group's success on the majority of trials and communicated their desire not to be a sucker on a minority of the trials. Essentially, Kerr's participants were able to come out of the experiment feeling successful while sending a message to their co-worker that they were not willing to be a complete sucker on all of the trials. We suggest that had Kerr included a condition in which participants were especially concerned about their group's performance, a larger compensation effect would have been found (if a ceiling effect would not have prevented it).

In another study that manipulated expectations of co-worker performance on a collective task (i.e., shouting out loud), Jackson and Harkins (1985) reported that participants "matched" the level of output that they expected from their co-workers, suggesting that people seek to maintain equity in effort when working together. Participants' expectations of how hard their co-worker would work were manipulated so that participants expected their co-worker either to try hard or not to try hard on a shouting task. Jackson and Harkins demonstrated that the

social loafing effect was eliminated and that participants matched their expectations of their co-worker's efforts.

However, in Jackson and Harkins's (1985) experiment, the confederate/co-worker's statement of her intended effort was confounded with her evaluation of the experiment's worth. In the high effort condition, the co-worker told participants that she thought the experiment was interesting, and that she was going to try hard. In the low effort condition, she told participants that she thought the experiment was boring, and that she was not going to try hard. Hackman and Morris (1975) suggested that interacting with group members who dislike the task will transmit that attitude to co-workers and cause them to minimize their efforts. Indeed, research on job attitudes (Salancik & Pfeffer, 1978) suggests that workers' perceptions of and motivations toward their task are highly influenced by co-workers' assessments of the task. Therefore, the confederate's assessment of the worth of the task could have alone accounted for why Jackson and Harkins did not find compensation in the low effort condition and why they found a main effect for partner effort. In the high effort (and high meaningfulness) condition, our theoretical analysis would lead us to expect a social loafing effect. It may be that no loafing effect occurred because perceiving the task as especially meaningful resulted in a ceiling effect: Participants were unable to increase their effort in the coactive condition because they were already shouting as loudly as they could in the collective condition. Unlike some additive tasks, shouting is limited by physical constraints.

Therefore, although these two experiments are relevant to our interests, they fail to provide a clear test of the social compensation hypothesis. To examine the effects of expectations of co-worker performance on individual effort in a collective task, we designed three studies that varied different aspects of these expectations. In each experiment, participants worked either coactively or collectively on an idea generation task that was designed to be viewed as meaningful. In Experiment 1, expectations of co-worker performance were inferred from participants' interpersonal trust levels. In Experiment 2, expectations of co-worker effort were manipulated. In Experiment 3, both expectations of co-worker ability and of the meaningfulness of the task were manipulated. In all three studies, we hypothesized that, when working on a task that they considered meaningful, participants would compensate for a co-worker whom they expected to perform poorly and would actually work harder collectively than coactively.

Experiment 1

Participants pretested on interpersonal trust were asked to work on an idea generation task either coactively or collectively.

² There are a number of differences between Kerr's (1983) paradigm and the more typical social loafing paradigm. His participants were completely identifiable to themselves, their co-worker, and the experimenter. Thus, evaluation was strong and present in both coactive and collective settings, leaving responsibility for and control over the outcome as potential causes for reduced effort. Additionally, Kerr used a disjunctive task that had a threshold criterion for success such that if either participant succeeded, the group succeeded.

We expected participants scoring high or medium on trust to loaf collectively, because they would tend to expect that others would carry their own weight on the group task. Participants scoring low in trust were hypothesized to compensate collectively because they would tend to expect others to loaf and would feel compelled to work harder so as to maintain a favorable evaluation of themselves.

Method

Participants and design. In a pretest session at the beginning of the quarter at the University of Washington, 1,085 introductory psychology students responded to Rotter's (1967) Interpersonal Trust Scale. Rotter reported test-retest coefficients of .68 and .56 on two samples, $p < .01$, and a significant split-half reliability coefficient of .76 on a sample of 547 college students, $p < .001$. From the resulting normal distribution of this scale, 126 students were called back to participate in the experiment but were not told their participation was related to their test scores. Forty-two of these participants scored in the bottom quintile (*low trusters*) of the pretest sample, 41 scored in the middle quintile (*medium trusters*), and 43 scored in the top quintile (*high trusters*).

Experimental task. The additive task of idea generation was chosen for two reasons. First, effort would be directly related to performance. Second, the task could be presented in a meaningful way so that performance on the task would be important to the participants.

The idea generation task requires participants to come up with as many uses as possible for a given object in the time provided. In our study, participants were asked to come up with as many uses as possible for a knife in a 12-min period. They were instructed to write each use on a separate slip of paper and insert the slip into the appropriate box (depending on the condition).

Procedure. Upon entering the waiting area, participants in groups of 4 to 8 were greeted by the experimenter and were led to a room where they were seated in one of eight chairs, arranged in a circle. Between each set of chairs and directly in the middle of the chairs were black cloth partitions that prevented the participants from seeing each other. On each desk was a felt-tipped pen (so that it would be impossible for participants to monitor each other's performances). Participants were then handed instruction booklets that varied according to the coactive/collective work condition. The experimenter read the instructions aloud while the participants followed along. Participants in both conditions read the following instructions:

We are interested in studying the performance of groups and individuals on what is called a "brainstorming" task. You will be given the name of an object and your task will be to come up with as many uses for this object as you can. Don't be concerned about the quality of the uses you come up with. The uses can be ordinary or unusual. It is, however, important that you write down as many uses as you can in the time allotted. We are interested in the number of uses that can be generated for a single object, so all of you will be generating uses for the same object.

