

# Preference for Group Work, Winning Orientation, and Social Loafing Behavior in Groups

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The authors developed a multilevel interactive model for predicting social loafing behavior in groups and tested this model in a study of 367 individuals working in 102 groups during a 4-month period. Study results revealed the importance of integrating both person (preference for group work and winning orientation) and situation (task interdependence) factors in predicting social loafing. Preference for group work was consistently and negatively related to social loafing behavior (self-reported and peer rated), and this relationship was moderated by both winning orientation and task interdependence. As predicted, group members were more likely to self-report social loafing when their preference for group work and winning orientation were both low. Peer-rated social loafing was most likely when preference for group work, winning orientation, and task interdependence were all low, as predicted. Theoretical and practical implications of the results are addressed, and several directions for future research are outlined.

**Keywords:** *social loafing; individual competitiveness; team attitudes; team effectiveness*

The elimination of social loafing behavior (i.e., the tendency for individuals to exert less effort in groups than when working individually) is frequently discussed as a key problem to be solved in team- and group-based

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organizations (e.g., Ilgen, 1999; Liden, Wayne, Jaworski, & Bennett, 2004; Shepperd, 1993). The burgeoning use of work groups in organizations and the seemingly ubiquitous presence of social loafing highlight the importance of understanding the antecedents of social loafing behavior (Cohen & Bailey, 1997). In the past, investigations of social loafing were typically conducted with the aim of designing ways to eliminate opportunities to engage in loafing behaviors. This research shows that loafing is often driven by characteristics of the situation and by individuals' situational interpretations. Kidwell and Bennett (1993), for example, outlined a set of group characteristics (e.g., size, homogeneity of tenure) and structure (e.g., task interdependence, reward systems) as potential predictors of the motivation to withhold effort. These group characteristics often create perceptions among group members that their efforts are not identifiable (e.g., Harkins & Jackson, 1985) or are not important in terms of group performance (e.g., Albanese & Van Fleet, 1985); these perceptions result in higher levels of social loafing. Group members are also often concerned about playing the role of a sucker and will withhold effort if they believe that others are also doing so (e.g., Veiga, 1991). Substantial insight can be gleaned from this evidence in terms of minimizing loafing through work design, in particular through effective management of task and reward structures (e.g., Barua, Sophie-Lee, & Whinston, 1995; George, 1992, 1995).

The scales of research on social loafing behavior are, however, unbalanced. Research progress on situational antecedents outpaces by a wide margin research progress on the person-related factors that may relate to social loafing behavior. More recently, Comer (1995) began the process of incorporating group member attitudes and individual differences into social loafing models, but research evidence, to date, is scarce, and our knowledge of these issues is limited. Moreover, new theory-based hypotheses and tests that incorporate person- and situation-based factors in a fashion that mirrors the operation of work teams in the field are virtually nonexistent. In this article, we aim to make theoretical and empirical progress in these areas.

We develop a multilevel, interactive framework for predicting social loafing behavior in teams that incorporates team-member attitudes (preference for group work, PGW), individual differences in competitiveness (winning orientation, WI), and task interdependence, a critical team design variable. We first elaborate on the relationship between PGW and the social loafing phenomenon. Some evidence indicates that PGW relates positively to individual performance behavior in teams (e.g., Campion, Medsker, & Higgs, 1993; Moorman & Blakely, 1995; Shaw, Duffy, & Stark, 2000), but some evidence indicates a negative relationship (e.g., Wagner, 1995).

We argue further that our understanding of the relationship between PGW and social loafing can be enhanced by considering the underlying motives of individuals in team situations. Drawing on social comparison arguments and research on individual competitiveness, we predicted that individual differences in WI moderate the relationship between PGW and social loafing. Finally, we incorporate into our model task interdependence, a key work-design factor in the explanation of social loafing behavior, and argue that task interdependence further moderates the two-way attitude-individual difference interaction.

## **Background and Theory**

### **PGW and Social Loafing Behavior**

PGW refers to the degree to which individuals prefer group work and compare it favorably with autonomous work. It is typically conceptualized as an attitude with a structure comprising affective and cognitive components in classic attitudinal terms. The evaluative object of the attitude is group work. This evaluation is presumed to elicit certain behavioral tendencies and intentions that may lead to a consistent pattern of proscribed behaviors (Ajzen, 1989).

With respect to behavior in teams, some researchers propose that a PGW may be associated with positive team-member behaviors (e.g., Cummings, 1981; Hackman & Oldham, 1980), but the theoretical issues (e.g., DeMatteo, Eby, & Sundstrom, 1998) and empirical evidence (e.g., Campion et al., 1993) are debatable. On the one hand, it is possible that those who prefer to work in groups are less motivated than those who prefer autonomous work. These individuals may prefer group work, in part, to benefit from the effort of better or higher-ability group members. A positive evaluation of group work might result in higher social loafing behaviors because these individuals perceive that their efforts are dispensable (e.g., Albanese & Van Fleet, 1985; Kerr & Bruun, 1983) or they may apply some rational choice perspective (e.g., Olson, 1965). Wagner's (1995) finding of a strong negative relationship between PGW and grade point average (GPA) might be seen to support this argument, although GPA presumably reflects some unknown combination of general ability and motivation.

