# **Social Loafing in Computer-Mediated Communication Context**

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Abstract

With the rapid development in the fields of computer and telecommunication technology in recent years, the use of various forms of computer-mediated communication (CMC) to aid the work of groups has spread quite rapidly and widely. This proposed research will attempt to answer (1) if social loafing occurs in CMC contexts and (2) if social loafing is more likely to occur in the context of CMC compared to face-to-face (FTF) during the performance of a group decision-making task. More specifically, it intends to examine the relationships between media richness, social presence. task equivocality and social loafing as well as the influence of social loafing on group decision quality. Several propositions are proposed for empirical examination. Finally a research plan is presented.

# 1. Introduction

Social loafing is the tendency to reduce one's effort when acting as part of a group rather than alone [26] [33]. This enduring topic of group inquiry was first studied by Ringelmann in the 1880s [32]. Ringelmann asked male volunteers to pull on a rope as hard as they could in groups of varying sizes. As group size increased, group performance was increasingly lower than would be expected from the simple addition of individual performances. However, there were two possible causes of this performance decrement - motivation loss and coordination loss [47]. Nearly 100 years passed before Latané et al. [33] successfully demonstrated that a substantial portion of the reduced group performance was due to reduced individual effort, distinct from coordination loss. They also coined the term "social loafing" to describe the demotivating properties of groups. Social loafing itself has been widely accepted as an explanation for productivity losses [15] and thus is detrimental to group performance [37].

Computer-mediated communication (CMC) is human communication via computers [8]. CMC purportedly offers a number of advantages to groups, such as rapid information transfer, convenience, and increased accessibility to co-workers and information [49]. As a result, the use of various forms of CMC to aid the work of groups has spread quite rapidly and widely. CMC is being used increasingly to support group decision making in order to overcome some of the communication problems endemic to face-to-face (FTF) decision making [24], for John D'Ambra

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example, its effect of participation equalization has been viewed as a benefit over FTF. In fact, the majority of CMC research works argues that the removal of vital social context cues under CM conditions has either exacerbated or attenuated various social psychological phenomena within groups [12] [13] [14] [28] [29] [36] [45] [52] [55]. Hence, the question if CMC will exacerbate or attenuate the social loafing phenomenon in group decision making arises. If social loafing does occur during CMC, organizations and managers must consider the benefits of cost saving on travel and convenience brought by using CMC and the negative effects of social loafing very carefully. On the contrary, if CMC can reduce the extent to which social loafing will occur during decision making process and thus benefit group works, organizations and managers may consider to adopt CMC for group decision making more widely.

The next section outlines the potential impact of CMC media on social loafing. This is followed by the potential impact of task factors on social loafing. The interaction between impact of media and task factors on social loafing is outlined, with several propositions being proposed. The paper is then closed by presenting the current research program.

# 2. Impact of Media Factors on Social Loafing

According to both media richness theory and social presence theory, CMC can change human behavior [5] [23] [44] [57] and the way people work together [38]. Social presence (SP) is defined as the degree to which individuals perceive others as being physically present during the communication process [44]. Social presence theory argues that the various types of communication cues that people exchange can alter the level of social presence. Therefore, media that provide more communication cues are perceived as being warm, personal, sensitive, and sociable. Similarly, media richness (MR) theory argues that a medium's richness i.e., its ability to communicate information and to change understanding within a time interval – is determined by certain characteristics of the medium, including multiple cues, immediacy of feedback, personalization, and language variety [5] [6] [7]. This research will focus on richer media versus leaner media that differ in terms of multiplicity of cues and immediacy of feedback because these two factors were extensively examined in laboratory settings. Furthermore, choosing the two factors provides an opportunity to test the claim that social presence might

be only affected by communication cues but not immediacy of feedback although media richness theory has been commonly linked to social presence [31].

Although it seems CMC may impact on social loafing in group decision making, it is quite difficult to specify whether it is an exacerbating effect or an attenuating effect. On the one hand, CMC seems be able to limit the occurrence of social loafing. Jackson & Williams [21] found that the presence of other co-workers leads to reduced drive and effort because these others serve as co-targets of an outside source of social impact: the request to try as hard as possible on the task. Because the degree of social presence of CMC is lower than FTF, the co-target effect of other group members should be weaker in CMC. This will reduce the tendency of loafing. Moreover, according to Sproull & Kiesler [46], in CMC people can forget the nature and size of their audience. This leads to the argument that under CMC individuals may more or less forget the fact that they can rely on others' efforts to finish the task and thus put more effort on it. Hence, CMC will reduce the occurrence of social loafing. Furthermore, typically, when social context and non-verbal cues are strong, group members' behavior tends to be relatively other-focused and controlled; when those cues are weak, people tend to produce relatively self-centered and unregulated behavior due to the feelings of anonymity. This will lead individuals to think that their concern would be positively evaluated [30]. Hence, individuals might perceive relatively higher importance of their contribution. As suggested by Karau & Williams [26] that individuals work hard when they perceive their contribution is important, this will at least reduce group members' tendency to loaf in CMC.

