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# Mechanisms Underlying Social Loafing in Technology Teams: An Empirical Analysis

*Research-in-Progress*

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## Abstract

*Prior research has identified team size and dispersion as important antecedents of social loafing in technology-enabled teams. However, the underlying mechanisms through which team size and team dispersion cause individuals to engage in social loafing is significantly understudied and needs to be researched. To address this exigency, we use Bandura's Theory of Moral Disengagement to explain why individuals under conditions of increasing team size and dispersion engage in social loafing behavior. We identify three mechanisms—advantageous comparison, displacement of responsibility and moral justification—that mediate the relationship between team size, dispersion and social loafing. Herein, we present the theory development and arguments for our hypotheses. We also present the initial findings from this study. Implications of the expected research findings are also discussed.*

**Keywords:** CMC Teams, productivity loss, social loafing, dispersed teams, virtual teams

## Introduction

The concept of virtual-teams; teams composed of individuals who are dispersed across space and time, is increasingly common as it helps organizations assemble talent when needed (Boh et al. 2007; Gibson and Cohen 2003; Maruping and Agarwal 2004; Powell, Piccoli and Ives 2004; Robert, Dennis and Ahuja 2008). In fact, more than sixty percent of knowledge workers work in dispersed teams (Kanawattanachai and Yoo 2002). However, dispersed work also poses certain challenges that could minimize these potential benefits (Robert, Dennis and Hung 2009). One particular challenge that continues to hamper teams' ability to achieve their goals is social loafing (Chidambaram and Tung 2005). Social loafing is the tendency of individuals to withhold effort and, instead, free ride on others' efforts (Karau and Williams 1993, Latane, Williams and Harkins 1979). Such counter-productive behavior has an adverse impact on team performance (George 1992; Liden, Wayne, Jaworski and Bennett 2004) and yet is prevalent in the absence of control and coordination in teams (George 1992; Latane, Williams and Harkins 1979; Littlepage 1991; Petty, Harkins, Williams and Latane 1977; Suleiman and Watson 2008).

With a significant amount of team work being supported through dispersed technology-mediated means, understanding the drivers of social loafing gains heightened importance. In the context of technology-supported teams, increases in team size and dispersion are known to cause social loafing (Chidambaram and Tung 2005). However there is not much knowledge of the underlying psychological mechanism through which these team conditions cause social loafing. Understanding such mechanisms would help in the design of interventions to avert social loafing.

Alnuaimi, Robert and Maruping (2010) draw on Bandura's theory of moral disengagement (Bandura, Barbaranelli, Caprara and Pastorelli 1996) to identify the mechanisms that mediate the effects of team size and dispersion on social loafing in technology-supported teams. They studied three of the eight mechanisms proposed by Bandura et al. (1996), namely diffusion of responsibility, dehumanization, and attribution of blame, and found that they partially mediate the effect of team size and dispersion on social loafing. This research has given us some insight in to the "black box" of the mechanisms through which team characteristics cause individual-level social loafing behavior. However, the role of the other facets of Bandura's theory of moral disengagement in mediating the relationship between team size and dispersion remain hitherto unexplored. This research builds on Alnuaimi et al. (2010) and considers three additional mechanisms from Bandura's theory of moral disengagement, namely moral justification, displacement of responsibility, and advantageous/palliative comparison.

## Theoretical Background

### *Theory of Moral Disengagement*

The theory of moral disengagement (Bandura et al. 1996) provides a theoretical base to understand the dynamics of deviant behavior. Bandura et al. (1996), proposed that people are guided by personal standards of ethical behavior and that most people refrain from acts that violate their personal standards of appropriate conduct. Through the self-regulatory mechanisms of moral agency, namely social sanctions and self sanctions an individual's moral evaluation is translated into actions. Social sanctions serve to restrain immoral behavior so as to avoid social censure. In cases where social sanctions are not possible self sanctions serve to restrain people from disengaging from their moral standards. The theory of moral disengagement argues that individuals are able to suspend the self-regulatory processes that socio-cognitive theory suggests govern their ethical behaviors. Moral disengagement serves as a tool to reduce the dissonance caused by the self-regulatory process by employing cognitive mechanisms that cause an individual's beliefs to align with his/her behavior. Thus, the theory of moral disengagement explains why, or rather how, people misbehave when they are out of sight of others. We will elaborate on each of the mechanisms next.