On the other hand, those who prefer group work may react positively to group- or equality-based systems and understand the necessity of engaging in supportive group processes. In support of this position, Driskell and Salas

(1992) found that team members with a high PGW increased their performance levels in collective performance situations and paid more attention to the task inputs of other team members to a greater extent than those who preferred autonomy. The type of performance—a contextual view—may also play a role in illuminating the nature of the relationship between PGW and social loafing. Moorman and Blakely (1995), for example, reported a positive relationship between PGW and interpersonal helping. This finding is mirrored in a study by Van Dyne, Vandewalle, Kostova, Latham, and Cummings (2000). Eby and Dobbins (1997) provided further support for a PGW-contextual performance relationship when they found a relationship between PGW and cooperative team behaviors, as did Wagner (1995), when he found a strong positive relationship between PGW and shared responsibility. Although the theory and research evidence are inconclusive, the weight of the research findings suggests that PGW is positively related to effort levels, especially contextual performance behaviors that have a direct impact on other group members, namely, social loafing behaviors. Thus, we expect that PGW and social loafing will be inversely related:

*Hypothesis 1:* PGW will be negatively related to social loafing.

## **The Moderating Role of WI**

An issue underlying the arguments supporting a relationship among PGW, social loafing, and effort levels is the motive that may accompany a given predilection or dislike for group work situations. Many authors argue that situated goals and motives help individuals “organize social perception and lead to action with respect to specific situations” (Graziano, Hair, & Finch, 1997, p. 1406). In this section, we argue that individual differences in WI can enhance our understanding of this relationship by illuminating differential individual motives in social situations such as group work. WI, or individual differences in “self-aggrandizement” (Franken, Hill, & Kierstead, 1994; Houston, McIntire, & Terry, 2002), refers to the strength of an individual’s desire to win, especially in terms of maintaining superiority or favorable comparisons in social contexts. Franken and Prpich (1996) argued that individuals high in WI were driven by ego concerns. These authors found that individuals high in WI strongly endorsed self-image protection issues as the foundation for their competitive behavior. High WI individuals are inclined to win by maintaining relative advantages in terms of social comparisons (Dweck & Elliot, 1983). Although it may seem counterintuitive, WI is negatively related to the need to perform well (Franken & Prpich, 1996). High WI

individuals are not driven to perform at a maximum level or to meet an absolute standard of excellence but rather to beat others and to maintain advantageous social comparisons. High WI individuals may value excellence to some degree, but in general they value self-image protection and favorable social comparisons more than they value performing well.

We suggest here that a simultaneous consideration of PGW and WI will enhance our understanding of social loafing behavior in teams. We expect high WI levels to ameliorate the negative relationship between PGW and social loafing. The maintenance and enhancement of self-image is a strong concern for individuals high in WI; social loafing behavior is likely to exact a significant cost in terms of one's image in the social context. Maintaining a relative superiority should remain an important consideration for high WI individuals, even when they do not prefer the work design in which they are operating. It would be difficult for such individuals to view themselves as winners and to maintain their high positive self-images when they are viewed by others as free riders. These concerns should be even more salient for high WI individuals when the team context includes evaluations from team members (as is the case in our study). The desire to receive others' approval via the peer evaluation process should mitigate a negative behavioral reaction to an attitude (i.e., PGW) that is not consistent with the situational condition.

In contrast, we expect that the negative relationship between PGW and social loafing will be stronger when WI is low. Recall that the negative relationship between PGW and social loafing is founded on the idea that those who prefer group work may react positively to group or equality-based systems and also understand the necessity of engaging in supportive group processes, whereas those who have a lower PGW do not. When WI is low, this relationship is likely to be exacerbated, in part because low WI individuals are not concerned about unfavorable social judgments from others or the relative status changes that may result from their loafing behavior. An individual for whom self-image protection is not a salient issue is likely to engage in high levels of social loafing in response to a nonpreferred work design. In essence, the conditions for withdrawal through social loafing behavior in groups should be heightened when the work design does not stimulate interest in accomplishment via cooperation with others (low PGW) and negative social comparisons are not a substantial concern (low WI). Thus:

*Hypothesis 2:* There will be a significant interaction between PGW and WI in predicting social loafing such that the negative relationship between PGW and social loafing will be stronger when WI is low.

## The Moderating Role of Task Interdependence

The link between task interdependence—the degree to which team members must rely on one another to complete their work (Van de Ven, Delbecq, & Koenig, 1976)—and social loafing behavior hinges on the ability to evaluate or observe team member contributions. A number of studies argue and find that visibility or identifiability of team member contributions relates negatively to social loafing (e.g., Kerr & Bruun, 1981, 1983; Williams, Harkins, & Latane, 1981). When group member evaluations are conducted by individuals internal to the team (as is the case in our study), task interdependence increases the visibility of tasks to evaluators (i.e., other team members). We expect a generally negative relationship between task interdependence and social loafing in our study, but, more germanely, we expect task interdependence to moderate further the two-way interaction of PGW and WI, as we describe below.

The label *strong situations* is often used to describe conditions that weaken the relationships between individual attitudes, individual differences, and subsequent behaviors (Snyder & Ickes, 1985). That is, in some situations, attitudes are less likely to relate to expected behaviors because the context does not offer many behavioral options or because the behaviors are perceived to be difficult to perform. When task interdependence is high, the quality and quantity of the effort exerted by group members is easily observable by other group members. When task interdependence is low, team member behaviors are more difficult to observe, and opportunities for mutual monitoring of team member behavior are fewer. Thus, when team members evaluate one another's behavior, higher levels of task interdependence indicate a stronger situation (i.e., one in which "individual differences become minimal and situational effects prepotent"; Mischel, 1977, p. 327). When task interdependence is low, the situation is weak and "ambiguously structured so that people have to come up with their own interpretations as to what is the appropriate response" (Bowles, Babcock, & McGinn, 2005, p. 952).