On the other hand, it seems individuals are more likely to loaf in CMC because CMC reduces evaluation and feedback. According to Kahai & Cooper [25], CMC results in less socio-emotional communication. Because socio-emotional communication tends to be evaluative. CMC leads to reduced evaluation and feedback. This will result in reduced self-evaluation and thus encourages social loafing [39]. Another problem under CMC is that CMC provides a stronger sense of anonymity compared with FTF. This is especially true under text-based CMC setting, such as text-chat, email or message boards. Several research studies have suggested that the provided by communication anonymity media (particularly lean media with limited social cues) could increase the tendency toward social loafing among group member [10] [27] [43] although this claim has never been directly examined. Anyhow, according to Karau & Williams [26], anonymity did trigger social loafing under certain conditions. For example, Williams et al. [58] found that anonymity tends to cause people to loaf and this effect was modified by evaluation potential [18].

Moreover, according to Kahai & Cooper [25], CMC reduce members' ability to evaluate others including others' deception and expertise. This may also apply to members' perceived ability to identify others' effort. If this is true, people under FTF will be in a better position to

detect others' loafing and thus perceive higher social loafing assuming people engage the same degree of social loafing. According to Mulvey & Klein [37], higher perceived social loafing may lead group members to lower their efforts and in turn, could lead to greater perceptions of loafing and a further reduction in group motivation. Judging by this, the social loafing phenomenon should be more severe in the FTF setting. However, the other side of the inference that CMC reduce members' ability to evaluate others' effort is that members may know that their effort cannot be easily judged or monitored by others under CMC and thus tend to engage social loafing. From this point of view, social loafing should be more severe under CMC. Furthermore, if CMC does reduce members' ability to identify others' effort, group members should tend to underestimate others' effort under CMC, especially when using text-chat. This is because message receivers have to read and then type their replies. During this period, no feedback is provided to the message sender, so the sender may perceive the receiver does not try his/her best to give him/her a reply as quick as possible if this waiting-for-response period is long. It will lead higher perceived social loafing.

Another point to be noted here is that according to Straus & McGrath [50], CM groups responded much more negatively to the media and to the task than did FTF groups and thus one can expect that under CMC social loafing will be greater because according to Karau & Williams [26] low task meaningfulness or personal involvement triggers social loafing.

In summarizing the above analysis and review, it is very difficult to give a clear answer to the question if CMC will exacerbate or attenuate the social loafing phenomenon. This is why this research is valuable. However, it seems media should have an impact on social loafing although the impact is positive (enhancing) or negative (reducing) is not clear. Therefore, the first set of hypotheses that are designed to test the media effect on social loafing are:

Proposition One: Media richness has an impact on social loafing.

Proposition Two: Social presence has an impact on social loafing.

# 3. Impact of Task Factors on Social Loafing

Most small group researchers would agree that one cannot fully understand group performance without taking into account the nature of the tasks being performed (e.g., [16] [17]). In the CMC research field, especially when media richness theory is concerned, researchers focus on one task characteristic, task equivocality. However, in the social loafing research field, task equivocality is not an issue; task characteristics include: task difficulty, task meaningfulness, and task complexity. This research will examine the effects of task equivocality on social loafing because of its importance in the CMC research field.

According to Daft & Lengel [5], equivocal tasks were

those which had multiple and possibly conflicting interpretations of the available information, presenting a challenge for participants to arrive at one shared meaning of the information. Although till now, no one tried to examine if task equivocality affect the occurrence of social loafing, some clues may be found from research studies that have been done on other task characteristics. In their research on task difficulty and social loafing. Harkins & Petty [19] found that social loafing decreased when the task was more difficult and challenging. "When faced with a more challenging task," Harkins & Petty [19] reasoned, people "may feel that their contribution is needed, because they are better able than the average person to perform the task" (p. 1220). Consistent with their findings, the loafing effect has been generally observed in studies where an easy task was used [26]. When task equivocality is high, group members will feel more difficult and more efforts needed on negation to resolve conflict and to come to consensus on one interpretation. From this point of view, task equivocality will have the same reduction effect on social loafing as task difficulty. This leads to the following proposition:

Proposition Three: Higher task equivocality decrease social loafing.