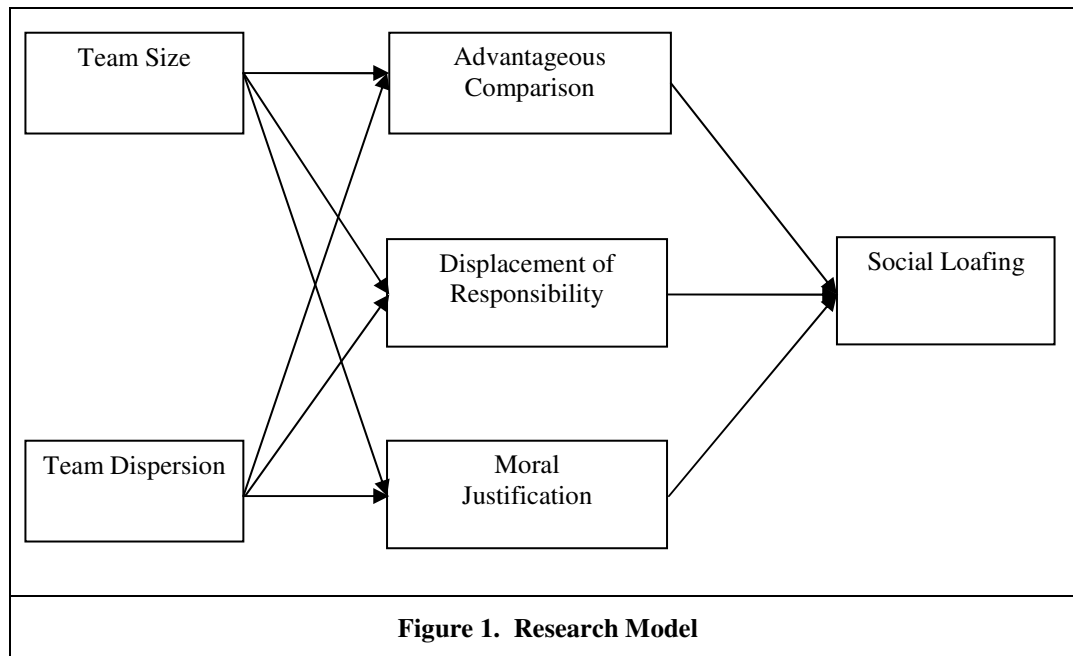
*Moral Justification* is defined as a cognitive process by which the meaning of an injurious behavior is changed by mental restructuring or mentally redefining the morality of the act. Consequently, a culpable act is made to appear righteous, and the deplorable act is made personally and socially acceptable by way of citing a higher purpose. For example, a CEO of a company could cite the need to pay its employees well as the reason for its policy of exorbitant pricing of its goods. Green (1991) cites managers seeking to justify their acts by arguing "Everyone's doing it".

McGraw (1998 pg.129) has put forth how claims of moral justification such as “*I am obeying the dictates of my conscience*”; “*This policy is in the community’s best interests*” are prone to be used deceptively as it is difficult to verify the truthfulness of such claims.

*Advantageous Comparison* is defined as a cognitive process through which a reprehensible act is made righteous or benign (Bandura 2002; Bandura et al. 1996), by contrasting it with a more deplorable act. The more heinous the object of comparison the more the deplorable act appears of little consequence or even as benevolent (Bandura et al. 1996) to the target. Bandura, Caprara and Zsolnai (2000), refers to the Bhopal Gas tragedy, wherein due to the carelessness of the firm Union Carbide, a poisonous gas leak from its chemical plant in Bhopal (India), adversely affected the families living around the plant. He describes how the Union Carbide officials employed this mechanism of advantageous comparison to claim that there was no difference in the safety regulations between the company’s West Virginia Plant and Bhopal Plant. Thus, instead of comparing the said plant to an ideal plant, it chose a more favorable object of comparison – namely, its own plant in another country.

