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EXPLICIT PRIOR KNOWLEDGE OF SOCIAL LOAFING DOES NOT REDUCE SOCIAL LOAFING IN SUBSEQUENT TEAM CYCLE TRIAL PERFORMANCE

PREDHODNO POZNAVANJE SOCIALNEGA IZMIKANJA NE ZMANJŠUJE SOCIALNEGA IZMIKANJA V NAKNADNI EKIPNI KOLESARSKI PREIZKUŠNJI

ABSTRACT

The aim of this study was to investigate whether explicit prior knowledge of the social loafing phenomenon, imparted through a specially designed social loafing awareness module, would reduce subsequent social loafing in a team cycle trial competition. Twenty-seven participants were tested individually for the distance covered in a 1-minute cycle trial and then randomly assigned to either a control ($n=13$) or intervention ($n=14$) condition. The intervention group completed a 15-minute social loafing awareness module consisting of a lecture and an educational video. Both groups completed a second 1-minute cycle trial in teams. A 2x2 repeated measures ANOVA identified no interaction or main effects ($p<.05$), suggesting that the module had not reduced social loafing significantly in the intervention group. Further research is required that would incorporate identification of the initial levels of knowledge of social loafing and explicitly measure the increase in social loafing awareness following participation in the intervention module.

Key words: Team, Group Cohesion, Experimental Psychology, Coactive Sport

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IZVLEČEK

Namen študije je bil raziskati, ali lahko predhodno poznavanje pojava socialnega izmikanja (t. j. manj vloženega truda v skupini), s katerim so se udeleženci seznanili prek posebnega modula za spoznavanje socialnega izmikanja, zmanjša socialno izmikanje v naknadnem preskusnem tekmovanju v ekipnem kolesarjenju.

Sedemindvajset udeležencev je najprej posamično opravilo preskus, kolikšno razdaljo lahko prekolesarijo v eni minuti, nato pa so bili naključno razporejeni v kontrolno ($n=13$) ali intervencijsko ($n=14$) skupino. Intervencijska skupina se je najprej udeležila 15-minutnega modula za spoznavanje socialnega izmikanja, ki je bil v obliki izobraževalnega video-predavanja. Obe skupini sta nato opravili drugi enominutni kolesarski ekipni preskus. Analiza variance 2x2 ANOVA ni pokazala nobenih interakcij ali glavnih učinkov ($p<.05$), kar pomeni, da modul ni pomembno zmanjšal socialnega izmikanja v intervencijski skupini. Opraviti je treba več raziskav, ki bi vključevale opredelitev začetne ravni znanja o socialnem izmikanju, zlasti pa merile boljše poznavanje socialnega izmikanja po sodelovanju v intervencijskem modulu.

Ključne besede: ekipa, skupinska dinamika, eksperimentalna psihologija, skupinski šport

INTRODUCTION

Research has shown that when participating in group or team activities where their personal performance is not explicitly identified, individuals can become less motivated and perform worse in the group situation than one might expect given their skills and qualities (Latané, Williams, & Harkins, 1979). A reduction in personal effort caused by this apparent motivational loss is described as “social loafing” (Latané, et al., 1979). In the context of sport, social loafing has been identified in individuals participating in coactive team sports including rowing (Anshel, 1995), cheerleading (Hardy & Crace, 1988), swimming (Williams, Nida, Baca, & Latané, 1989), running (Swain, 1996), and cycling (Høigaard, Boen, De Cuyper, & Peters, 2013). Recent studies have also shown that social loafing occurs in individuals participating in interactive team sports including handball (Høigaard, Fuglestad, Peters, De Cuyper, De Backer, & Boen, 2010) and football (Høigaard & Ommundsen, 2007). A reduction in personal effort by individuals that subsequently results in a diminished team performance in sport is obviously something that should be of concern to coaches.