In line with these arguments, because behaviors are easily identifiable and mutual monitoring is prevalent, we expect that high task interdependence will weaken the strength of the predicted attitude-individual difference interaction. Recall that we predict that the negative relationship between PGW and social loafing will be stronger when WI is low, in part because those low in WI are not as concerned with negative social comparison. When task interdependence is high (i.e., team member behaviors are more easily identified and mutual monitoring is increased), the normative pressure in such situations should lessen the likelihood that those low in WI will engage in loafing behavior, even when they have a negative attitude about group work. In contrast,

when task interdependence is low, we expect that those low WI individuals with negative attitudes about group work will take advantage of low levels of task identifiability and mutual monitoring and will act out on their attitudes by engaging in social loafing. Because receiving favorable social comparisons and maintaining a positive self-image are paramount for high WI individuals, we expect lower levels of social loafing despite lower levels of task interdependence and their lower level of PGW. Thus, the following prediction is offered:

*Hypothesis 3:* There will be a significant interaction among PGW, WI, and task interdependence in predicting social loafing such that the predicted two-way interaction between PGW and WI will be stronger when task interdependence is low.

## Method

### Sample

Participants were 457 students in 103 student groups enrolled in business administration courses at a large Midwestern university. Participation was voluntary, confidentiality assurances were given, and students received extra credit in return for their participation. Participants also signed waivers allowing the research team to collect peer evaluation information from course instructors. Eleven classes, taught by 4 different instructors, were involved. Four criteria for inclusion were used: (a) group membership was randomly assigned at the beginning of the term, (b) groups remained intact throughout the term, (c) several group projects and assignments were required of the intact groups, and (d) course instructors gave groups considerable discretion in terms of how to complete the assignments. These criteria were used to ensure that groups had opportunities for substantial and multiple interactions throughout the term and to ensure that there was variability in terms of task interdependence across the sample. Some in-class group work was generally conducted during each class period, and, in addition, some group assignments involved work outside of class. The assignments included group quizzes, case analyses, and a final term project with a group presentation. Anecdotal and empirical evidence showed that task interdependence varied considerably across the sample. After the final data collection, members of the research team spoke informally with members of several teams. These conversations revealed that some groups worked closely together on all aspects of the assignments; other groups divided

tasks into individual segments and pooled their efforts at the end of the assignment, and other groups used some combination of approaches. More formally, we asked participants during the final data collection to report the number of hours per week that they spent outside of class working with their group on assignments. The mean was 1.66 outside-of-class hours per week ( $\approx 27$  hours during the term), the standard deviation was 1.70 hours, and the range was 0 to 10 hours per week. Thus, a number of groups rarely, if ever, met outside of class time, although groups one standard deviation above the mean interacted for more than 3 hours per week outside of class, or for about 54 additional hours during the term.

Data were collected from participants at three points during the term. The Time 1 collection was during the first week of class, before groups began to interact and complete projects. Control variables, PGW, and competitiveness variables were collected at Time 1. Time 2 data, including perceptions of task interdependence and self-reported social loafing behavior, were collected at midterm (8 weeks after Time 1). Peer evaluations of social loafing were collected at Time 3 by course instructors and obtained by the research team following the term. The average group size was 4.5 members ( $SD = 0.76$ ), the average age of participants was 23.8 years, the modal class standing was senior level, 38% were men, the average GPA was 3.31, and 89% were full-time students. The sample comprised juniors (16%), seniors (51%), and graduate students (33%). Missing data across the three data collections reduced the analysis sample size to 365.

## Measures

*PGW (Time 1)*. This construct was assessed with a six-item scale developed for this study relying on previous work in this area (e.g., Barber, Rau, & Simmering, 1996; Eby & Dobbins, 1997; Wagner, 1995;  $\alpha = .89$ ). Higher scores indicated a higher preference for work in groups. A sample item is, "I prefer to work on team rather than individual tasks." The items had 7 Likert-type response options from 1 (strongly disagree) to 7 (strongly agree).

*WI (Time 1)*. This variable was assessed with seven items ( $\alpha = .78$ ) from Franken et al. (1994). A sample item is, "I like a situation in which there is a winner." The items had 7 Likert-type response options from 1 (strongly disagree) to 7 (strongly agree).

*Task interdependence (Time 2)*. Following a number of prior researchers (e.g., Campion et al., 1993; Campion, Papper, & Medsker, 1996; Kiggundu,

1983; Liden et al., 2004), task interdependence was measured as a perceptual measure of the degree of interconnectedness of group member tasks. A four-item scale adapted from Campion et al. (1993) was used ( $\alpha = .69$ ). A sample item is, "I can't accomplish my tasks without information from other team members." The items had 7 Likert-type response options from 1 (strongly disagree) to 7 (strongly agree).

We operationalized task interdependence as a group-level construct. That is, mean scores at the individual level were aggregated to the group level. As such, it was necessary to assess the degree to which team members agreed about the level of task interdependence. Following previous researchers (e.g., LePine & Van Dyne, 1998), assessment of interrater agreement was accomplished with an application of the  $r_{wg(j)}$  technique (James, Demaree, & Wolf, 1984). The average  $r_{wg(j)}$  (.82) indicates a high level of within-group agreement.

*Social loafing (Time 2 and Time 3).* To examine the robustness of our results across multiple measures, to take into account different perspectives on individual behavior in groups, and to generate convergent validity evidence, we operationalized social loafing in two ways. Self-reported social loafing was assessed using a three-item scale adapted from George (1992) at Time 2 ( $\alpha = .79$ ). This scale assesses personal loafing or the self-reported relative frequency of withheld effort by an individual during team performance situations. Higher scores indicate higher levels of social loafing. A sample item is, "Sometimes I let team members do work that I should do." The items had 7 Likert-type response options from 1 (strongly disagree) to 7 (strongly agree). Peer-rated social loafing was collected by course instructors during the final week of class (Time 3) and was obtained by the research team following the term. During the final week of class and during class time, course instructors distributed a peer evaluation form to all members of the class. On the form, group members were asked to rate the effort levels of each of their group members on a scale from 0 (no effort) to 100 (maximum effort). The reverse of the average evaluation for each individual (i.e., 100 minus the average effort score) is the peer-rated operationalization of social loafing behavior. Peer evaluations constituted between 2.5% and 5.0% of an individual's total grade in the course. Following the term, course instructors supplied peer evaluation information to the research team for participants who had signed release waivers.