*Displacement of responsibility* refers to the act of “obscuring or distorting the agentive relationship between actions and effects they cause” (Bandura et al. 1996 pg. 365). That is, the actions are seen as being done on account of an external pressure on the actor and thus the actor is relieved of any guilt/responsibility for the effects/consequences. For example, a manager who dismisses a whole section of the workforce for being involved in a strike could cite the very act of involvement on the part of the employees as the instigator for the action and can thus free oneself, from one’s personal sanctions in executing that action.

Our model proposes that each of the above three moral disengagement mechanisms will mediate the relationship between team size, team dispersion and social loafing.



## Theory Development

### *Team Size*

Prior research proposes several explanations for why team size would impact social loafing. For example, as teams increase in size and, thus, as the number of sources and target of impact increases (Chidambaram and Tung 2005; Latane 1981), the individuals perceive little value to the input they make and view the return they get as unrelated to their input (Kidwell and Bennett 1993). Further, a team member’s effort visibility decreases and monitoring of team

member activities becomes difficult, which can result in a loss of motivation to perform (Hare 1952; Kerr 1983). We argue that as team size increases the moral disengagement mechanisms would be employed to indulge in social loafing by individuals to prevent the moral self-sanctions from being activated.

As the team size increases, team members can cite the moral reason of not wanting to get in the way of more capable people's work as a justification for not contributing. For example, in a brainstorming task, with more people, the number of potential ideas that can be generated is very high, consequently making it harder to sift through numerous ideas to arrive at a decision due to the complexities involved in integrating the varied ideas. In such circumstances an individual group member can cite the reason of not wanting to contribute further to the complication by adding more ideas to the pool. What is an otherwise wrong act is morally redefined to mean a sacrificial act on the part of the doer. Thus, there is a *cognitive restructuring* of the original meaning of the act. Further, because individual contribution cannot be uniquely identified/monitored/acknowledged, the individual can use the very fact that the efforts cannot be identified/recognized as the moral reason for choosing to loaf. That is, the individual decides not to contribute to the team, as one's teammates' contributions are not being valued by the other members of the team. Thus by invoking the moral disengagement mechanism of moral justification, an individual chooses to engage in social loafing. Hence we propose,

*H1A. Moral Justification will mediate the relationship between team size and individuals' social loafing such that an increase in team size will lead to increase in moral justification which in turn increases social loafing.*

When individuals communicate less frequently with their teammates, they are less likely to form bonds with them. Under such conditions, they are more likely to have a negative opinion of their teammates and their contributions and a high assessment of their own efforts. They implicitly assume others as not contributing or as contributing something not of purpose to the team. Thus the team member can even indulge in harmful acts as a way of "taking on" the team members for their poor contribution. For example, in the case of a brainstorming task, it could mean contributing bad ideas intentionally to misguide the team. In such circumstances, social loafing, in contrast, appears a more benign and harmless form of action against the team. Thus, by invoking the moral disengagement mechanism of advantageous comparison, an individual chooses to engage in social loafing as a way of not contributing to a team whose members they perceive as not contributing. Thus, in a sense advantageous comparison serves to reduce the amount of dissonance that exists and makes indulging in an unethical behavior such as social loafing more agreeable to the individual. Hence, we propose:

*H1B. Advantageous Comparison will mediate the relationship between team size and individuals' social loafing such that an increase in team size will lead to increase in advantageous comparison which in turn increases social loafing.*

Further, to avoid the activation of self sanctions, the individual in the team could attribute reasons, such as other team members' *lack of interest* in the ideas they contribute as a reason for engaging in social loafing. For example, a team member could claim "a team member should not be blamed for having withheld effort if their input was not solicited" when they identify less with other members, or claim "If the task was not interesting the member should not be blamed" if they were not sufficiently motivated to contribute to the team. Thus with increases in team size, and with corresponding decreases in team cohesiveness and loss of motivation to contribute, we argue that displacement of responsibility will play a major role in the social loafing behavior of an individual. Zaccaro, Peterson and Walker (1987) argue that with increases in the size of the team, the tendency to make self-serving attributions and, thus, the tendency to blame others for their fault increases. Hence we propose:

*H1C. Displacement of Responsibility will mediate the relationship between team size and social loafing such that an increase in team size will lead to increase in displacement of responsibility which in turn increases social loafing.*

### ***Team Dispersion***

When team members are dispersed the resultant "immediacy gap" (Chidambaram and Tung 2005, pg. 151, Kidwell and Bennett, 1993), which is higher for dispersed teams as compared to co-located teams, makes individuals feel a lower degree of cohesiveness and identification with the team (Williams, Harkins and Latane 1981; Chidambaram

and Tung 2005). We argue that as teams become more dispersed the moral disengagement mechanisms would be employed to justify social loafing.

Theory suggests that advantageous comparison would mediate the relationship between team dispersion and social loafing. As explained earlier, under conditions of low cohesiveness and identification with the team, it can be expected that, the team members will have a lower assessment of others' contributions. For example, in the case of a brainstorming team this could mean the team member considers others' inputs/suggestions as bad. This can invoke a team member to employ advantageous comparison to convince oneself that "It is a lot better to not contribute when compared to the bad inputs others make". Thus, in a sense advantageous comparison serves to reduce the amount of dissonance that exists and makes indulging in an unethical behavior such as social loafing more agreeable to the individual. Hence we propose:

*H2A. Advantageous Comparison will mediate the relationship between team dispersion and individuals' social loafing such that an increase in team dispersion will lead to increase in advantageous comparison which in turn increases social loafing.*

Theory suggests that displacement of responsibility would mediate the relationship between team dispersion and social loafing. In dispersed settings teams rely on virtual communications. The use of virtual communications can lead to impersonalized communications and in some cases conflict (Maruping and Agarwal 2004). As a result, a team member could displace their responsibility to contribute and blame the communication difficulties as the reason to engage in social loafing. In addition, in dispersed settings where an individual's effort is not easily ascertainable, individuals are prone to assuming that others are not contributing. The inability to identify other team members' contribution is a major reason individuals engage in social loafing (Kerr and Bruun 1981). Hence we propose:

*H2B. Displacement of responsibility will mediate the relationship between team dispersion and social loafing such that an increase in team dispersion will lead to increase in displacement of responsibility which in turn increases social loafing*

Theory suggests that moral justification would mediate the relationship between team dispersion and social loafing. Team dispersion makes it hard for team members to monitor the contributions of other team members and in the absence of information dispersed members assume the worst of their counter parts (Cramton 2001). When team members believe that other team members are not contributing to the team they are likely to exert less effort themselves and feel morally justified in committing such an act. In a sense this moral justification serves to reduce the amount of dissonance that exists in the individual who engages in social loafing. Hence we propose:

*H2C. Moral Justification will mediate the relationship between team dispersion and individuals' social loafing such that an increase in team dispersion will lead to an increase in moral justification which in turn increases social loafing*

The direct relationship between team size and dispersion on social loafing has been established in prior research in Information Systems (see for example, Alnuaimi et al. 2010; Chidambaram and Tung 2005). Hence, we do not hypothesize these relationships but instead control for them in our analysis. An increase in both team size and dispersion has been shown to increase social loafing in teams (Alnuaimi et al. 2010; Chidambaram and Tung 2005). That is, in our context with an increase in team size and dispersion there will be a corresponding drop in the number of ideas each member generates.

## Methodology

A laboratory experiment is currently in progress to test the hypothesized relationships. Team size and team dispersion are being manipulated in the experiment. Specifically, team sizes range from three to nine members, with about 40% of the participants assigned to teams of size six and larger, which is in line with prior studies which recommend a doubling of team size to observe size effects (Valacich, Dennis and Nunamaker 1992). To operationalize dispersion, half the teams will be randomly assigned to a co-located setting, while members of the other half will be physically dispersed across different rooms. Each subject is offered extra credit for the course by

the instructor. Also, team members of the best performing team will receive \$20 each. Our goal is to eventually have 20 dispersed and 20 co-located teams.