Several factors have already been identified that moderate the magnitude of social loafing. These include: the explicit identification and evaluation of individual effort (Harkins, 1987; Williams, et al., 1989); when individual team members feel that their own effort is unique and important to the team's performance (Harkins & Petty, 1982; Kerr, 1983; Kerr & Bruun, 1983); when individual team members perceive the task as motivating, interesting or meaningful (Hardy & Latané, 1988; Harkins & Petty, 1982; Karau & Williams, 1993); and when individual team members perform with their friends as opposed to relative strangers (Karau & Heart, 1998; Karau & Williams, 1997). Explicitly in the context of sports teams, several group dynamic factors have been examined relative to social loafing. Empirical research has shown that social loafing is reduced when athletes belong to a group that they perceive to be cohesive (Høigaard, Tofteland, & Ommundsen, 2006), are satisfied with their role in the team (Høigaard, et al., 2010), or perceive high levels of collective efficacy or a task-oriented motivational climate (Høigaard & Ommundsen, 2007; Høigaard & Peters, 2009). Whilst this research primarily emphasised the task characteristics and situational factors within the teams studied, other studies have investigated the influence of personal factors on social loafing. Individual task goal orientation (Høigaard & Ommundsen, 2005; Swain, 1996), self-efficacy (Hart, Karau, Stasson, & Kerr (2004), and perceived superior skill level (Huguet, Charbonnier, & Monteil, 1999) have all been shown to reduce the amount of social loafing. Although a variety of individual and group factors that influence social loafing have been identified, it is still important to investigate whether there are other factors that can affect both the occurrence and magnitude of social loafing.

Despite both Steiner's (1966) and Luft's (1984) contention that knowledge, awareness and learning about group dynamic processes can influence human behaviour and performance, one such factor that appears to have received scant research attention is the influence of prior knowledge and awareness of the phenomenon, and specifically the ramifications of social loafing in sport teams. The notion that knowledge and learning affect behaviour is also central to individual health education models (Glanz, Rimer, & Viswanath, 2008). The Knowledge Attitude Model (KAP model; Mæland, 1999) is built on the principles that *knowledge* affects *attitudes* which in turn affect *practice* (i.e. behaviour). Based on this, it is conceivable that knowledge about the phenomenon of social loafing and its effect on team performance could reduce subsequent social loafing in achievement contexts. Indeed, increased awareness of this phenomenon may

not only counteract the social loafing tendency and its magnitude, but may even contribute to a deliberate compensatory increase in effort resulting in maximal, or even supra-maximal effort; a phenomenon known as social labouring (Høigaard, et al., 2013). To our knowledge, only one study has examined the relationship between knowledge about the phenomenon of social loafing and individual performance in groups. In this study, Huddleston, Doody, and Ruder (1985) reported data from an experiment in which intercollegiate female athletes ran a 55-metre sprint individually and in a relay team. Before the relay, half of the athletes were randomly selected and informed about the phenomenon of social loafing by way of a short verbal description of it. This was in an attempt to reduce or even eliminate the relative occurrence of social loafing in the subsequent team relay. Unfortunately, social loafing was not reduced. This finding may have been due to the minimal information about social loafing the groups were given. It is therefore possible that greater exposure to and more detailed knowledge about the phenomenon of social loafing and its impact on subsequent team performance is necessary in order to reduce subsequent social loafing in a collective group sport task.

The purpose of the current study was therefore to investigate whether exposure to a comprehensive ‘training’ module relating to the phenomenon and consequences of social loafing would reduce or even eliminate the amount of social loafing evident in a subsequent collective group sport task.

METHOD

Participants

The participants were 27 students (males ($n = 19$), females ($n = 8$), mean age 19.8 ± 2.4 years, range 17–25 years) recruited from undergraduate sport classes at a university in Norway. Inclusion criteria for participation were that the participant was free from illness or injury, considered themselves to be in good physical condition and had no experience in competitive cycling. Twenty-two of the participants had participated in competitive sport, whilst five had only participated in sport at a recreational level. The three most common sports reported were soccer (42%), handball (16%) and orienteering (11%). When asked the question “how many exercise sessions do you perform during a typical week?”, the median (Q_1 , Q_3) score of the sample was 6 (4,8) sessions per week. In order to assure that the groups were equivalent prior to the experiment, participants were randomly assigned to either the control group (13 participants, 9 males and 4 females) or the intervention group (14 participants, 10 males and 4 females), and subsequently randomly divided into four teams consisting of 3 or 4 people. The study was approved by the Ethics Committee at the University of Agder.