The next portion of the written instructions varied depending on the work condition. Participants in the *coactive condition* read the following:

I will ask you to write one use on each slip of paper, and then put that slip of paper into the box at your side before you write down the next use. It is not important if you happen to come up with the same uses as your partners. I want to see how many uses each of

you can come up with. Thus, each of you bears the full responsibility for generating as many uses as you can.

Participants in the *collective condition* read the following:

I will ask you to write one use on each slip of paper, and then insert that slip of paper into the common box in the middle. It is not important if you happen to come up with the same uses as your partners. I want to see how many uses your group can come up with. Thus, you share the responsibility with your partners for coming up with as many uses as you can.

The experimenter told the participants to begin, started his stopwatch, and then left the room. When the task was completed, the experimenter reentered the room and handed out a brief questionnaire with items assessing various participant perceptions as well as manipulation checks. Participants then completed the questionnaire while the experimenter was out of the room. Participants were then debriefed and dismissed.

Results

Performance measures. Overall, there was a significant loafing effect, with participants generating more uses when working coactively (27.7 uses) than collectively (24.5 uses), $F(1, 120) = 5.51$, $p < .03$. More important, the results support the social compensation hypothesis, with a significant Trust \times Work Condition interaction, $F(2, 120) = 10.59$, $p < .0001$ (see Table 1). A priori contrasts revealed that medium trusters demonstrated a significant social loafing effect, producing 25.5 uses in the coactive condition and 21.1 in the collective condition, $t(39) = 2.00$, $p < .03$. The high trusters showed an even stronger loafing effect, producing 33.2 uses coactively and 22.6 uses collectively, $t(41) = 4.29$, $p < .001$. As predicted by the social compensation hypothesis, low trusters actually worked harder collectively (29.6 uses) than coactively (24.5 uses), $t(40) = -1.95$, $p < .03$. There was also a significant main effect for trust, $F(2, 120) = 4.03$, $p < .03$, in that medium trusters (23.3 uses) were less productive than either low (27.1) or high trusters (27.5).³ There were no significant effects for gender.

Ancillary data. All questions used 100-point scales. As expected, the task was regarded as being relatively easy ($M = 19.9$). All participants regarded the task as somewhat fun ($M = 54.2$), and felt they experienced about an average amount of anxiety ($M = 46.9$). These data suggest that the participants found the task to be at least moderately meaningful. A process check on the differences in perceived identifiability (0 = *not at all* and 100 = *very*) of coactive ($M = 49.3$) versus collective ($M = 46.3$) participants was not significant ($p > .20$). Debriefing and subsequent research, however, has led us to believe that participants had difficulty interpreting this particular question. Another question asked participants if they thought the others in their session generated fewer, the same, or more uses than they did (on a 100-point scale in which 50 represented *the same*). Supporting the notion that low trusters expected their co-

³ In both Experiments 1 and 3, there appeared to be some heteroscedasticity in the number of uses data. Reanalyses of these data sets using a log transformation revealed identical patterns of means and significant effects.

Table 1
Mean Number of Uses Generated for a Knife as a Function of Levels of Trust and Work Condition

Trust level (quintile)	Work condition	
	Coactive	Collective
Low		
<i>M</i>	24.45	29.55
<i>n</i>	20	22
<i>SD</i>	7.73	9.05
Medium		
<i>M</i>	25.48	21.05
<i>n</i>	21	20
<i>SD</i>	9.19	3.71
High		
<i>M</i>	33.20	22.61
<i>n</i>	20	23
<i>SD</i>	10.04	5.86

workers to reduce their efforts when working collectively, the only condition in which participants thought that their co-workers generated fewer uses than they did ($M = 42.91$) was the low trust, collective condition (95% confidence interval = 36.7 to 49.1). When asked how much effort participants thought people generally exert on collective tasks compared with individual tasks, they indicated (as has often been the case in previous social loafing research) that there would not be any difference ($M = 50.8$, in which 50 represented *the same*) between working coactively and working collectively.

Discussion

The behavioral data from Experiment 1 provide strong support for the hypothesis that levels of trust determine whether social loafing or social compensation will occur. Whereas other research in social loafing has shown that various factors decrease or eliminate social loafing, this finding demonstrates a significant increase in effort by individuals on a collective task. Social loafing once again has been demonstrated for the medium trusting person (assuming this typifies the average participant in past research), and even more so for the high trusting person. Low trusters, however, were actually more productive when working collectively than when working coactively. Of course, as with any study using individual differences to demonstrate a causal link between factors, it could be that other variables associated with trust accounted for such a pattern. Furthermore, we did not assess directly our assumption that low trusters compensated because they thought their co-workers were loafing. Although the results from Experiment 1 are intriguing and suggestive, we felt that it was necessary to submit the social compensation hypothesis to more direct tests by manipulating experimentally expectations of co-worker performance.

Experiment 2

The purpose of Experiment 2 was to directly manipulate the participants' expectations of their co-worker's efforts. Rather than link the co-worker's intended effort with his or her ap-

praisal of the task, as did Jackson and Harkins (1985), we kept the appraisal constant and positive throughout. To ensure that the task was perceived as meaningful, we told participants that performance on the task was thought to be related to intelligence. Two levels of co-worker effort (high or low) were crossed with two work conditions (coactive or collective). We predicted that social loafing would occur for participants working with a high effort co-worker, whereas social compensation would occur for those working with a low effort co-worker.

Method

Design and participants. The experiment used a 2 (low vs. high co-worker effort) \times 2 (coactive vs. collective work condition) between-subjects factorial design. Participants were 49 introductory psychology students at Purdue University who fulfilled partial course credit by their participation. Ten participants were eliminated from the final analyses because they indicated possible suspicions regarding loafing (they had read about it in the textbook), the authenticity of the confederate, or the experimental hypotheses.⁴ This resulted in a total of 39 participants.