### **Task**

We are using a brainstorming task, that has been validated in prior research (e.g. Chidambaram and Tung 2005), which requires members of the various teams to consider themselves as part of the board of directors of a US-based wine producing company that is facing a serious image issue in Europe. The board of directors will be assigned the task of generating ideas to recommend to the company's management.

### **Technology**

All teams involved in the experiment are using the BlackBoard® Chat System to complete the idea generation task. The chat system facilitates online collaboration and interaction using a standard web-browser. For the purpose of discussion of brainstormed ideas, participants use the tool EtherPad®. Finally, Qualtrics® system's polling feature is being employed to facilitate the choosing of the best idea by team members. Anonymity of the participating members has been assured by using a unique identification code to identify members during the task in place of their real identity/name.

### **Training**

All teams are receiving training on the use of all the software used in the task. The trainer is using an idea generation task (solving the parking problem on campus) and walks the participants through the system. The training lasts about 30 minutes and participants have the opportunity to ask questions about how to use the software. In addition, a quick reference document has been provided to all participants detailing the various stages on how to use the system to accomplish the required task.

### **Procedure**

Participants are welcomed and guided to a lab where they receive their training on the group support system. Then members of the co-located teams are escorted to the conference room, while members of the dispersed teams are escorted individually to a small room. All participants have to complete a pre-task survey that captures their demographic information. They have 15 minutes to read the task description. At the end of 15 minutes, participants are asked to generate as many ideas as possible. Members are able to read all of the ideas generated by their teammates. All teams in the experiment have 20 minutes to complete the brainstorming task. Subsequently they fill out a questionnaire that captures their responses on the moral disengagement measures. After this, the team members engage in a discussion on the ideas generated. This lasts about 20 minutes. At the end of this session, team members choose the best idea in a polling session. Participants then complete a post-experiment survey that captures their perceptions about different variables related to the research questions. Finally, participants are debriefed, thanked for their participation, and dismissed. A summary of the procedure is outlined in Table 1.

<b>Table 1. Experiment Timeline</b>								
Phase	Training	Pre-Task Survey	Reading Task	Idea Generation	Post-Idea Generation survey	Discussion	Evaluation	Post-Task Survey
Time	30 min	10 min	15 min	20 min	15 min	20 min	5 min	20 min

### **Measures**

In order to evaluate individual contributions to the team task, we will calculate the total number of unique ideas generated by each individual during the brainstorming phase. Using this approach, a lower number of ideas is indicative of a higher level of social loafing (Chidambaram and Tung 2005). Moral justification, misconstruing the consequences, displacement of responsibility, advantageous comparison will be measured using new items that were developed using the guidelines suggested by DeVellis (1991).

### Preliminary Findings

As noted earlier, this study is currently in progress. Here we report some preliminary findings from the first 23 teams that have participated in the study. These 23 teams, made of 11 collocated and 12 dispersed teams, consists of 123 individuals. After accounting for incomplete survey responses and outliers we had a total of 98 usable responses on which to base our analysis. We present our findings in Figure 2 below. We controlled for age, GPA, gender and task meaningfulness.