# 4. Interaction between Impact of Media and Task Factors on Social Loafing

The interaction of the impact of task type and media on group performance and member reactions has been demonstrated in CMC research studies (e.g., [2] [50]). According to Straus & McGrath [50], members of CM groups have more difficulties in understanding other's contributions and in being understood by others, especially in decision making task where reaching consensus is required and when such consensus involves resolving different viewpoints or interests. This suggests that the impact of media and task on social loafing may interact (if they have impact on social loafing). However, because the hypotheses about the effects of media factor on social loafing are nondirectional, it is not possible to predict exactly what the interaction effect between media and task factors is. Consequently, the writers propose:

Proposition Four: There is an interaction between the effect of media richness and task equivocality on social loafing.

Proposition Five: There is an interaction between the effect of social presence and task equivocality on social loafing.

# 5. Social Loafing and Decision Quality

According to Steiner [47] [48], actual group performance is not equal to potential performance because gains or losses which may be undergone during the processes must be taken into account. Therefore, the actual performance can be expressed as the following:

Actual Performance = Potential Performance ± Process Gains/Losses

Figure 1: Steiner's model of group performance

Later, Wilke & Meerens [56] extended Steiner's original approximation of group performance to include motivation gains or losses as the following:

Group Performance = Potential Performance ± Motivation Gains/Losses
± Coordination Gains/Losses
Figure 2: Group performance

As suggested by Mulvey & Klein [37], one key consequence of social loafing appears to be a negative motivational effect, so group performance will be impaired when social loafing exists. This leads to the following:

Proposition Six: Social loafing has a negative impact on decision quality.

# 6. Research Plan

#### 6.1 Research Model

Figure 3 presents the research model which includes the interested variables discussed above and the relationships among them. Other variables which may impact either the occurrence of social loafing or decision quality or both such as individual differences, media experience, group size, group composition, etc. will be controlled.



Figure 3: Research model

#### 6.2 Research Methodology

This research will adopt the randomized experimental approach in laboratory setting. Using an experimental approach, coupled with random assignment in a laboratory setting, enables this research to maximize the control over extraneous variables, to better test the hypotheses, to answer the research questions more explicitly, and to interpret the cause-and-effect relationship more convincingly by minimizing alternative explanations [1] [2] [3] [34] [42].

The experiment has a  $3 \times 2$  between-subject factorial design (totally 6 treatments) which manipulates media factor (high MR & SP, medium MR & SP, and low MR & SP) and task factor (high equivocality, low equivocality). The media factor is manipulated by using different media including face-to-face, desktop video-conferencing, and text-chat. Task factor is manipulated by using the site selection task contributed by Jarvenpaa [22] and the van task contributed by Scudder [41]. The site selection task requires the participants to select a construction site for a new restaurant. The van task asks the participants to select a recipient of a new van from a group of 5 sales representatives. In this task, participants have to deal with several criteria including seniority, job requirements in terms of driving, productivity in terms of earnings,

personal model preference as well as irrelevant personal background.

Undergraduate students in an Australia university will be recruited as research participants. They will be compensated either by a movie ticket or gift voucher for their time. They will be randomly assigned to different 4 member groups and then the groups will be randomly assigned to different treatments. They will be told this is one time task. The groups thus will not have histories and expectations of future interaction.

#### 6.2 Data Collection & Analysis

Data will be collected by post-meeting questionnaire, peer assessment form, and coding the meeting transcripts. The individual will be the level of analysis in most of the cases. Control and manipulation checks will be assessed by a Kruskal-Wallis test, ANOVA tests, or t-tests. Hypotheses tests will be done by running correlation analysis, regression analysis, and partial least squares (PLS) analysis (a structural equation modelling technique).

# 7. Conclusion

The main contribution of this proposed research lies on its originality. As mentioned before, although several CMC research studies were related to social loafing, this proposed research will be the first one that tries to study social loafing across different media using different decision-making task with different task equivocality.

Moreover, studying social loafing may help CMC researchers to resolve some contradictory findings. For example, in the research by Huang & Wei [20], a GSS was found to result in less even influence distribution, which contradicts conventional wisdom that a GSS leads to a more even participation among group members. Although Huang & Wei [20] tried to explain why this happened, they largely ignored the motivation factor. For example, the following statements were found in post-meeting debriefing records:

"I've travelled a few foreign countries and I think [that] my travelling experiences helped me in providing more relevant information to the group discussion."

"I had some experiences in getting along with international students in our university, [and] I should know more about the critical factors for the success in an international studies program."

"I felt interested in the task, so I talked a lot and elaborated my points using my own life experiences that were related to the task."

One can see that all the above-mentioned statements are about motivation. In those cases, individuals are motivated by either feeling being able to make unique contribution or being interested in the task. Hence, the less even influence distribution might be because those individuals did not engage in social loafing while others might do so. This explanation seems more promising compared with those given by Huang & Wei [20].

Furthermore, although task motivation receives

enough attention by CMC researchers [34], it seems no one has considered if media themselves carry a motivation force. This proposed research will answer this question.

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