Procedure. The idea generation task used in Experiment 1 was used in Experiment 2, with slight modifications. Two participants (one of whom was a male confederate) were greeted by the male experimenter and shown into the laboratory. They were seated next to each other and were separated by a large filing cabinet that prevented the two participants from seeing one another. On each desk was a pair of headphones, a pen, and a box of blank slips of paper. In the coactive condition, participants had separate boxes placed next to them on the floor. In the collective condition, a common box (with an opening in the top accessible to both participants but preventing each from seeing inside) was placed between the two tables.

The experimenter then read similar instructions as were read in Experiment 1. In addition, participants were told:

You both will be working on a "brainstorming-type" task. The purpose of this experiment is to examine rapid thinking, a quality that is thought to be highly correlated with intelligence in adults. Your task is to come up with as many uses for an object as you can. You will be working side by side, without communicating.

The experimenter then told the participants that a recent theory suggested that rapid thinking was highly correlated with intelligence, and that it was therefore extremely important that they come up with as many uses as they possibly could. The experimenter also told participants that he would count up their individual scores (or group scores, if in the collective condition) at the end of the session and tell them how many uses they had produced. In addition, their scores would be compared with those of other participants who had been in similar research studies at other universities. Participants in the collective condition were also told that once their uses had been counted, the uses

⁴ The distribution of suspicious participants was approximately even across three of the four conditions, with no suspicious participants in the high effort, coactive condition. The suspicious participants in the high effort, collective condition tended to believe the co-worker's announcement to be sarcastic, thereby interpreting the message to be the opposite, as was intended. In the low effort conditions, suspicious participants found it difficult to believe that their co-worker would not work hard on a task they found interesting. We felt it was necessary to have the co-worker state that the task was interesting so participants would not interpret the co-worker's statement of intended effort as an evaluation of the task's meaningfulness.

would be discarded, and that this would prevent the experimenter from knowing any person's individual score.

At this point, the experimenter "noticed" that he had "forgotten" to bring his stopwatch and left the room to retrieve it. While the experimenter was out of the room, the confederate reported on his level of intended effort by saying one of two things. In the *low effort* condition, the confederate said, "This sounds like an interesting experiment, but I don't think I'm going to work very hard." In the *high effort* condition, the confederate said, "This sounds like an interesting experiment; I think I'm really going to work hard." The confederate's comment was worded this way so that co-worker effort could be manipulated without varying the level of evaluation of the meaningfulness of the task (which remained constant and positive). Furthermore, because the experimenter was not present during the confederate's announcement of intended effort, there was no basis from which the participant could infer differential performance expectations on the part of the experimenter.

After a brief pause long enough to retrieve a stopwatch but short enough to prevent any conversation between the participants except for the confederate's comment, the experimenter reentered the room with the stopwatch in his hand. The experimenter then read some final instructions indicating that the participants would be listening to music during the task (this was done to mask the sound emitted from writing the uses down on the slips of paper so that participants could not monitor one another's performance). Then, after the participants put their headphones on, the experimenter started the tape, started the stopwatch, and left the room. Instructions on the tape informed the participants of what object they were to think of uses for (a knife) and when to start. The tape then played 12 min of new age music at a volume loud enough to prevent the participant from talking to the confederate and from monitoring the confederate's writing. Instructions on the tape then told the participants to stop writing and wait for further instructions. Then the participants filled out a questionnaire and were debriefed and dismissed, after which the number of uses was counted.

Results

Manipulation checks. Four questions (using 100-point scales) were included as manipulation checks for the effort and coactive/collective work condition variables. Participants were asked how hard they thought their co-worker had tried on the task. Differential levels of co-worker effort were successfully manipulated: Participants in the high effort condition thought that their co-workers had tried harder ($M = 76.6$) than did participants in the low effort condition ($M = 50.7$), $F(1, 35) = 20.35$, $p < .001$. Participants were also asked how much ability they thought their co-worker had at the type of task they had just completed. Although participants attributed somewhat higher ability to high effort co-workers ($M = 66.6$) than to low effort co-workers ($M = 58.5$), this difference was not significant, $F(1, 35) = 2.96$, $p = .09$.

Participants were also asked whether the experimenter was interested in their individual or their group's performance, and to what extent they thought the experimenter would be able to tell how well they had performed individually. More participants in the coactive condition (68%) than in the collective condition (0%) reported that the experimenter was interested in their individual performance, $\chi^2(1, N = 39) = 18.84$, $p < .0001$.⁵ Similarly, participants in the coactive condition thought that the experimenter would be more likely to be able to tell how they had performed individually ($M = 77.4$) than participants in the collective condition ($M = 41.2$), $F(1, 35) = 35.05$, $p <$

.0001. Furthermore, brief discussions with those few participants in the collective condition who reported thinking that the experimenter would be at least somewhat likely to know their individual performance revealed that these participants did not believe that their actual scores would be known, but thought instead that the experimenter might be able to make a rough estimate as to their performance on the basis of the total group score. So it appears that both the effort and work conditions were manipulated successfully.

Performance measures. The main dependent variable of interest was the number of uses for a knife that the participants generated. A 2×2 between-participants analysis of variance was performed on the data. There was a significant interaction between co-worker effort and work condition in the predicted direction, $F(1, 35) = 5.16$, $p < .03$. As shown in Table 2, a priori contrasts revealed that participants loafed in the presence of a high effort co-worker (coactive $M = 31.3$ and collective $M = 22.7$), $t(17) = 2.06$, $p < .03$, whereas participants working with a low effort co-worker were somewhat more productive collectively ($M = 29.2$) than coactively ($M = 24.5$), $t(18) = -1.16$, $p < .14$. There were no significant effects for gender.