We assessed interrater agreement with an application of  $r_{wg}$ . In this case, however, the assessment is the level of within-group agreement of the peer evaluation score for each referent, and the group is the unique group of raters for each referent. Because the groups (and hence the cadre of raters) varied in

size, separate equations were calculated for each group size. These estimates yielded excellent indicators of peer evaluation reliability (average  $r_{wg} = .94$ ).

*Control variables (Time 1).* Age, measured in years, and gender (men = 0, women = 1) were included because they may be related to PGW (e.g., Chen & Church, 1993; Wagner, 1995). Class standing (1 = junior, 2 = senior, 3 = graduate student) was controlled as a proxy for team experience, a correlate of team attitudes (Shaw et al., 2000). Because some part-time graduate students were included in the sample, a dichotomous measure of part- (coded 0) and full-time status (coded 1) was included. Cumulative GPA was also included as a proxy for ability that may relate to effort level (Wagner, 1995). We also controlled for team size because it may relate to interdependence and social loafing behavior (e.g., Duffy, Shaw, & Stark, 2000; Gladstein, 1984; Liden et al., 2004).

## Results

Descriptive statistics for and correlations among the study variables are shown in Table 1. Several interesting associations are evident in the table. First, self-reported social loafing behavior and peer-rated social loafing were significantly and positively, although moderately, associated ( $r = .20, p < .01$ ). Of interest is the negative association among PGW and self-reported social loafing ( $r = -.10, p < .05$ ) and peer-rated social loafing ( $r = -.10, p < .05$ ). Self-reported social loafing was negatively associated with gender ( $r = -.21, p < .01$ ) such that women reported lower levels of social loafing. Self-reported social loafing was also positively related to class standing ( $r = .11, p < .05$ ) and negatively related to task interdependence ( $r = -.14, p < .01$ ). Peer-rated social loafing was negatively associated with gender ( $r = -.10, p < .05$ ) and negatively associated with GPA ( $r = -.20, p < .01$ ).

Because participants were nested in groups and the task interdependence variable was assessed at the group level, we used hierarchical linear modeling (HLM) to test the hypotheses. The tests of Hypotheses 1 and 2 are conducted at Level 1 in HLM (e.g., Raudenbush & Bryk, 2002). The Level 1 model including controls, PGW, WI, and the interaction of PGW and WI is:

$$\begin{aligned}
 Y_{ij} \text{ (social loafing)} = & \beta_{0j} + \beta_{1j} \text{ (age)} + \beta_{2j} \text{ (gender)} + \beta_{3j} \text{ (class standing)} \\
 & + \beta_{4j} \text{ (full-time)} + \beta_{5j} \text{ (GPA)} + \beta_{6j} \text{ (PGW)} \\
 & + \beta_{7j} \text{ (WI)} + \beta_{8j} \text{ (PGW} \times \text{WI)} + r_{ij}
 \end{aligned}
 \tag{1}$$

where  $Y_{ij}$  is the observed value of outcome  $Y$  (social loafing) for observation  $i$  nested within group  $j$ ,  $\beta_{0j}$  is the intercept for group  $j$ ,  $\beta_{1j} - \beta_{8j}$  are regression

**Table 1**  
**Correlations and Descriptive Statistics Among Study Variables**

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10
1. Age	23.80	5.47										
2. Gender	0.38	0.47	.00									
3. Class standing	2.17	0.68	.37*	-.11*								
4. Full-time status	0.89	0.21	.58**	.02	.20**							
5. Grade point average	3.31	0.40	.27**	.12*	.38**	.15**						
6. Team size	4.51	0.76	.02	.03	-.03	.01	.01					
7. Preference for group work	4.37	1.18	.03	-.14**	.10	.06	-.06	.03	(.89)			
8. Winning orientation	4.76	0.96	-.16**	-.37**	-.02	-.20**	-.02	.08	.03	(.78)		
9. Task interdependence	4.66	0.68	-.03	-.06	.00	-.02	.02	-.04	.14**	.13*	(.69)	
10. Self-reported social loafing	2.37	1.05	-.05	-.21**	.11*	.03	-.04	.05	-.10*	.00	-.14**	(.79)
11. Peer-rated social loafing	8.22	11.94	-.07	-.10*	-.09	-.06	-.20**	-.01	-.10*	-.04	-.05	.20**

Note: *N* = 365. Pairwise deletion procedure was used to generate the table. Coefficient alpha reliabilities are reported on the main diagonal where appropriate. Gender was coded 1 for women and 0 for men.

\**p* < .05. \*\**p* < .01.

slopes of the outcome of the eight individual-level covariates within group  $j$ , and  $r_{ij}$  is a residual term.

The task interdependence variable and the team size control were assessed at the group level and were included in a Level 2 model:

$$\beta_{0j} = \gamma_{00} + \gamma_{01} (\text{team size}) + \gamma_{02} (\text{task interdependence}) + u_{0j} \quad (2)$$

where  $\gamma_{00}$  is the fixed intercept,  $\gamma_{01}$  and  $\gamma_{02}$  are the fixed regression coefficients for the team size control and task interdependence, respectively, and  $u_{0j}$  is the Level 2 residual.

