

The Effect of Team Cohesion on Social Loafing in Relay Teams

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The purpose of this study was to investigate to what extent team cohesion influences social loafing in a 30-meter sprint relay. Thirty-nine male college sport students competed under high and low identifiable conditions in which the differences between sprint times were recorded. Faster running times under the identified condition than under the non-identified condition was seen as indicative of social loafing. In order to create variability in cohesion, the participants were randomly divided into ten teams, and half of the team participated in a team-building exercise. The results indicated that participants in the cohesive groups tended to perform equally well under identified and non-identified conditions, whereas those participants in the non-cohesive teams ran more slowly under the non-identified condition than under the identified condition. The results support our expectation that group cohesion reduces participants' willingness to engage in social loafing.

key words: Group dynamics, social loafing, team cohesion, sport

Introduction

In competitive sport, maximizing performance or “winning” is often regarded as the main objective or goal (Lordanoglou, 1993), and the individual team members' invested efforts would seem crucial for team success. However, research has found that effort and performance often are of a smaller magnitude than might be expected, given the individual's abilities and potential. For individual activity in a team to be transformed into a group product, communication, coordination, and interaction are necessary. These factors can be relatively ineffective, and losses in efficiency may occur. In Steiner's (1972) group effectiveness model it is noted that

actual group productivity often falls short of potential productivity owing to faulty group processes. Steiner has identified two main sources of reduced productivity: 1) co-ordination losses, comprising the group's failure to optimally co-ordinate the contributions of the individual members, and 2) motivation losses, due to the members not exerting maximal effort in group settings. In the latter case, motivation losses appear to be due to the fact that, under some circumstances, individuals reduce their efforts when working in groups compared to when they work alone. This reduction in effort caused by motivation losses has been termed social loafing (Latané, 1986). Latané, Williams, and Harkins (1979) have described social loafing as a social disease which has negative consequences for individuals, groups, and society. Karau and Williams' (1993) meta-analysis on social loafing showed that social loafing is evident for both genders, and across a number of group-oriented tasks. Moreover, social loafing seems more likely to occur when working with strangers, on tasks perceived as low in meaningfulness or personal involvement, or when a group-level standard is not available, and when individual outputs cannot be evaluated publicly. In particular, public evaluation or identifiability (e.g. making public each member's contribution to the total group output) has been highlighted as a key situational factor that inhibits social loafing, and some researchers have explained social loafing as a motivational loss caused by reduced identifiability or evaluation (e.g., Hardy, 1990; Harkins, 1987; Kerr & Bruun, 1983; Latané et al., 1979).

Yet another factor that is seen as reducing social loafing is team cohesiveness. Team cohesiveness can be defined as: "...a dynamic process that is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of members' affective needs" (Carron, Brawley, & Widmeyer, 1998; p. 213). Cohesion is viewed as a multi-dimensional construct, and especially the distinction between task cohesion and social cohesion has proven to be important in order to understand cohesion, and its effect on team performance (Cota, Longman, Evans, Dion, & Kilik, 1995; Mudrack, 1989; Mullen & Copper, 1994). In a meta-analysis on cohesion and team performance Mullen and Copper (1994) found that commitment to task (analogous to task cohesion) was significantly related to performance. Further, Carron, Colman, Wheeler, and Stevens (2002) in their meta-analysis on cohesion and performance found that both task and social cohesion are associated with performance. Despite some equivocal findings in the research into cohesion and performance, Carron et

al. (2002) assert that, in general, the relations between these variables are positive, and moderate to large in size. There may be several ways to explain why cohesion positively influences performance in sport. One is that cohesion counteracts team-members motivation to socially loaf. First, members in cohesive teams appear to take more individual responsibility for the outcome. Secondly, members in cohesive teams are more willing to make sacrifices for the group and thus are more willing to invest effort in the team, due to a sense of bonding and belonging to the team. Furthermore, cohesive groups represent an environment where individuals may feel greater pressure from their team-mates. Thus in order to satisfy the expectations of highly-valued team members, they typically enhance their individual effort (Carron & Hausenblas, 1998).