Ancillary data. A number of questionnaire items were included to provide background information regarding participants' perceptions of the experimental task. Participants seemed to find the task rather meaningful ($M = 72.2$; the scales ranged from 1 [*not at all*] to 100 [*very*]), moderately fun ($M = 57.2$), and not very difficult to perform ($M = 21.4$). Participants also reported that they were indeed concerned with how well they performed on the task ($M = 67.8$). There were no significant differences across variables.

There were several questionnaire measures relevant to participants' perceptions of their own effort. In the low effort conditions, there were no differences between the number of uses the coactive or collective participants thought they had generated (coactive $M = 26.7$ and collective $M = 26$). In the high effort conditions, however, coactive participants tended to report that they came up with more uses than did collective participants (coactive $M = 26.3$ and collective $M = 19.9$), $t(17) = 2.1$, $p < .03$. Participants were also asked how hard they had tried on the task. There was a significant difference in self-reported effort between work conditions in the high co-worker effort condition (coactive $M = 90.6$ and collective $M = 71.1$), $t(17) = 3.5$, $p < .002$, whereas there were no differences between work conditions in the low co-worker effort condition (coactive $M = 77.9$ and collective $M = 76.4$), *ns*. These data suggest that participants may have been attentive to how hard they were working on the task.

Discussion

These results mildly support the social compensation hypothesis and stand in contrast to the matching hypothesis. Par-

⁵ In debriefing, it became clear that many of the participants in the coactive condition misunderstood the intent of this question, thinking that even though the experimenter was looking at each individual's performance, he was still interested in how both of them did. This seems to account for why as many as 32% of the coactive participants thought the experimenter was interested in the group performance.

Table 2
Mean Number of Uses Generated for a Knife as a Function of Perceived Co-Worker Effort and Work Condition

Perceived co-worker effort	Work condition	
	Coactive	Collective
Low		
<i>M</i>	24.45	29.20
<i>n</i>	10	10
<i>SD</i>	8.98	9.58
High		
<i>M</i>	31.30	22.61
<i>n</i>	12	7
<i>SD</i>	9.19	7.99

participants loafed with a co-worker who intended to work hard and tended to compensate for one who did not. It appears that the participants were willing to carry the burden of a poorly performing co-worker to maintain a positive evaluation for the group and, therefore, for themselves.

Interestingly, participants seemed to be aware of the amount of effort they were exerting on the task. This is in contrast to prior social loafing research that typically has reported no perceived differences in effort across coactive and collective conditions. We suggest that when individuals are aware of how hard their co-workers intend to work, they become more attentive to their own effort, possibly for strategic reasons. When they expect their co-workers to work hard, they can make a conscious decision to rely on the efforts of others. Unfortunately, because our social compensation effect was not very strong in this experiment, it is difficult to determine whether a similarly conscious compensation strategy is adopted when participants must work with a low effort co-worker.

We suspect that expectations about co-worker behavior that produce social compensation may arise from a variety of sources. We have demonstrated their occurrence for expectations based on self-reported co-worker effort and on levels of interpersonal trust. These expectations similarly could be based on co-worker ability or on other attributions made regarding the co-worker (either internal to the participant or inferred from statements made by others).

Indeed, there is some support for social compensation, or at least reduced levels of loafing, based on low co-worker ability. Research by Kerr (1983) has shown that participants loafed less with incapable, rather than capable, co-workers on the disjunctive air-pumping task, but they still did not surpass their coactive performance levels. Similarly, a study by Thompson, Jackson, Williams, and Latané (1980) has shown that, although there was still reduced effort across ability conditions, participants were less likely to reduce their effort when working collectively with a low ability partner.

Experiment 3

We conducted Experiment 3 to examine two major issues. One goal was to determine whether social compensation would generalize to circumstances in which the co-worker is not expected to perform well because of lack of ability rather than

lack of motivation. We predicted that social compensation would also occur when poor co-worker performance was expected on the basis of low ability. A second purpose was to test the hypothesis that social compensation is more likely to occur when the participant is concerned about the evaluation of the group's performance.

In the first two experiments, we speculated that had participants perceived their participation in the task as worthless or meaningless, then they would not have bothered compensating for their poorly performing co-workers but would have chosen to loaf. In Experiment 3, we directly manipulated task meaningfulness. In a broader context, meaningfulness might be defined in terms of importance or significance to the individual, to others, to scientific progress, or to life in general. Specific to our experiment, we operationally defined meaningfulness by invoking manipulations that affected the degree to which participants were concerned with the evaluation of their performance on the task.⁶ In the high meaningfulness condition, the experiment was presented as important and related to intelligence. In the low meaningfulness condition, the experiment was presented as rather useless and trivial. We expected that participants would only be willing to compensate for a low ability co-worker in the high task meaningfulness condition, whereas they would loaf in all other conditions.

Method

Design and participants. The experiment used a 2 (low vs. high co-worker ability) \times 2 (coactive vs. collective work condition) \times 2 (low vs. high task meaningfulness) between-subjects factorial design. Participants were 88 introductory psychology students at Purdue University who fulfilled partial course credit by their participation. Eight participants were eliminated from the final analyses because they either knew the experimenter or confederate personally or they expressed, during debriefing, knowledge about social loafing, suspicion about the experimental hypotheses, or both.