The test of Hypothesis 3 in the HLM analysis involves the prediction of the slopes of the Level 1 predictor variables (i.e., a “slopes as outcomes” model). To satisfy the requirement of including all possible combinations of two-way interactions, we estimated the effect of task interdependence on the PGW ( $\beta_{6j}$ ) and WI ( $\beta_{7j}$ ) slopes, in addition to the effect of task interdependence on the slope of the PGW by WI interaction term ( $\beta_{8j}$ ). Thus:

$$\beta_{6j} (\text{PGW slope}) = \gamma_{60} + \gamma_{61} (\text{task interdependence}) + u_{6j} \quad (3)$$

$$\beta_{7j} (\text{WI slope}) = \gamma_{70} + \gamma_{71} (\text{task interdependence}) + u_{7j} \quad (4)$$

$$\beta_{8j} (\text{PGW} \times \text{WI slope}) = \gamma_{80} + \gamma_{81} (\text{task interdependence}) + u_{8j} \quad (5)$$

Stated as a final or full mixed model including Level 1 main effects, Level 2 main effects, and cross-level interactions, the predicted equation is:

$$\begin{aligned} Y_{ij} (\text{social loafing}) = & \gamma_{00} + \gamma_{10} (\text{age}) + \gamma_{01} (\text{team size}) + \gamma_{20} (\text{gender}) \\ & + \gamma_{02} (\text{task interdependence}) + \gamma_{30} (\text{class standing}) \\ & + \gamma_{40} (\text{full-time}) + \gamma_{50} (\text{GPA}) + \gamma_{60} (\text{PGW}) + \gamma_{70} (\text{WI}) \\ & + \gamma_{80} (\text{PGW} \times \text{WI}) + \gamma_{61} (\text{task interdependence} \times \text{PGW}) \\ & + \gamma_{71} (\text{task interdependence} \times \text{WI}) \\ & + \gamma_{81} (\text{task interdependence} \times \text{PGW} \times \text{WI}) + u_{0j} + r_{ij} \quad (6) \end{aligned}$$

The results of the HLM analyses are shown in Table 2. A hierarchical approach was used. Control variables were entered in Model 1, whereas independent variables, the set of two-way interactions, and the three-way interaction (PGW by WI by task interdependence) were entered in Models 2, 3, and 4, respectively.

Hypothesis 1 predicted that PGW would be negatively related to social loafing behavior. The tests of this hypothesis are found in the columns labeled Model 2. Hypothesis 1 is supported in the self-reported and peer-rated social loafing equations. PGW is negatively related to self-reported ( $\gamma = -0.15$ ,  $p < .01$ ) and peer-rated ( $\gamma = -1.21$ ,  $p < .05$ ) social loafing. In HLM analyses,

**Table 2**  
**Hierarchical Linear Modeling Results With Social Loafing as the Dependent Variable**

	Self-Reported Social Loafing (Time 2)				Peer-Rated Social Loafing (Time 3)			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
<b>Controls</b>								
Age	-0.03**	-0.03**	-0.03**	-0.03**	0.00	-0.02	-0.01	-0.01
Gender	-0.41**	-0.53**	-0.54**	-0.54**	-1.89	-3.09**	-3.16**	-3.06**
Class standing	0.22**	0.24**	0.24**	0.24**	-0.59	-0.45	-0.38	-0.46
Full-time status	0.31	0.29	0.30	0.30	-1.09	-1.39	-1.38	-1.31
Grade point average	-0.13	-0.14	-0.14	-0.15	-4.24**	-4.23**	-4.34**	-4.35**
Team size	0.09	0.10	0.10	0.11	-0.02	0.12	0.18	0.27
<b>Independent variables</b>								
Preference for group work (PGW)		-0.15**	-0.15**	-0.16**		-1.21*	-1.20*	-1.21*
Winning orientation (WIN)		-0.08	-0.09	-0.08		-1.14*	-1.18*	-0.99*
Task interdependence (TI)		-0.17**	-0.18**	-0.18**		-0.32	-0.40	-0.30
<b>Interactions</b>								
PGW × WIN			0.08*	0.09*			0.39	0.39
PGW × TI			0.02	0.01			1.15	0.96**
WIN × TI			-0.08	-0.09			-0.75	-0.56
PGW × WIN × TI				-0.06				-1.74*

Note:  $N = 365$ . Gamma coefficients are reported in the table. Gender was coded 1 for women and 0 for men.

\* $p < .05$ . \*\* $p < .01$ .

$R^2$  values are computed relative to the residual variance available for explanation at a given level (Hofmann, Griffin, & Gavin, 2000). Using the guidelines from Hofmann et al. (2000), we assessed the amount of residual Level 1 variance in models with and without PGW in the equation. The ratio for Level 1  $R^2$  change is:

$$\begin{aligned}
 R^2 \text{ change Level 1} \\
 \text{intercept mode} &= (\sigma_1^2 \text{ intercept-as-outcomes model without PGW} \\
 &\quad - \sigma_2^2 \text{ intercept-as-outcomes model with PGW}) \\
 &\quad \div \sigma_1^2 \text{ intercept-as-outcomes model without PGW} \quad (7)
 \end{aligned}$$

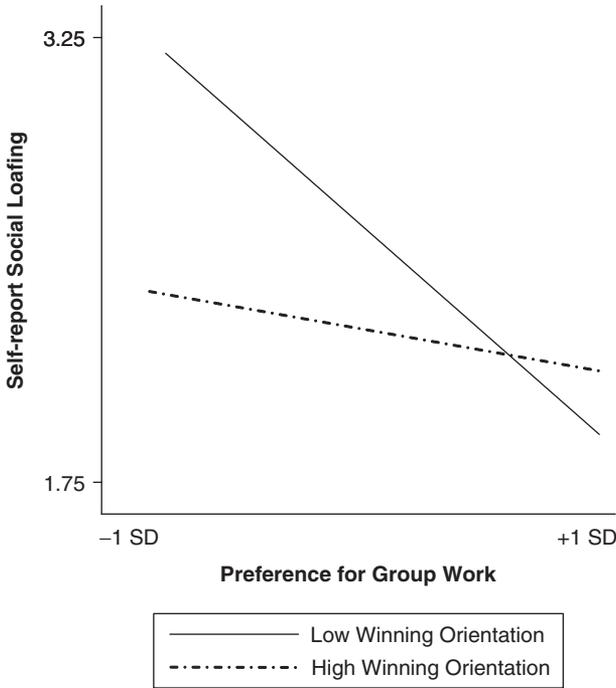
where  $\sigma_1^2$  is the residual Level 1 variance in a model with controls and WI only in the equation and  $\sigma_2^2$  is the residual Level 1 variance with controls, WI, and PGW in the equation. Using this formula, we calculated that PGW accounted for 2% of the Level 1 variance in self-reported social loafing and 2% of the residual variance in peer-rated loafing.