Research on the relationship between group cohesiveness and social loafing in sport is relatively sparse, and few firm conclusions have been made. In particular, investigations have either manipulated the level of acquaintance with co-workers, or examined individuals who were clearly closely acquainted with one another. Neither in a study among Japanese students (Shirakashi, 1985) nor in studies on cheerleaders (Hardy and Latané, 1988) was a significant difference found in social loafing between the participants' low and high cohesiveness, respectively. Williams, Nida, Baca, and Latané (1989) investigated the effects of identifiability on individual and relay performances of intercollegiate swimmers. There was no explicit focus on cohesiveness, but according to Williams et al. (1989), the participants were recruited from the same club, and thus were characterized as a highly cohesive group. The level of cohesiveness, however, was neither measured nor manipulated. The results indicated that when their lap times were identifiable, the swimmers obtained significantly better results in the relay condition than when swimming individually. In contrast, they swam slower in relays under conditions of low identifiability as compared to under conditions of high identifiability. Williams and co-workers argued that identifiability is a crucial factor in influencing social loafing, and that even in cohesive teams the probability of individuals engaging in social loafing will increase if the effort is unidentifiable.

However, to our knowledge, only two studies in the sport domain have investigated the relationship between cohesiveness and social loafing while including a direct measure of group cohesion. In a study of 16 male and female swimmers, using Widmeyer, Brawley, and Carron's (1985) Group Environment Questionnaire, Everett, Smith, and Williams (1992) examined the level of cohesion in their team

before swimmers participated in individual and relay competitions. Results revealed that under conditions of heightened identifiability, social loafing was not reduced. However, task cohesion was negatively and significantly related to social loafing in females, but not in males. The study indicates that groups, at least among females, experience high cohesion, and that an individual's performance may not be influenced by variations in identifiability. Taking a similar approach as Everett et al. (1992), McKnight, Williams, and Widmeyer (in Carron & Hausenblas, 1998) also found no evidence of social loafing in teams characterised with high task cohesion, regardless of whether the individual members' personal output could be identified or not. Two studies have investigated the relationship between perception of social loafing and cohesion among team-mates and have found that team cohesion reduces the perception of social loafing in the team (Høigaard, Skjekkeland, & Johansen, 2003; Høigaard, Säfvenbom, & Tønnessen, in press). Indeed, a limitation related to this approach is whether perceived social loafing reflects actual reduced effort and, as such, social loafing in the right sense of the word.

In sum, the role of team cohesion in moderating social loafing is not entirely clear and thus warrants further investigation. First, none of the studies has directly manipulated cohesiveness. Second, only a few studies directly measured cohesiveness, whereas others were based on the questionable assumption that knowing each other, being part of a team, or reporting having friends on the team equals cohesiveness. Indeed such an approach reflects only a limited aspect of social cohesion, which may lead to an underestimation of both social cohesion and cohesion in general (Carron, 1980, 1982). Finally, as stated previously, perceived social loafing may not necessarily reflect actual effort reduction or social loafing. Hence, in order to avoid the shortcomings of earlier studies, an experiment was conducted in which cohesion was experimentally manipulated and measured. Further actual social loafing was examined by registering 30-meter sprint running times under two experimental conditions. Based on the theory and research described above, we hypothesised that team cohesiveness will reduce social loafing under a non-identifiable condition in a 30-meter sprint relay.

Method

Participants

Thirty-nine male university sports students participated in the experiment (mean age = 18.2 yrs, range 17.1 - 19.1 yrs, SD = 0.6 yrs). We told them that participation was voluntary and that participation would have no effect on their academic standing. None of the students refused to take part. After the experiment, the participants were debriefed.

Performance Task

Participants had to run two separate 30 m sprints. The sprints were performed using the Newtest Powertimer 1.0 testing system. This equipment consists of two infrared sensors. The sensors / timing were triggered when the runner passed the infrared signal. Two sets of sensors were placed 30 m apart in an indoor hall, and approximately 40 cm above floor level. The actual starting line for the test was one meter behind the first beam. The individual sprint time began when the first infrared beam was cut and stopped when the second beam was cut.

Design and Procedures

Initially, the students were told that the main objective of this study was to investigate team performance in sport in a relay-sprint competition. After this brief introduction, the participants were randomly assigned into two groups. Those two groups were then physically separated. The control group (non-cohesive group) was informed as to where the competition would take place and that the competition would begin in two days' time. They were also asked to take it easy if they were taking part in any physical activity over the next couple of days, so that they would be rested on the day of the competition. The experimental group was randomly assigned into five teams with four participants in each. In order to increase group cohesion in the team, strategies taken from established team-building programs were used (Carron & Spink, 1993; Forsyth, 1999; French & Bell, 1999; Janssen, 2002). Based on the recommendations from Carron et al. (2002), the program was balanced according to task-oriented and socially-oriented activities. The activities used in the