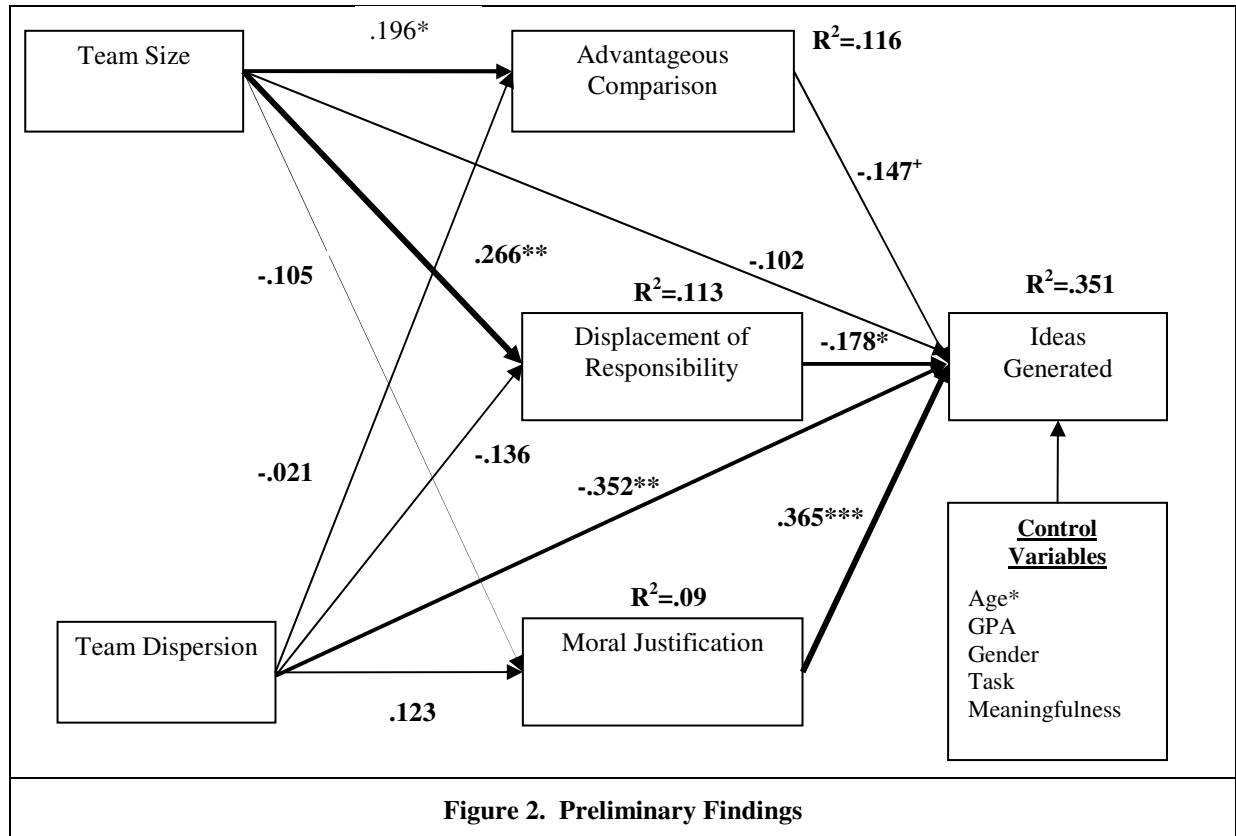


Figure 2. Preliminary Findings

As predicted team size leads to increased moral disengagement through two of the three hypothesized mechanisms. However, the same is not true of team dispersion. While team dispersion, in line with prior findings, has a significant direct effect of the number of ideas generated, it does not have a significant impact on any of the moral disengagement mechanisms. This is contrary to our hypothesis and this needs additional research and analysis to explain the phenomenon better. Displacement of responsibility emerged as the significant mediator between team size and social loafing, which is logical in light of the prior research which has shown that individuals tend to free-ride when in group settings. Another interesting finding is that moral justification has a highly positive and significant relationship with the number of ideas generated. Whereas we expected that engaging in an act of moral disengagement would lead to decrease in the effort and consequently the number of ideas, moral justification, it appears causes an increase in the number of ideas or effort expended. This and the other findings need additional analysis by increasing the sample size to further probe these relationships.

### Discussion and Conclusion

The use of technology enabled teams in dispersed settings creates a situation that fosters social loafing. Understanding the mechanisms that drive social loafing in these settings allows researchers and managers to devise interventions. The current research is one of the early attempts to determine the mechanisms through which individual team members engage in social loafing. To accomplish this we used Bandura's theory of moral disengagement. By employing the theory of moral disengagement we examine the underlying mediating



mechanisms of social loafing in technology-supported teams. Through this research, we hope to add to the existing body of knowledge on technology-supported team interaction in the IS literature. We also hope to contribute to the social loafing literature by exploring the mechanisms by which it surfaces. Finally, by extending the work of Alnuaimi et al., (2010) we will attempt to further contribute to the literature by combining the two theories of social loafing and moral disengagement.