Hypothesis 2 concerns the two-way interaction of PGW and WI on social loafing. In the columns labeled Model 3, the interaction of PGW and WI is significant ( $\gamma = .08, p < .05$ ) in the self-reported loafing equation but not significant in the peer-rated loafing equation. The PGW by WI interaction explains 1% of the Level 1 variance in social loafing behavior. A plot of the significant interaction is shown in Figure 1. As the figure shows, there is a significant negative relationship between PGW and self-reported social loafing when WI is low. When WI is high, the trend is negative, but the simple slope is not significant. Thus, a stronger negative relationship exists between PGW and self-reported social loafing when WI is low, as predicted. Thus, Hypothesis 2 is supported in the self-reported loafing equation.

The tests of Hypothesis 3 are found in the Model 4 equations in Table 2. The three-way interaction among PGW, WI, and task interdependence is not significant in the self-reported social loafing equation. The three-way interaction is significant in the peer-rated loafing equation ( $\gamma = -1.74, p < .05$ ). We also computed an  $R^2$  change for group-level task interdependence as a Level 2 moderator of the PGW by WI interaction. These Level 2 slopes as outcomes  $R^2$  values are calculated relative to the amount of between-group variation in slopes (Hofmann et al., 2000), not with reference to the total variance in the outcome variable. The  $R^2$  calculation for a slopes as outcomes model is:

$$\begin{aligned}
 R^2 \text{ Level 2 slope model} &= (\tau_{11} \text{ intercept as outcomes} \\
 &\quad - \tau_{11} \text{ slopes as outcomes}) \\
 &\quad \div \tau_{11} \text{ intercept as outcomes} \quad (8)
 \end{aligned}$$

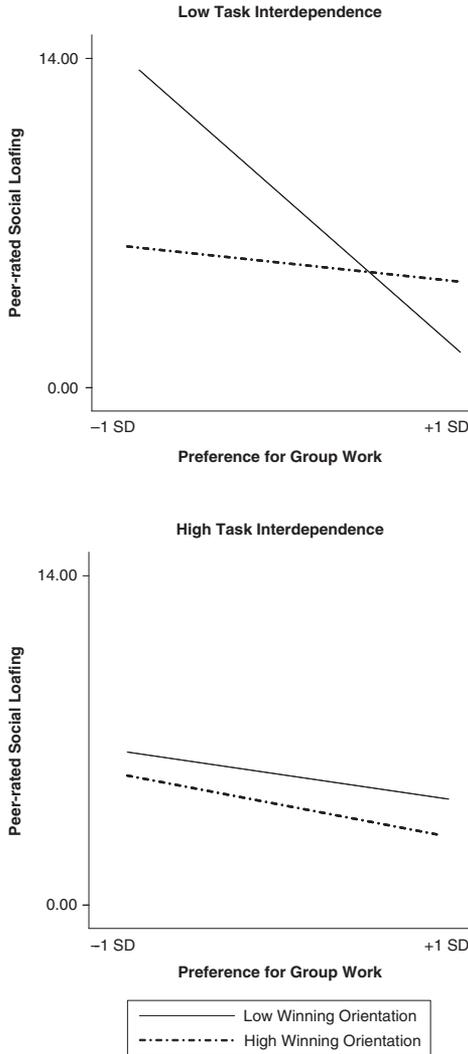
**Figure 1**  
**Interaction Between Preference for Group Work (Time 1)**  
**and Winning Orientation (Time 1) in Predicting**  
**Self-Reported Social Loafing Behavior (Time 3)**



where  $\tau_{11}$  intercept as outcomes is the residual between-group variance in slopes in a model without cross-level interaction terms and  $\tau_{11}$  slopes as outcomes is the residual between-group variance in slopes in a model with interaction terms. Using this formula, group-level task interdependence explains 7% of the residual variance in the Level 1 slope.

A plot of the significant three-way interaction is shown in Figure 2. The top panel of the figure shows the PGW by WI interaction when task interdependence is low. A significant, negative relationship exists between PGW and self-reported social loafing when WI is low, as predicted. When WI is high,

**Figure 2**  
**Three-Way Interaction Among Preference for Group Work (Time 1), Winning Orientation (Time 1), and Task Interdependence (Time 2) in Predicting Peer-Rated Social Loafing Behavior (Time 3)**



there is a negative, but not significant, relationship. The lower panel in Figure 2 shows the interaction when task interdependence is high. In this panel, we expected the strong task interdependence situation to wash out the PGW by WI interaction. This effect is observed in the bottom panel of Figure 2. A slightly negative, but not significant, relationship is seen between PGW and self-reported social loafing in the high and low WI conditions. Thus, Hypothesis 3 is supported in the peer-rated social loafing equation.

To summarize, Hypothesis 1, the predicted negative relationship between PGW and social loafing, was supported in the self-reported and peer-rated social loafing equations. Hypothesis 2 was supported in the self-reported social loafing equation but was not supported in the peer-rated loafing equation. Hypothesis 3 was supported for peer-rated loafing but not for self-reported social loafing. The theoretical and practical implications of these results, suggestions for future research, and limitations of our study are addressed below.

