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Social Loafing in Computer-Mediated Communication Context: The Pilot Study

Yuquan Shi
University of New South Wales

John D'Ambra
University of New South Wales

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Yuquan Shi
A/P John D'Ambra
University of New South Wales

School of Information Systems, Technology and Management
University of New South Wales
Sydney, Australia
Email: yuquan.shi@student.unsw.edu.au
Email: j.dambra@unsw.edu.au

Abstract

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 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 using a laboratory experimental approach. This paper reports the results from the pilot study of the proposed research. The main findings include that (1) CMC participants reported higher perceived loafing than FTF participants did, (2) CMC participants perceived both lower task equivocality and lower task interdependence, and (3) Participants doing the high equivocality task perceived lower feedback immediacy.

Keywords

Social loafing, computer-mediated communication, decision-making, small group

INTRODUCTION

Social loafing is the tendency to reduce one's effort when acting as part of a group rather than alone (Latané et al, 1979; Karau & Williams, 1993). This enduring topic of group inquiry was first studied by Ringelmann in the 1880s (cited in Kravitz & Martin, 1986). 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 (Steiner, 1972). Nearly 100 years passed before Latané et al. (1979) 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 (George, 1992) and thus is detrimental to group performance (Mulvey & Klein, 1998a). The social loafing construct includes perceived loafing and actual loafing (Comer, 1995; Mulvey & Klein, 1998a, 1998b). Perceived loafing is a perception that effort is being reduced and includes perceptions about other group members and self (Kidwell & Bennett, 1993; Comer, 1995; Mulvey & Klein, 1998a, 1998b). Actual loafing refers to actual effort reduced (Kidwell & Bennett, 1993; Mulvey & Klein, 1998a).

Computer-mediated communication (CMC) is the human communication via computers (December, 1997). CMC purportedly offers a number of advantages to groups, such as rapid information transfer, convenience, and increased accessibility to co-workers and information (Straus, 1996). 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 (Jonassen and Kwan, 2001). For example, its effect of participation equalization has been viewed as a benefit over FTF. Throughout most of the CMC research (Dubrovsky et al., 1991; Eagly & Chaiken, 1993; Edinger & Patterson, 1983; Kiesler et al., 1984; Kiesler & Sproull, 1992; McGuire et al., 1987; Siegel et al., 1986; Weisband, 1992), it has been argued that the removal of vital social context cues under CM conditions has either exacerbated or attenuated various social psychological phenomena within groups (Toth, 1996). Hence, the question if CMC will exacerbate or attenuate the social loafing phenomenon in group decision making arises. If social loafing does occur and even more likely to 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 more consider the adoption of CMC for group decision making.

There is little empirical research to examine the phenomenon of social loafing across CMC and FTF. This is a great shortcoming of the CMC studies because social loafing as a common research area which belongs to group performance study has been well studied in the traditional FTF settings and research on social loafing has contributed greatly to understand the behavioral, social processes of group decision-making within groups and organizations. Moreover, till now most significant computer-mediation effects were discovered by comparing group behavior under different communication environment, using face-to-face communication as the standard of comparison primarily because of its ubiquitousness. Hence, the effect of CMC on social loafing cannot be discovered without comparing FTF and CMC small groups. This research examines the effect of CMC on social loafing through the use of experimental approach.

The remainder of this paper is outlined as follows. Firstly, literature review and research hypotheses are discussed. Secondly, the research methodology is presented. Thirdly, the data analyses and results are then presented. The conclusion finally closes this paper.

LITERATURE REVIEW AND RESEARCH HYPOTHESES

According to both media richness theory and social presence theory, CMC can change human behaviour (Daft & Lengel, 1986; Johansen et al., 1991; Short et al., 1976; Williams, 1977) and the way people work together (Rice, 1984). Social presence (SP) is defined as the degree to which individuals perceive others as being physically present during the communication process (Short et al. 1976). 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 (Daft & Lengel, 1986; Daft & Wiginton, 1979; Daft et al., 1987). Media richness theory (Daft & Lengel, 1986; Daft & Wiginton, 1979; Daft et al., 1987) proposes that certain media are more able to transmit information depending on whether the information is used in uncertain or equivocal situations. In uncertain situations, there is a framework for interpreting a message but a lack of information to process. In equivocal situations, there are multiple and possible conflicting interpretations for information or the framework with which to interpret it. Media with higher richness are preferred for equivocal situations because to reduce equivocality it requires group members to negotiate and converge to consensus on one interpretation. In contrast, leaner media are better suited to uncertain situations because to reduce uncertainty it requires group members to provide, locate, or create the needed information. 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 (Kinney & Dennis, 1994).