As for the practicing manager the implications of this research are knowledge of the mechanisms subordinates employ to engage in social loafing. For example, if it is known that moral justification is one means through which employees engage in social loafing, the employer could create a sense of purpose in the team's work, whereby the employee can think of no other higher moral purpose than discharging one's assigned task. If it is known that employees engage in displacement of responsibility, appropriate training and orientation can be conducted to instill and internalize the trait of being proactive and taking initiative.

As with all studies, this study also has some limitations. First, the sample we employ is comprised of students and not real world professionals. However, this is common in business research and several studies have used student subjects in the past. We for our part, by our design (group activity) and the length of the study (two hours), ensure that the responses we obtain are indicative of the individual's reaction to the group activity. Second, our sample size as used for the preliminary analysis is not big enough to establish any statistically significant finding. However, ours is a research in progress and by including a larger sample for analysis we should be able to corroborate the initial findings reported here. Third, we use subjects from the U.S. and hence the findings of this study may not necessarily generalize to other cultures as well. Hence research in different cultural settings will be required to make the findings more generalizable. Fourth, we considered a brainstorming task to understand loafing. The findings may not translate for a context like dispersed programming team. Additional research is required to establish the generalizability of these findings. Fifth, we considered only quantity of ideas to operationalize social loafing. Although this is consistent with prior research, we believe considering quality of ideas also in conjunction with the number of ideas would give additional insights on the loafing behavior. Finally, the variables team size and dispersion are measured at the group level whereas the moral disengagement mechanism and the social loafing behavior are assessed at the individual level. It would be more insightful to perform a cross level analysis. The analysis adopted in this study is consistent with that of prior research (Alnuaimi et al. 2010; Chidambaram & Tung (2005)). However, future research must consider the cross level impact as well.

This current study in conjunction with the prior study by Alnuaimi et al., (2010) gives a fair idea of the various mechanisms through which social loafing can unfold. Further additional research is required to first test the remaining moral disengagement mechanisms to understand their effects. Bandura (1996) has framed the theory of moral disengagement as involving a rational choice. In applying this theory to social loafing we have to be cognizant of the fact that, over time the intention to loaf could be stored as scripts in memory which get triggered automatically without having to rationally justify every time one indulges in social loafing. This could mean that the above hypothesized mediating mechanisms would not play an active role over time in the case of a habitualized loafer/free-rider. Neuro-science techniques such as fMRI, EEG can also be used to test and validate such alternate explanations.

Future research should consider some of these suggestions to further extend this line of research. Also, it would be interesting to apply other theories apart from the present one to understand social loafing and the underlying dynamics.

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## Appendix

### Measurement Items & Factor Loadings

<b>Table 2. Factor Loadings</b>			
	Advantageous Comparison (AC)	Displacement of Responsibility (DSPR)	Moral Justification (MJ)
AC1	<b>.724</b>	.298	.118
AC2	<b>.730</b>	.092	.037
AC3	<b>.854</b>	.218	.116
DSPR1	.244	<b>.751</b>	-.150
DSPR2	.209	<b>.866</b>	.148
DSPR3	.165	<b>.865</b>	.195
MJ1	.155	-.117	<b>.789</b>
MJ2	.047	.190	<b>.754</b>
MJ3	.041	.085	<b>.778</b>

#### *Advantageous Comparison*

AC1: It was a lot better to not contribute when you consider the bad input others made  
 AC2: Even if I contributed very little to the team's task, that was a lot better than hurting the team  
 AC3: Compared to the bad ideas others were putting in, not contributing any idea was much better

#### *Displacement of Responsibility*

DSPR1: If a team member did not contribute they should not be blamed if the task was not interesting  
 DSPR2: A team member should not be blamed for withholding effort if they felt no one else was participating  
 DSPR3: A team member should not be blamed for withholding effort if they felt isolated from the rest of the team

#### *Moral Justification*

MJ1: It was okay to have not fully contributed when one was considering how else to help the team achieve its objectives  
 MJ2: It was alright to have not contributed, when team members ignored other member's contributions  
 MJ3: It was alright to have slacked off when one could have only got in the way