## Discussion

### Summary and Theoretical Issues

The pace of research concerning the relationship between attitudes and individual differences and social loafing behavior in teams lags behind the pace of research on situational influences. This study was designed to add to the nascent body of empirical evidence on person-related factors and social loafing. It was also designed to explore and integrate situational and personal contingencies in the relationship between PGW and social loafing. Our first purpose in this study was to highlight the important role that group-related attitudes, PGW in particular, could play in the prediction of social loafing behavior. As predicted, PGW was consistently and negatively related to two separate source measures of social loafing behavior—self-rated measures and peer-rated measures—in bivariate and multivariate contexts. That the magnitude of the relationships was not larger is not surprising given that several authors have noted that motives differ across individuals and these motives may influence the strength of the attitude-behavior linkage.

Our second purpose, therefore, was to enhance and extend the main effect theory by including a key marker of individual motives in group situations—WI. Drawing on research showing that high WI individuals are concerned about appearance and receiving favorable social comparisons (e.g., Franken & Brown, 1996), we argued that the relationship between PGW and social

loafing would be stronger among those low in WI. This hypothesis was partially supported; that is, the interaction was significant in the self-reported loafing equation but was not supported in the peer-rated loafing equation. In the self-reported loafing equation, PGW was strongly and negatively related to social loafing behavior only when WI was low.

Our third purpose was to integrate our interactive person-related perspective with the existing literature on task structures and social loafing. We argued that the effects of attitudes and individual differences on social loafing behaviors would be weaker when tasks were highly interdependent (i.e., group member behaviors were easily observable by peer evaluators). This interaction prediction was supported in the peer-rated loafing equation but was not supported in the self-reported loafing equation. For peer-rated loafing, when task interdependence was low, there was a strong negative relationship between PGW and social loafing among those low in WI, as predicted, but the relationship was not significant when WI was high. Also as predicted, high task interdependence ameliorated the PGW by WI interaction in the peer-rated loafing equation.

These findings extend our knowledge of the relationship between group-related attitudes and social loafing behavior and suggest several interesting theoretical and practical implications. In particular, they extend existing main effect models (e.g., Liden et al., 2004) by showing that social loafing behavior is a function of a more complex psychology of the person and the situation. As noted above, the preponderance of research evidence suggests that PGW would relate negatively to social loafing behavior, but alternative conceptual views and some of the empirical evidence suggest a positive relationship. With WI as a moderator, we were able to enhance our understanding of the PGW and self-reported social loafing relationship and (when task interdependence was also incorporated) our understanding of peer-rated loafing as well. A high motivation to maintain superiority and favorable comparisons in social contexts (*viz.*, high WI) attenuated the negative relationship between preference for group and self-reported social loafing behavior. In general, these findings provide additional evidence that those high in WI perceive that success is a function of qualities such as modeling and appearance (Franken & Brown, 1996). Even when their attitude is counter to the current work situation, these individuals engage in low levels of loafing to maintain a favorable social image and to protect their ego.

Our findings show further that these person-related dynamics can fail to materialize in situations where group member behaviors are easily observable by evaluators—other group members, in this case. In the peer-rated loafing equation, high task interdependence ameliorated the effects of the

person-related predictors. In these situations, neither PGW nor the interaction of preference for group and WI was a significant predictor of peer-rated loafing. Only when task interdependence was low did those low in WI loaf when they had a negative attitude about group work.

## Implications for Research and Practice

Neuman, Wagner, and Christiansen (1999) point out that although the use of teams has increased dramatically in the past two decades, there is little accumulated evidence on the attitudinal and dispositional factors that relate to group member effectiveness. Blackburn and Rosen (1994) also note that organizations often include PGW in selection routines, although there is little evidence to suggest that this approach is effective. These findings, in total, provide some evidence that high levels of PGW can indeed result in lower free riding behavior in group contexts. Although organizations may want to choose PGW levels as a criterion for selecting individuals into organizations or for assigning individuals to groups, any such decision would require appropriate measure validation to counter, for example, influence tactics such as impression management. But our results provide a more nuanced and complex picture of the relationship between attitudes and effort reduction. First, they suggest that the negative effects of a low PGW can be neutralized by a high WI. Although there may be other advantages in group contexts associated with a high PGW (e.g., cooperation, citizenship, etc.), our results imply that a high WI (i.e., a concern for favorable social comparisons and positive relative positions) may act as a buffer against negative group attitudes influencing effort levels in groups. Second, our findings suggest further that these individual dynamics may be washed out by strong situations characterized by high levels of task interdependence and mutual monitoring and evaluation. If one assumes that assignments to group contexts cannot always be guided by scores on attitude and motive measures, it seems reasonable, given our results, to suggest that tasks should be structured so that group member contributions are identifiable. To summarize, our findings suggest that attitudes and individual differences in motives matter most in terms of social loafing behaviors in group contexts characterized by low levels of task interdependence. In these situations, decision makers may benefit from simultaneously considering individual orientation and PGW. High task interdependence, by contrast, appears to minimize the importance of individual attitudes and motives, at least in terms of their relationship to social loafing behavior.