Procedure. The same general paradigm and task used in Experiment 2 were used in this experiment.

Meaningfulness manipulation. In the low meaningfulness condition, the experimenter was a female undergraduate who acted very uninvolved and uninterested in the experiment and who presented the task as being silly and trivial. In the high meaningfulness condition, the experimenter was a male graduate student who acted very involved and interested in the experiment and who presented the task as being very meaningful and related to intelligence.⁷

⁶ Although our manipulation of task meaningfulness involved multiple operations, it was necessary to make this manipulation as strong as possible to overcome participants' tendency to report that the task was at least moderately meaningful. Pretesting indicated that participants were very hesitant to view the task as low in meaningfulness unless they were given a clear basis for discounting the value of the experiment. Despite the multiple operations used to manipulate meaningfulness, we still expected participants to loaf on the low meaningfulness task because their individual contributions could be evaluated coactively but not collectively.

⁷ It was our intention to manipulate task meaningfulness by using a graduate student experimenter for the high meaningful condition and an undergraduate experimenter for the low meaningful condition. The resulting differences in the gender of the experimenters were due to the availability of experimenters. An analysis of variance failed to reveal any significant effects due to participant gender, suggesting that the similarity of participant to experimenter did not influence effort.

Once the participants were seated, the experimenter read some introductory instructions. In the low meaningfulness condition, the experimenter read: "I got an incomplete in one of my classes, so now I have to run this study. It's about everyday objects, or something like that. Here's your instructions." In the high meaningfulness condition, the experimenter read: "You both will be working on a 'brainstorming-type' task. The purpose of this experiment is to examine rapid thinking, a quality that is thought to be highly correlated with intelligence in adults." Participants in both conditions were told that their task was to come up with as many uses for an object as they could and that they would be working side by side without communicating.

Participants were then either politely handed (high meaningfulness) or thrown (low meaningfulness) instruction booklets that varied according to the work condition. Although both booklets were clearly legible, booklets in the high meaningfulness condition were nicely printed laser copies, whereas booklets in the low meaningfulness condition were homely looking typewritten copies. Finally, participants in the high meaningfulness condition were told that their scores would be compared with those of other participants who had been in similar research studies at other universities. In both work conditions, the experimenter told participants that he or she would count up their individual or group scores at the end of the session and tell them how many uses they had produced. Participants in the collective condition were also told that once their uses had been counted, the uses would be discarded, and that this would prevent the experimenter from knowing any person's individual score.

Ability manipulation. At the point at which the experimenter "noticed" that he or she had "forgotten" to bring a stopwatch and left the room to retrieve one, the confederate reported on his level of ability by saying one of two things. In the *low co-worker ability* condition, the confederate said, "I'm not very good at this sort of thing; I can never come up with any ideas." In the *high co-worker ability* condition, the confederate said, "I'm really good at this sort of thing; I can usually come up with a lot of ideas." Because the experimenter was not present during the confederate's statement of ability, there was no basis from which the participant could infer differential performance expectations on the part of the experimenter.

Results

Manipulation checks. Five questions (using 100-point scales) were included as manipulation checks for the ability, coactive/collective work condition, and task meaningfulness variables. Several other questions also provided support for the success of the manipulations.

Participants in the high co-worker ability condition reported that their co-workers had more ability ($M = 70.3$) than did participants in the low co-worker ability condition ($M = 60.0$), $F(1, 71) = 10.42$, $p < .005$. Similarly, when participants were asked to guess how many uses their co-worker had come up with, they reported that they expected high ability co-workers to have generated more uses ($M = 30.9$) than low ability co-workers ($M = 23.4$), $F(1, 72) = 6.84$, $p < .02$. Participants were also asked how hard they thought their co-worker had tried on the task. Participants attributed higher effort to high ability co-workers ($M = 76.3$) than to low ability co-workers ($M = 65.6$), $F(1, 71) = 7.58$, $p < .01$. Therefore, it appears that participants expected both high ability and high effort from high ability co-workers, and relatively less ability and less effort from low ability co-workers.

More participants in the coactive condition (70%) than in the collective condition (8%) reported that the experimenter was interested in their individual performance, $\chi^2(1, N = 80) =$

32.92, $p < .0001$. Similarly, participants in the coactive condition thought that the experimenter would be more likely to be able to tell how they had performed individually ($M = 74.8$) than did participants in the collective condition ($M = 44.1$), $F(1, 78) = 28.43$, $p < .0001$. Furthermore, brief discussions with those few participants in the collective condition who reported thinking that the experimenter would be at least somewhat likely to know their individual performance revealed that these participants did not believe that their actual scores would be known, but thought instead that the experimenter might be able to make a rough estimate as to their performance on the basis of the total group score.

Participants in the high meaningfulness condition reported finding the task more meaningful ($M = 70.6$) than participants in the low meaningfulness condition ($M = 59.5$), $F(1, 72) = 4.78$, $p < .04$. In addition, there was a significant Co-Worker Ability \times Task Meaningfulness interaction, $F(1, 72) = 5.04$, $p < .03$. In the high meaningfulness condition, participants rated the task as being meaningful regardless of their co-worker's ability (low ability $M = 69.9$ and high ability $M = 71.3$), $F(1, 36) < 1$; however, in the low meaningfulness condition, participants rated the task as being less meaningful when they worked with a low ability co-worker ($M = 47.5$) than with a high ability co-worker ($M = 71.6$), $F(1, 36) = 9.36$, $p < .005$. Four other questions provide support for the claim that participants evaluated the high meaningfulness task as being more important and meaningful than the low meaningfulness task. Specifically, they reported that the high meaningfulness task was both more difficult ($M_s = 30.3$ vs. 14.35), $F(1, 72) = 13.83$, $p < .001$, and more fun ($M_s = 61.1$ vs. 43.2), $F(1, 72) = 10.20$, $p < .005$, than the low meaningfulness task. They also reported that they worked harder ($M_s = 84.5$ vs. 74.3), $F(1, 72) = 8.99$, $p < .005$, and that they guessed that their co-worker had worked harder ($M_s = 75.8$ vs. 66.1), $F(1, 71) = 6.50$, $p < .02$, on the high meaningfulness task than on the low meaningfulness task.