programme were taken from Carron & Spink (1993), Janssen (2002), and Pfeiffer & Jones (1974), and the team exercise activities were: getting to know each other, interpersonal relationships, co-operation, communication, goal setting, leadership, clarity and acceptance of role, and team norms. Experiences with former student classes and team-building intervention in sport and business groups, plus a pilot study on top-performing handball players, have indicated the effectiveness of the programme. The team-building programme was conducted over a period of two days, and the team was together for approximately 12 hours. Before the team-building exercise, the participant filled in a questionnaire on social cohesion. On the day of the experiment, the participants in the control group were randomly assigned into five teams with four participants in each. Then all the participants in both the experimental and the control groups were asked to complete the social-cohesiveness questionnaire. In addition, the participants in the experimental group filled out a task-cohesion questionnaire. To measure cohesion before the group members have interacted may not seem logical, as cohesion is a group property caused by working together (Carron & Spink, 1993). Thus one would expect zero, or at least quite a low level of task cohesion in the experimental groups and social cohesion in the control groups before the sprint competition. Nevertheless, for several reasons we chose to measure social cohesion before the teambuilding intervention and prior to the competition. This was done, first, in order to control for any possible knowledge of each other prior the experiment; second, in order to control for a possible effect of the teambuilding intervention; and third, in order to check whether any possible difference in social cohesion exists between the experimental groups and the control groups on the day of the experiment. In addition, all participants had to fill out a questionnaire about their confidence in the other team members' willingness to perform, and to do their best. They also rated how much effort they would put into the competition.

The experimental task was a 30m sprint, and the participants were to compete as a relay team, performing the sprints under two different conditions. The identifiable condition was obtained by informing the participant of their individual split times and the total time for the team in the presence of all participants. For the non-identifiable condition, only the total time for the team was given for the relay event. The participant was not aware that individual split times were recorded under this condition.

The competition took place in an indoor hall, and all participants were allowed

to observe each other's performances. We highlighted that it was a team competition and that the overall time for the team would be used to choose the best relay teams. The sprint-relay competition was not a traditional competition with baton changing. To eliminate the potential for co-ordination losses, the participants were instructed to run their sprint one by one (one team performed at a time). The first team member started when he heard the start signal (high-pitched sound). The next runner started on a signal when the preceding team member cut the second infrared beam, and so on. The reaction time is irrelevant, because of the one-meter distance each participant had to cover before he cut the first beam.

To balance the design, five teams performed under the identifiable condition first and the other five teams performed the first run under the non-identifiable condition. There was a recovery period of at least 15 minutes between the sprints in order to minimize any fatigue factor or progressive effect.

Measures

Cohesion

Due to the temporary and short duration of the experiment, a task and social cohesion measure was specifically developed for this study. Items that seemed to be relevant for the purpose of this study were derived from the Group Environmental Questionnaire (Widmeyer, Brawley & Carron, 1985) and the Multidimensional Sport Cohesiveness Inventory (Yukelson, Weinberg, & Jackson, 1984). The social cohesiveness subscale consists of 6 items (e.g. "I have a feeling of belonging to this team", "I know the members in my team well") and the task cohesiveness scale contains four items (e.g. "We are working well together as a unit", "We all take responsibility for poor performance by our team"). The questions are scaled on a 9-point Likert-type scale. Sum scores of each scale were computed with a higher score indicating perception of higher cohesiveness.

Two exploratory principal-axis factor analyses were conducted for the cohesiveness scales, and a single-factor structure emerged for each scale. The factor loading for the social cohesiveness items ranged from .60 to .81 and accounted for 58% of the variance, whereas the loadings for the task items ranged from .85 to .92 and accounted for 72% of the variance. Internal-consistency reliability using Cronbach's alpha coefficient was .81 for the social scale and .91 for the task scale.

Attitude toward the Task

Prior to the competition all participants were asked to respond to the following questions: 1) “Do you believe that your team could do well compared to the other team in the competition?”, and 2) “Do you want your team to perform well in the competition?” The first question was asked using a 9-point Likert scale ranging from strongly disagree (1) to strongly agree (9), and the second using a 9-point Likert scale ranging from not at all (1) to very well (9). The first question was asked in order to ensure that any lack of effort was not a function of low expectancy, and the second question to ensure that being part of this temporary team did not influence loafing, in that they did not like their team-mates or would have preferred to be on another team.