Procedure

In the present study, participants conducted a 1-minute cycle trial-test on a stationary bicycle under two experimental conditions (identified individual performance vs. team performance). The testing procedures were similar to the study of Høigaard, Boen, De Cruyter, and Peters (2013). Prior to the experiment, participants were randomly allocated into either the intervention group or the control group. Each participant reported to the laboratory on three occasions. The first visit was a familiarisation day. During the subsequent two visits (experimental sessions) the participants performed a self-paced maximal cycling trial on a simulated flat course. Before each

trial, the main instruction was “to cycle as fast as you can”. The information about distance and speed was withheld during all the trials, although all participants were informed verbally every 10 seconds about how long they had left to cycle. In addition, in both sessions verbal encouragement was provided by the experiment leader. Before each testing session they completed 20 minutes of a light, self-paced warm-up.

All participants completed the first test under individual conditions where they were informed that their performance would be recorded and made public. Before the second test, the participants in the intervention group were informed about the social loafing phenomenon through a 15-minute lecture including a 7-minute educational film about social loafing. No such information was given to the participants in the control group. Participants in both groups were then told that they had to perform the cycling trial in teams and that only team results would be recorded and published in team rank order after the experiment. The ergometer cycles were arranged along a line in the same room. Forty-eight hours of recovery was ensured between the two test sessions. Social loafing in this study was defined as a significant reduction in the distance covered during the team condition compared with the individual condition. We predicted that the comprehensive information about the social loafing phenomenon (a lecture and an educational film) would at least reduce social loafing, and possibly even produce social labouring in the team condition.

Familiarisation. Three days before the experiment started, the participants attended the testing room. They were fully informed about the testing protocols in relation to completing the 1-minute maximal team-trials and the subsequent testing schedule. They were not informed about the role of the experimental group, nor whether they were in the experimental or control group. Moreover, they were misinformed regarding the monitoring of their individual performance in the team time-trial condition. The cover story was based on Worchel, Rothgerber, Day, Hart, and Butemeyer (1998), and indicated that the major interest in this study was to investigate competitive cycling performance in varying conditions. The participants chose a cycle ergometer and adjusted the saddle height and handlebars to their liking. After the participants had completed 20 minutes of a self-paced warm-up they were requested to do some exercise trial cycling using different gears in order to help them select the gear they wanted to use during the 1-minute trial in the following testing sessions. All gear positions and cycle ergometer settings (saddle height, handlebars) were recorded so that they could be reproduced during each subsequent visit. Each participant also completed a questionnaire containing demographic information and training frequency. Following the familiarisation session, participants were randomly assigned to a three- or four-person team (three teams in the intervention condition and three teams in the control condition).

Exercise test. All testing was performed using racing bikes connected to four CompuTrainer Lab ergometers (Racermate Inc., Seattle, WA, USA). The constant load accuracy of the CompuTrainer Lab is $\pm 2.5\%$, with repeatability within 1%. Tests were performed at an ambient temperature between 20° and 22° C. Seat height, seat to handlebar distance, and handlebar height were adjusted to fit each participant. The participants started each trial with the pedals in a horizontal position and the gear was fixed during both test trials. Participants were instructed to remain seated on the bike during the testing. The distance covered in metres was measured in both trials.

Before each test, each CompuTrainer Lab ergometer was calibrated using an electronically measured rolling resistance procedure as described by the manufacturer. The calibration was

preceded by 15 minutes of a warm-up period to elevate and stabilise the temperature of the tyre and load generator.

Knowledge about social loafing intervention module. Participants in the intervention group were given a 15-minute lecture including a 7-minute educational film about social loafing (Høigaard, Enes, & Hodne, 2011) that had been developed specifically for the purpose of this study. The lecture and film gave a comprehensive overview of the phenomenon of social loafing, how it occurs, factors that may reduce it, and its impact on subsequent team performance. The content of the lectures was based on textbooks by Carron, Eys, and Hausenblas (2005) and Høigaard (2008). Participants in the control group received no information on social loafing. Instead, they were given a cover lecture about drop-out in sport.