Performance measures. The main dependent variable of interest was the number of uses that the participants came up with. A $2 \times 2 \times 2$ between-participants analysis of variance was performed on the data. Overall, there was a significant loafing effect, $F(1, 72) = 5.10$, $p < .03$. Participants generated more uses when working coactively ($M = 31.0$) than collectively ($M = 26.4$). There was also a significant Work Condition \times Task Meaningfulness interaction, $F(1, 72) = 10.46$, $p < .005$. Participants in the low meaningfulness condition worked harder coactively ($M = 33.2$) than collectively ($M = 21.9$), whereas participants in the high meaningfulness condition worked harder collectively ($M = 30.9$) than coactively ($M = 28.9$).

Most important, the predicted three-way Work Condition \times Co-Worker Ability \times Task Meaningfulness interaction was significant, $F(1, 72) = 7.81$, $p < .01$. Within low task meaningfulness, a significant loafing effect was found, $F(1, 36) = 12.39$, $p < .005$. Coactive participants came up with more uses ($M = 33.2$) than did collective participants ($M = 21.9$). In the low co-worker ability condition, participants produced more uses in the coactive condition ($M = 34.9$) than in the collective condition ($M = 19.3$), $t(18) = 3.01$, $p < .005$. Similarly, in the high ability condition, participants produced more uses in the coactive condition ($M = 31.4$) than in the collective condition ($M =$

Table 3
Mean Number of Uses Generated for a Knife as a Function of Perceived Co-Worker Ability, Task Meaningfulness, and Work Condition

Perceived co-worker ability	Work condition	
	Coactive	Collective
Low meaningfulness task		
Low		
<i>M</i>	34.90	19.30
<i>n</i>	10	10
<i>SD</i>	14.10	8.33
High		
<i>M</i>	31.40	24.50
<i>n</i>	10	10
<i>SD</i>	8.47	8.28
High meaningfulness task		
Low		
<i>M</i>	23.30	32.40
<i>n</i>	10	10
<i>SD</i>	5.91	8.91
High		
<i>M</i>	34.40	29.30
<i>n</i>	10	10
<i>SD</i>	8.50	8.74

24.5), $t(18) = 1.84$, $p < .05$ (see Table 3). There were no significant effects for gender.

Within high task meaningfulness, there was a significant interaction between co-worker ability and work condition in the predicted direction, $F(1, 36) = 7.67$, $p < .01$. Participants tended to socially loaf in the presence of a high ability co-worker (coactive $M = 34.4$ and collective $M = 29.3$), $t(18) = 1.34$, $p < .11$. When working with a low ability co-worker, however, the opposite effect was found: Participants compensated, working harder collectively ($M = 32.4$) than coactively ($M = 23.3$), $t(18) = 2.69$, $p < .01$. Therefore, the major experimental hypotheses concerning social loafing and social compensation were supported.

In addition, we created an index of relative co-worker ability (co-worker ability minus own ability) to measure the degree to which participants thought that their co-workers were better at the task than they were. Consistent with our predictions, only in the high meaningfulness, collective condition were feelings of inferior co-worker ability associated with increases in participants' effort, $r(20) = -.44$, $p < .05$ (other r s ranged between $-.11$ and $-.24$, ns).

Ancillary data. In addition to those items reported with the manipulation checks just described, there were a number of questionnaire measures relevant to the task meaningfulness and social compensation hypotheses. There was a significant Work Condition \times Task Meaningfulness interaction such that participants in the low meaningfulness condition estimated that they had come up with more uses coactively ($M = 29.3$) than collectively ($M = 21.3$), $F(1, 36) = 5.63$, $p < .03$, whereas there was a nonsignificant tendency for participants in the high meaningfulness condition to estimate that they had come up

with more uses collectively ($M = 29.8$) than coactively ($M = 23.6$), $F(1, 36) = 1.9$. As an index of perceived relative contributions, we subtracted the number of uses participants thought their co-workers generated from the number of uses participants thought they had generated themselves. The only condition in which participants reported contributing significantly more uses than their co-workers was in the high meaningfulness, low co-worker ability, collective condition ($M = 5.9$ more uses, 95% confidence interval = 2.16 to 9.64). There was a marginally significant three-way interaction for self-reported effort that produced a pattern of means similar to that found for the uses data, $F(1, 72) = 3.43$, $p < .07$. Examining the simple contrasts between the coactive and collective conditions, the only significant difference was found in the high meaningfulness, low co-worker ability condition (coactive $M = 78.4$ and collective $M = 92.9$), $t(18) = -2.81$, $p < .01$. This last finding suggests that participants who worked with low ability co-workers on a high meaningfulness task were aware of their increased collective effort.

Discussion

The results of Experiment 3 lend strong support to the social compensation hypotheses. The social compensation effect generalized to a situation in which the participants' co-worker was unable, rather than unwilling, to contribute. Apparently, attributions regarding the reasons for poor performance did not alter the social compensation response. Moreover, as expected, the social compensation effect was limited to relatively meaningful tasks: If participants were not convinced of the significance of the task, then they chose to socially loaf regardless of their co-worker's ability.