Results

Manipulation Check

Intervention Check

To evaluate the effect of the team-building intervention for the experimental group, a paired-sample t-test was conducted. There was a significant increase in the group cohesion scores before and after the team-building programme: pre-teambuilding ($M = 4.84$, $SD = 1.27$), post-teambuilding ($M = 6.60$, $SD = 0.91$), $t(18) = -7.49$, $p = .001$. The eta squared (.76) indicates a large effect size. There was also a significantly higher level of social cohesiveness in the experimental group than in the control group ($M = 4.0$, $SD = 1.35$) [$t(37) = 7.14$, $p = .001$]. The eta squared was .58. For the experimental group, the mean and standard deviation on task cohesion was 7.74 ($SD = 0.89$) on a 9 point scale. It is thus fair to say that the level of task cohesion is relatively high.

Attitude toward the Task

Consistent with previous research, subjects were asked: “Do you believe that your team could do well in relation to the other teams in the competition?” In general, the participants were optimistic about their team’s chances of performing

well. The mean value was 6.9 ($SD = 1.6$), and only two participants scored less than 5 on a 9-point scale. On the question “wanting the team to perform well in the competition,” the mean value was 8.2, ($SD = 0.8$), and no participant scored less than 7. This indicated that they wanted their team to perform well, and that any reduced effort is not a function of being part of their particular team; i.e. reducing effort because they disliked their team members or would have preferred to be in another team.

Order Effect

We balanced the design in the sense that half of the participants performed under the identified condition first, and the rest under the non-identified condition before switching. To test for an order effect, two separate one-way ANOVAs were conducted. There were no significant differences in either case, which confirms the absence of an order effect for the two team conditions.

Group Performance

The mean sprint times for cohesive and non-cohesive groups under identified and non-identified conditions are shown in Table 1. As shown, participants in the cohesive groups tended to run equally fast under the identifiable ($M = 4.32$, $SD = .23$) and the non-identifiable ($M = 4.31$, $SD = .22$) conditions, whereas participants in the non-cohesive groups ran more slowly under the non-identifiable conditions ($M = 4.35$, $SD = .20$) than under identified conditions ($M = 4.32$, $SD = .20$). Social loafing was operationalised as the difference in running time under the identifiable sprinting time condition versus the running time in the non-identifiable sprinting time condition. Hence, the amount of social loafing was calculated by subtracting the sprint time in the identified condition from sprint time in the non-identified condition, with a positive resultant sprint score thus indicating social loafing. The higher the resultant positive sprint score was found to be, the greater the amount of social loafing was seen as taking place.

Table 1. The mean and standard deviation for sprint times among cohesive groups (total group members $N = 20$) and non-cohesive groups (total group members $N = 19$) under different conditions of identifiability

	N	Condition			
		Identification		Non-identification	
		Mean	SD	Mean	SD
Cohesion groups	20	4.32	.23	4.31	.22
Non-cohesion groups	19	4.32	.20	4.35	.20

A 2 x 2 ANOVA Cohesion x Identified condition with repeated measures on the last factor revealed, as predicted, a significant cohesiveness x identification interaction $F(1, 37) = 6.85$, $p = .013$ (eta squared is .15) on sprint performance. Findings indicate that, under conditions of low identifiability, increased group cohesiveness seem to reduce the amount of social loafing as reflected in better running times. The result indicated no main effect of identifiability on sprint time $F(1, 37) = 2.64$, $p = ns$. However, a paired-samples t-test, conducted on each row, showed a significant simple effect for the control (non-cohesive) group ($t(18) = -2.92$, $p = .009$), but not for the cohesive group ($t(20) = 0.72$, $p = ns$).

Discussion

The experimental procedure of the present study successfully managed to control for coordination losses and/or gains, and thus any decrement in performance in the non-identifiable condition may be attributed to a motivational loss (i.e., social loafing). Furthermore, we also succeeded in increasing cohesion through a team-building exercise, as indicated by significant differences in cohesion between the experiment group and the control group. The significant difference observed in the level of cohesiveness reflects that the difference in the magnitude of social loafing between control group and experimental group teams is produced by the level of cohesiveness.

We obtained support for our hypothesis that group cohesiveness would reduce social loafing under conditions of low identifiability. This was evident in that members in the non-cohesive team performed worse, thus indicating social loafing,

when they ran under non-identified conditions, whereas the participants in the cohesive team ran equally fast under conditions of high identifiability as well as under conditions of low. Results support the notion that group cohesion may work to counteract the potential negative influences of non-identifiability on relay running performance. An overall comparison across the two experimental (high versus low cohesion) conditions revealed no differences in sprinting time under an identifiable condition. Additional analyses indicated that in the control (low cohesion) group a significant difference in sprint time in the non-identifiable condition versus the identifiable condition occurred. This is in line with the common explanation that identifiability reduces the magnitude of social loafing (Harkins, 1987; Williams, Harkins, & Latané, 1981).