Measures

Social loafing. In this study we defined social loafing as a significant reduction in the distance covered during the team condition compared with the individual condition.

Attitude to participation. Participants were asked to answer the following questions: 1) "How seriously do you take your involvement in the project?"; and 2) "How much effort do you put into this bike test?". Questions were asked with a 5-point Likert scale, wherein the first question was ranked from not at all serious (1) to very serious (5), and the second question from very little effort (1) to very high effort (5). These questions were asked to ensure that the participants had a positive attitude to the experiment.

Statistical Analyses

The statistical analysis was performed in SPSS version 19.0 (SPSS, Chicago, IL, USA). Continuous data are presented as means and standard deviations (*SD*). A 2x2 ANOVA with trial (individual condition and team condition) as the repeated measure and experimental condition (control against intervention) as the between-subject factor was used to examine differences in performance. Pre-and post-test scores within each group were compared using paired samples *t*-tests. A *p*-value < .05 for all analyses was considered statistically significant.

RESULTS

The participants generally expressed a positive attitude to participation in the study. For the question "how seriously do you take your participation in the project?" and "how much effort do you put into this bike test?", the mean value was 4.1 (*SD* = 0.7), and 4.8 (*SD* = 0.3) respectively, on a 5-point Likert scale.

In the individual condition, the control group covered a mean distance of 733 (*SD* = 58) metres, and the experimental group covered 741 (*SD* = 67) metres. An independent samples *t*-test indicated no statistical difference ($t(25) = -0.32, p = .75$) between the two groups. In the team condition (post-intervention), the control group covered 722 (*SD* = 63) metres, whereas the experimental group covered 728 (*SD* = 59) metres. As illustrated in Figure 1, a 2x2 (Condition [individual, team] x Group [control, intervention]) repeated measures ANOVA was performed for the distance covered (1 minute). There was no significant interaction between Condition and Group [$F(1,25) = .029, p = .865$, partial eta-squared = .001, observed power .053]. Moreover, the paired sample

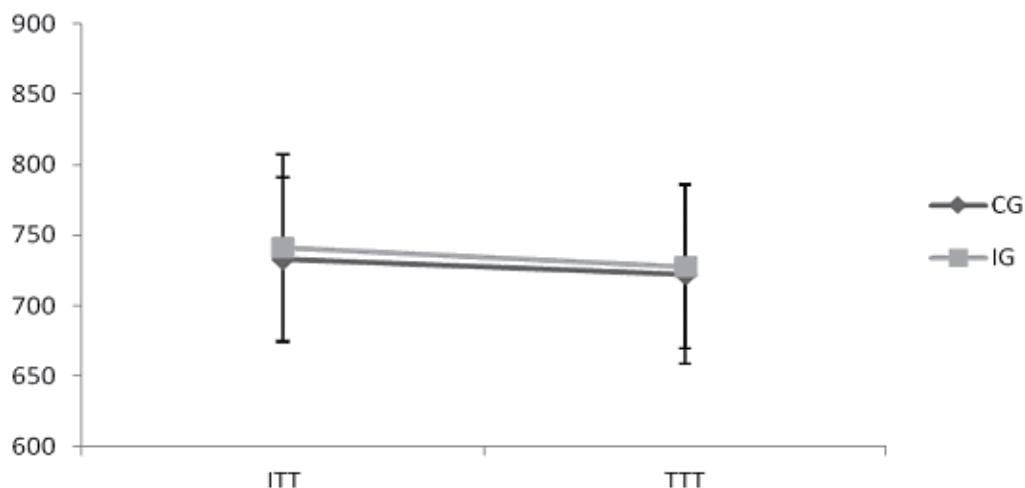


Figure 1. Means and standard deviations for distance covered (meter) for the control (CG) and intervention (IG) groups in the individual (ITT) and team time trial (TTT) conditions.

t-tests performed on each group produced no significant condition effect for either the control group ($t(12) = 1.223$, $p = .245$) or intervention group ($t(13) = 1.528$, $p = .150$).