It is interesting to note that participants in the high meaningfulness, low co-worker ability condition seemed to be aware of their social compensation. Participants reported trying the hardest in this condition and also thought that they had generated significantly more uses than their co-worker. In contrast to Experiment 2, but consistent with prior research, participants in the remaining collective conditions did not report that they were aware of their social loafing.

General Discussion

Taken together, the results of the present studies suggest that expectations of co-worker performance, either manipulated directly or measured through an interpersonal trust scale, substantially affect whether or not social loafing will occur. When participants expected their co-workers to be unreliable (Experiment 1) or unwilling (Experiment 2), or unable (Experiment 3), they exhibited social compensation, an effect opposite to social loafing. We do not necessarily mean by this term that they are helping or aiding their co-worker, but rather that they feel compelled to compensate for their weaker co-worker to attain a respectable group product that will result in a positive evaluation for themselves. Furthermore, it was necessary that the participants viewed the task (or the evaluation of the group's performance on the task) as important or meaningful. Apparently, if participants viewed the task as meaningless, it was easier for

them to discount the task rather than to increase their effort when working with low ability co-workers.

Social Compensation, Social Loafing, and Social Facilitation

One interesting aspect of the social compensation effect is that, on the surface, performance appears to be "facilitated" when working in groups. It is natural, then, to question whether this finding could be better understood from a social facilitation perspective. We do not believe the results of these studies are due to the various social facilitation processes put forth in the literature. Neither mere presence (Zajonc, 1980) nor distraction-conflict (Baron, 1986) can explain the results because, in all sessions, the same number of people were physically present at all sessions, providing the same amounts of arousal and distraction. Evaluation apprehension (Cottrell, 1972) cannot explain the social compensation results in any simple manner, because regardless of their co-worker's efforts or their own level of interpersonal trust, the participants' efforts in the group performance were equally unidentifiable and, hence, unevaluable. We have demonstrated a finding in which there is increased effort in a collective condition even though the evaluation of the participant is lower than in the coactive condition, a finding not predicted by any social facilitation theory.

Indeed, the social compensation effect is also contrary to explanations given for social loafing. This is not the first time that participants have shown better performance collectively than coactively.⁸ Jackson and Williams (1985) found that on a complex task, less effort resulted in better performance. They proposed that the reduction in anxiety and evaluation apprehension resulting from combining efforts leads to better performance when anxiety interferes with performance. The present social compensation effect, however, cannot be viewed in this light. The idea generation task used in the present experiments was a standard, relatively easy task that has been used in several studies to show the social loafing effect. This, then, is also the first demonstration of improved performance attributable to increased effort, as a result of working collectively. Contrary to social loafing, social compensation also occurs in collective tasks in which the participant is low in identifiability.

Our explanation for the social compensation effect is not, however, contradictory to our understanding of social loafing. As Jackson and Williams (1985) and Szymanski and Harkins (1987) have suggested, working collectively is demotivating because of reduced evaluation. Presumably, people generally desire a positive evaluation or want to avoid a negative evaluation. When their contribution to the product is pooled with other people's contributions, the potency of the positive or negative evaluation is greatly diminished. If people's contributions were made noticeable (even to themselves), either by increasing the monitorability of their outputs to the collective effort or by having them work individually, then they would be motivated to work hard because of this potential evaluation. We are suggesting that under certain conditions, the potential for a poor evaluation of the group's performance will counteract the tendency to socially loaf. If a person expects that his or her co-worker will not perform well, then the person must go beyond his or her normal level of performance so that the group product and its

evaluation will be respectable. Thus, the social compensation effect adds an additional piece to the puzzle of how individuals behave when working collectively.

Possible Motives for Social Compensation

We are not suggesting that the individual is concerned only with the direct evaluation of his or her own contribution, as is concluded in social loafing and social facilitation research. Instead, working on collective tasks without being individually identifiable compels individuals to be concerned for the evaluation of the group. The group evaluation is their only means of obtaining a diffused individual evaluation, and this concern may result in social compensation when one's co-worker is not expected to adequately contribute. This view is consistent with Goethals and Darley's (1987) notion that people use their group's evaluation as a means of obtaining self-validation.

Although we are suggesting that social compensation primarily occurs because of people's concern for a favorable evaluation of their performance, there are other possible motives that could lead to social compensation. One such motive involves altruistic concerns. Participants may want to protect their co-workers from a poor evaluation, and thus may compensate when the co-worker is loafing. Future studies could manipulate the attractiveness of the co-worker or the cohesiveness of the co-workers to test these motives.

The second motive suggests that when participants are working collectively with a loafing co-worker, they have something to gain and little to lose in terms of their own self-evaluation. If the collective product is poor, the participant can blame his or her co-worker; if the collective product is good, the participant can take credit for it. This might motivate the participant to work harder. On the other hand, when participants are working with a high effort co-worker, they have something to lose and little to gain. If the collective product is good, then the participant cannot take credit for it; if the collective product is poor, then the participant must assume the blame. This might demotivate the participant. In expectancy-value terms, a favorable self-evaluation is more contingent on individuals' performances when they are working with poorly performing co-workers, because they are more likely to attribute the group's performance to their own inputs. Attempts could be made in subsequent research to separate concern for external evaluation (e.g., from the experimenter) from concern for self-evaluation.

Although these explanations may be plausible causes for social compensation in some collective conditions, we think it is likely that concern for the experimenter's evaluation was more salient to our participants than was their concern for the well-being of the experimenter or co-worker, or their concern for their own self-evaluation.