Gender was consistently related to social loafing in the self-reported and peer-rated equations. Consistent and substantial differences as a function of

gender suggest that future research might pursue the implications of gender and social loafing more systematically. In the only study, to our knowledge, that addressed this issue directly, Kugihara (1999) examined effort levels in an experimental tug-of-war task among 36 Japanese participants (18 men and 18 women). Although the scope of the Kugihara study was quite modest and the sample size was rather small, these findings and our current findings raise an interesting question: Why do men and women differ in terms of social loafing behavior? Kugihara reasoned that these effects may have been observed because Japanese women have higher quality of achievement motivation than do Japanese men. WI can be considered a type of achievement motivation albeit in a narrow way (i.e., the motivation to achieve victory in social situations). Interestingly, we did not observe any mediating effects of WI or the interaction of WI with PGW in our data. Indeed, not only did the gender coefficients remain significant in the presence of our key independent variables, they were stronger in the full equation than in the control equation (see Models 1 and 4 in Table 2). Thus, although we also observe gender effects on social loafing, we were not able to confirm Kugihara's idea in our data. Although the two samples are rather disparate, gender effects appear to be somewhat consistent with respect to social loafing. We encourage future researchers to develop and test additional potential mediators of this relationship.

## **Limitations and Strengths**

This study is limited in several ways. First, college students served as the participants for this study; their use is a subject of much debate. The participants performed in intact groups and in a simulated work environment during the course of an entire semester. The work environment was simulated because it was an academic environment and the rewards were grades (i.e., nonmonetary), but responsibility for decision making in the group and responsibility for making task structure and work assignment decisions are characteristics that are similar to the operation of self-managed teams in industrial situations. Our groups also completed multiple projects and assignments during the course of a 4-month period, a reasonable approximation of long-term task teams in the industrial world and a large step beyond the use of ad-hoc teams in experimental settings. But the nature of, and reactions to, the work tasks (class assignments) and rewards (grades) may be somewhat different from those in real-work contexts. Second, the magnitude of explained variance estimated was not large, and readers may question whether or not the findings are significant in practical terms. We

would counter by pointing out that interaction effects are typically small in terms of effect size, especially in field studies, and that the results should be interpreted in view of the total effects of the independent variables including main effects, two-way interactions, and the three-way interaction.

All of the variables in the self-reported loafing equation were collected from the participants themselves, and therefore common method variance is a concern. This concern is alleviated somewhat by the use of temporally separated variable assessments (i.e., collection of self-reported social loafing data and interdependence 8 weeks after assessing the competitiveness and attitudinal variables) and by the generally consistent findings in the peer-rated loafing equation. Data collections separated in time help reduce not only response consistency effects but also the fatigue sometimes associated with administering long, single-assessment questionnaires (Ganster, Fusilier, & Mayes, 1986). Moreover, it is difficult to explain how common method can explain a pattern of findings across levels of a second variable, findings that conform to a prediction made a priori (Duffy et al., 2000). Evans (1985) conducted a large Monte Carlo study to explore this issue (i.e., Can a significant interaction be produced spuriously by correlated error between independent and dependent variables?). His results "are clear-cut. Artificial interaction cannot be created; true interactions can be attenuated" (p. 305). Nonetheless, only cautious generalization of the study results would seem prudent.

Another limitation concerns the potential cross-level effects that may have influenced self-reports of social loafing. It is possible that discussions among group members regarding the efforts of others may have resulted in the formation of group-level perceptions of social loafing. As a post-hoc check, we included perceptions of the loafing of others (collected at Time 2) and included this variable in the analysis as a control. The results were substantially identical to the reported results. Future cross-level investigations would be beneficial in furthering our understanding of group influences on member perceptions (e.g., Liden et al., 2004; Robinson & O'Leary-Kelly, 1998).

A final limitation concerns the strongly skewed distribution for the peer-rated social loafing variable. Although some variation exists in the measure, there was a substantial restriction of range and a strong negative skew, reducing our ability to detect significant effects, especially higher order ones. The mean on the social loafing variable was 8.22 ( $SD = 11.94$ ) on a 0 to 100 scale, suggesting perhaps that group members were fairly lenient in their assessments of group member loafing or that they feared retribution. One straightforward interpretation is that the substantial restriction of range inhibited our ability to detect significant effects. If this is the case, the generally supportive

findings in the peer-rated loafing equation (the significant three-way interaction, in particular) suggest very strong underlying effects. The magnitude of the underlying effects may be underestimated in this study as a result.

In fairness, other possible explanations are that the peer-rated measure of social loafing is invalid or that the restriction of range affected our results in unexpected ways. It is not possible for us to resolve these concerns completely, but there are several mitigating factors. First, self-reported and peer-rated social loafing measures were positively, although only moderately, correlated ( $r = .19, p < .01$ ), suggesting some level of convergence. Second, the direction of the relationships with the key variables (PGW, in particular) was similar across the two social loafing measures. Third, it is reasonable to expect that assessments of social loafing from different perspectives (e.g., self vs. others) will not be identical. Indeed, it is interesting to note that there was more relative variation in self-rated loafing than in peer-rated loafing in our study; that is, individuals were more willing to highlight their own weaknesses than the weaknesses of others. Although within-group agreement was high ( $> .90$  on average) for the peer-rated measure, these figures are likely inflated by leniency bias in the measure. It should be noted, though, that fear of retribution and leniency bias are not unique to our peer-rated measure in this classroom setting. Leniency is a clear weakness in peer performance ratings and in performance appraisal in general. These counterarguments notwithstanding, our peer-rated measure has several weaknesses, and we encourage researchers to find ways of improving the distribution properties and enhancing the validity of such measures.

## Conclusion

To summarize, we developed and tested a multilevel, interactive model of social loafing behavior and tested it in a multiwave study of group members. We found that PGW related negatively to self-reported and peer-rated measures of social loafing behavior and that WI moderated further the relationship in the self-reported social loafing. As predicted, the negative relationship between PGW and social loafing was stronger when WI was low. In addition, we found a significant three-way, cross-level interaction with task interdependence, such that the interactive individual dynamics (PGW by WI) were observed only when task interdependence was low. The results extend our knowledge of the individual factors that contribute to social loafing behavior in teams and enhance our knowledge of person-situation interactions in team situations. We hope our study will encourage future theory building and testing in these areas.

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