Some notes of caution concerning the present findings seem necessary. First, it is possible that an audience effect generated the difference in performance (LeUnes & Nation, 1996). That is, participants in a cohesive unit may know each other well, thus they may be more likely to encourage and support each other verbally during the competition. A supportive audience or a spectator's positive influence on the performance of easy and well-learned tasks is reported in several studies (Bond & Titius, 1983; Carron, 1982; Zajonc, 1965). Given the fact that cohesive teams are more supportive, we have to keep in mind that this audience effect may have been relatively constant during both conditions, though with different content and level between control group teams and experimental group teams. Based on this reasoning it is still likely that cohesiveness played a superior role explaining the differences in the athletes' inclination to socially loaf. A second note of caution is that the observed differences in running time between the experimental group and the control group are moderate. However, given the fact that the experimental task was a 30 m sprint, small differences could be expected. Indeed, small differences in running mean time and standard deviation were also reported in a similar previous study (e.g. Swain, 1996). A third note of caution is related to the design, which does not include data on an individual-alone sprinting performance condition. Both sprint attempts were performed under team conditions. This may have had an influence on performance, though we told the participants about their individual performance in one attempt. It is possible that some element of social loafing is present, even in the identified relay condition. Based on the results, however, we would argue that cohesiveness has at least a stabilizing effect on effort and performance. The result from this study is in line with Karau and Williams' (1993)

study which also found less social loafing among cohesive teams. In Everett et al.'s (1992) study, they observed less social loafing in high-task cohesive teams, but only for female swimmers.

The results from this study may enlighten results from research on the cohesion-performance relationship in sport. Apparently, one function of team cohesiveness may be that a sense of social attraction and integration to the team counteracts social loafing, and thereby enhances individual effort and team performance. Put differently, high group cohesion may increase team members' group orientation and enhance the motivation to work for the team. The potential individual tendency to loaf under conditions of low identifiability may then be decreased or suppressed. In this study, the results revealed a significant difference in social cohesion between the groups. Hence, social cohesion may be the factor that moderated the amount of social loafing. The meta-analysis of Carron et al. (2002) has also documented that social cohesion can increase team performances. However, in the present study there was a relatively high level of task cohesion in the experimental groups. Based on the fact that the control groups were zero-history groups, we can expect the level of task cohesion to be quite low in these groups. Hence, it is still unclear which aspect of cohesion (social or task), or the combination thereof, moderated the tendency of participants in the high-cohesiveness group to socially loaf less under conditions of low identifiability. Paskevich, Estabrooks, Brawley, and Carron (2001) argue, for example, that new teams would be characterized by a task form of cohesion, and that when the group is able to manage the interaction around the task, members may then have time to engage in social interaction, which in turn may increase in importance and eventually lead to higher social cohesion. Based on this reasoning, it may then be the task-related aspect of cohesion that has been salient and produced a higher level of effort in the experimental teams. This reasoning is somewhat supported by studies conducted by Everett et al. (1992), and McKnight, Williams, and Widmeyer, (cited in Carron & Hausenblas, 1998) indicating the preventive effect of task cohesion on social loafing.

There are some limitations we need to keep in mind before generalizing from this study. First, this study employs an experimental design. The high degree of internal validity achieved in this relatively controlled experiment somewhat limits the possibility for general application. Therefore, any results of this experiment should be considered in light of task type, group characteristics, environment, and

context. Based on the result from this study, different avenues for further research in the area of group cohesion and social loafing can be outlined. First, a replication of the findings in the present study within an experimental paradigm, including different sport tasks, is necessary. In order to determine the nature and development of cohesion, and to investigate the relationship between group cohesion and social loafing, further research should include permanent groups and a longitudinal design. Moreover, in the present study the teambuilding intervention was found to have a positive effect on cohesion. As a consequence in future research, teambuilding should be incorporated within a longitudinal design. It is also important to isolate different aspects of cohesion in order to determine specific aspects of group cohesion that could be especially important in reducing social loafing. Another research avenue would be to investigate the underlying processes of cohesion that may reduce social loafing. Various research designs may be needed in order to understand more fully the effect that cohesion may have on individual and team performance.

In conclusion, the results are promising from an applied perspective. If the results can be replicated across different sport settings and tasks, the use of teambuilding exercises to increase the level of cohesiveness in sport may have the potential to increase team performance by reducing motivational losses in the team.

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