DISCUSSION

The purpose of this study was to investigate whether participation in a 15-minute module consisting of a lecture, specially designed video and Q&A session would reduce social loafing in subsequent group performance where individual effort was not believed to be identified. It was expected that participants in the control group would engage in social loafing (i.e. cycle a shorter distance in the team condition compared to the individual condition) and that participants in the intervention group would maintain or even increase their performance, and ride at least as far in the team condition as they had achieved in the individual condition.

The results showed that there was no significant reduction in the distance covered in the team condition compared to the individual condition in either the intervention or control groups. Despite the considerably greater amount and type of information provided to the intervention group in this study, the findings are similar to those of Huddleston et al. (1985). The results are also in contrast to previous research (Høigaard, Boen, De Cruyter, and Peters (2013) that, using the same 1-minute cycling task, identified social loafing in the team versus individual.

Some alternative explanations may be proposed to understand the absence of social loafing in this study. First, the sample consisted of sport students who considered the cycle project and/or cycle testing as exciting, interesting and/or meaningful, evidenced by a mean of 4.1 (SD = 0.7) in response to the question "how seriously do you take your participation in the project?" on a Likert scale from 1 to 5. Previous studies have suggested that if the task to be solved or carried out is perceived as motivating (Karau & Williams, 1993), interesting (Hardy & Latané, 1988)

or meaningful (Harkins & Petty, 1982), this will reduce the element of social loafing. This may have been a factor in this sample. Further, Harkins and Petty (1982) explain that, if the task is perceived as challenging, this could affect motivation in a positive way since the group members feel it is necessary to make an effort and contribute to the team's performance because their own contribution is unique and necessary for the final output of the group.

Second, although the participants were randomised into an intervention group and a control group consisting of teams of three or four people, some participants may have known each other. They were recruited from the same school. This may well have contributed to increased team cohesion. Team cohesion has been shown to have several positive effects on performance (Carron, Coleman, Wheeler, & Stevens, 2002). There is also evidence that team cohesion directly reduces the amount of social loafing (Høigaard, Tofteland, & Ommundsen, 2006; Karau & Williams, 1997; Karau & Heart, 1998). In the study by Karau and Williams (1997), members in the group who did not know each other (low cohesion) had a tendency to reduce their efforts and socially loaf, while members of groups who knew each other (high cohesion) performed equally well collectively as coactively. Moreover, in the studies of Høigaard, Tofteland and Ommundsen (2006) and Karau and Heart (1998) members of groups with low cohesion performed less collectively than individually and, in addition, members of groups with high cohesion performed equally well collectively as individually. Moreover, Karau and Williams (1993) and Anshel (1995) emphasise that when members know each other well this may positively affect their motivation and effort.

Third, the competition aspect of the study may have affected the propensity to engage in social loafing. All cycle tests were organised as competitions, individual competition in the first condition and team competition in the second condition. They were also informed that the results of both competitions would be published after the experiment was over. According to Harkins and Szymanski (1989), members will be less inclined to loaf if they perceive that the results of their group will be compared with the results of other groups. There is reason to believe that the competition aspect itself helped maintain the participants' commitment and motivation, and thus reduced the proportion of social loafing. Indeed, in response to the question "how much effort do you put into this bike test?" the mean value was 4.8 ($SD = 0.3$) on a 5-point Likert scale.

Finally, it can be questioned whether the intervention (the lecture, film, and question & answer session) was sufficient to affect the intervention group participants' behaviour and counteract social loafing. Indeed, no assessment of the impact of the intervention on the participant's knowledge was undertaken in this study, i.e. it is not known if the intervention had any effect on increasing knowledge, or if all participants already had knowledge and understanding of social loafing and its impact on team performance. Based on the absence of social loafing in all groups, the results indicating that the participants were highly motivated and committed to the task and project, and without any evidence that the intervention actually increased knowledge and understanding of social loafing, the aim of the current study remains unanswered.

Given the results in this study, we cannot reject the notion that knowledge of the phenomenon of social loafing can contribute to reduced motivational loss and prevent social loafing. However, we have identified limitations in the study that need to be acknowledged in further research on the impact of increased prior knowledge about the social loafing phenomenon on subsequent effort (i.e. social loafing) in team situations.

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