⁸ Of course, the broader body of small group literature suggests that groups can have positive effects on performance (e.g., Hackman & Morris, 1975; Laughlin & McGlynn, 1986; Moreland & Levine, 1990). In most of these studies, however, group performance was the primary focus, and even when individual effort was measured, it could not be separated from other factors such as incoordination.

Possible Restrictions to the Social Compensation Effect

We are not suggesting that social compensation will occur in all instances in which individuals believe their co-workers are contributing less than their fair share. In some cases compensation is not exhibited, as in the Kerr (1983) and Jackson and Harkins (1985) studies. We suggest that social compensation is more likely to occur under the following conditions: (a) when the evaluation of the group's performance on the task is viewed as important or meaningful to the individual, (b) when it appears as though the individual must continue to remain in the group working collectively, (c) at earlier stages of the collective effort, and (d) when the group size is relatively small.

The first restriction, that social compensation will only occur when the task (or performance on the task) is considered important or meaningful, was supported in Experiment 3. Importance or meaningfulness of the evaluation is necessary, we feel, because there are options other than social compensation available to the individual in a collective task. One option is simply to devalue the task, thereby reducing concern with the resulting evaluation, and choose not to work. Indeed, in earlier pretests of our experimental sessions, questionnaire results showed that participants often devalued the worth of the task when the co-worker said he was not going to try hard, even though he added that the "experiment sounds interesting." Moreover, in Experiment 3, participants did not compensate for low ability co-workers when they were able to discount the meaningfulness of the task. Tasks seen as ambiguous, unimportant, or trivial simply may not be involving enough to motivate participants to carry the load for a poorly performing co-worker. We believe this is why Jackson and Harkins (1985) found no social compensation effect when co-workers indicated they were not going to work hard *because* the task seemed boring.

The second restriction concerns another option available to people when working collectively and is supported in a recent study by Yamagishi (1988). Yamagishi found that if allowed, Japanese participants would often exit a collective work condition to reduce the expected inequity and divorce themselves from a potentially negative evaluation attributable to a loafing co-worker. Without a clear option to exit, participants are essentially forced to deal with the problem of a loafing co-worker by compensating and thereby bringing the group's product up to an acceptable level. As mentioned earlier, Goethals and Darley (1987) have suggested that, instead of bolstering the group effort, exiting (or disengaging oneself from the group) is another means of maintaining self-validation.

Third, we do not feel that the social compensation strategy will maintain itself indefinitely. It seems all too likely that after several iterations of compensating, individuals will develop a basic distrust for their co-worker and resentments will build. Indeed, participants in Kerr's (1983) study decreased their effort somewhat over time, after repeated exposure to their co-worker's failure to work hard on the task. Continued compensation may eventually lead to Kerr's "sucker effect" in which the compensator also chooses to loaf and suffer the collective consequences, or to Yamagishi's (1988) exit effect, even though exiting might be painful or costly. In groups that have been together for a long time, however, it is possible that members may be willing to tolerate longer periods of social compensation, be-

cause short-term concerns for equity may take secondary importance to long-term group success and stability. Consistent with this notion, Schmidt, Kelley, and Fujino (1987; as reported in Holmes & Rempel, 1989) have shown, with dating couples, that those who were in longer-term relationships were less concerned with moment-to-moment reciprocity.

Finally, it is also possible that social compensation will become less likely as group size increases, especially for additive tasks such as those used in the present experiments. Consistent with the logic of the expectancy-value model, as the number of co-workers increases, the contingency between an individual's effort and a favorable evaluation based on the group's performance decreases. Thus, it becomes increasingly unrealistic that compensating for others will lead to a valued outcome for the individual as group size increases. It is likely that the person will become unwilling to carry the burden of many poorly performing co-workers in return for a reward that is equally (and, therefore, unfairly) distributed across these same co-workers. Additionally, whereas it may be possible to compensate for one other person and still have a satisfactory group effort, it may be physically impossible in some cases to pull the load for many others to attain such a performance. In the case of disjunctive tasks, however, in which success is based on the best performing group member, the individual might still be willing to compensate for a large group, because his or her performance can still result in success for the group. One might wonder why we found social compensation in Experiment 1, in which groups of up to 8 were performing. We suspect that possessing an extremely low level of trust may distort a person's rational decision as to when it would be potentially useful to compensate.

These restrictions, by no means, reduce the importance of this effect, because there are many collective tasks in which small numbers of people form the group, such as partnerships and marriages. In fact, Wegner's (1986; Wegner, Giuliano, & Hertel, 1985) research on "transactive memory" in small groups such as couples suggests a potential for social loafing or social compensation on cognitive tasks that are dependent on attributions of others' abilities. As the partners gradually become familiar with each other's skills and abilities, particular members may become resident experts within certain knowledge domains. When presented with new information, each member may attend to or disregard the incoming data relative to his or her own perceived expertise within the group. Extending this logic, when working with high ability co-workers, individuals may feel less responsible for encoding new information (or for working hard) and loaf; however, when working with low ability co-workers, they may feel more responsible and put forth an increased effort commensurate with their higher ability.

Of course, these observations regarding the possible restrictions of the social compensation effect and its potential application to shared tasks in long-term relationships are speculative at this point. Future research might profitably employ the self-validation or expectancy-value models to develop empirical tests of these restrictions and other hypotheses. Also, although our self-reported effort results are merely suggestive, it may be interesting to investigate more directly the possibility that social compensation reflects conscious, strategic concerns to a greater degree than does social loafing. Our findings concerning social compensation and social loafing may apply to many common

forms of collectives to which beliefs about one's partner's contributions may play a critical role in the group's success or failure.

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