Impact of Media Factors on Social Loafing

Although it is quite difficult to specify whether CMC has an exacerbating effect or an attenuating effect on social loafing, it seems that CMC will impact on social loafing in group decision making. On the one hand, CMC seems to be able to limit the occurrence of social loafing. According to Jackson & Williams (1985), 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 experimenter's 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 (1986), 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 (Kiesler, et al., 1985). Hence, individuals might perceive relatively higher importance of their contribution. As suggested by Karau & Williams (1993) 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 (2003), 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 (Roy, et al., 1996). 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 anonymity provided by communication media (particularly lean media with limited social cues) could increase the tendency toward social loafing among group member (Dennis & Valacich, 1993; Kerr & Bruun, 1983; Shepherd

et al., 1995-96) although this claim has not been directly examined. Support for this proposition was found by Karau & Williams (1993), where anonymity did trigger social loafing under certain conditions. For example, Williams et al. (1981) found that anonymity tends to cause people to loaf and this effect was modified by evaluation potential (Harkins & Jackson, 1985).

Moreover, according to Kahai & Cooper (2003), 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 (1998), 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 to higher perceived social loafing.

Another point to be noted here is that according to Straus & McGrath (1994), 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 (1993) low task meaningfulness or personal involvement triggers social loafing.

In conclusion of 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 seen as 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 hypothesis that designed to test the media effect on social loafing is:

Hypothesis 1: Social loafing may be severer in either FTF or CMC setting.

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., Hackman, 1968; Hackman & Morris, 1975). In the CMC research field, especially when media richness theory is concerned, researchers have focused on one task characteristic, that is, task equivocality. However, in the social loafing research field, task equivocality has not been an issue; some often mentioned task characteristics include task difficulty, task meaningfulness, and task complexity etc. 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 (1986), 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 (1982) found that social loafing decreased when the task was more difficult and challenging. "When faced with a difficult or challenging task," Harkins & Petty reasoned, "people may feel that their contributions is needed, because they are better able than the average person to perform the task" (p. 1120). Consistent with their findings, the loafing effect has been generally observed in studies where an easy task was used (Karau & Williams, 1993). When task equivocality is high, group members may 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 may have the same reduction effect on social loafing as task difficulty. This leads to the following hypothesis:

Hypothesis 2: Social loafing will be severer with a low equivocal task.

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., Baltes et al., 2002; Straus & McGrath, 1994). According to Straus & McGrath (1994), members of CM groups have more difficulties in understanding other's contributions and in being understood by others, especially in decision making tasks 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 some impacts on social loafing). However, because the hypotheses about the effects of the 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, we hypothesise:

Hypothesis 3: There is an interaction between the effect of media and task on social loafing.

Social Loafing and Decision Quality

According to Steiner (1972, 1976), 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 (1994) 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: Extended model of group performance

As suggested by Mulvey & Klein (1998), 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:

Hypothesis 4: Social loafing has a negative impact on decision quality.

METHODOLOGY

A 3×2 between-subject factorial controlled laboratory experiment which manipulates media factor (high MR & SP, Medium MR & SP, and low MR & SP) and task factor (high equivocality, low equivocality) was employed in this research.

Manipulation of Media and Task Factors

Three communication systems will be used in this study to manipulate different levels of media richness & social presence in terms of multiple cues and feedback immediacy. They are FTF, text-chat system, and video-conferencing system. According to McGrath (1984), there are three main types of communication cues. They are verbal, visual, and textual cues. Verbal cues refer to information conveyed vocally, including tone and loudness of voice, and rate of speech; Visual cues include visual orientation and facial expressions, such as smiles, frowns, nods, and other types of body language; Textual cues are information embodied in written and printed texts and graphics (Sia et al., 2002). FTF enables the entire range of verbal, visual, and textual cues. Video-conferencing systems are designed to limit visual cues by enabling facial expressions but limiting other types of body language. In text-chat systems, only textual cues are allowed; subjects cannot see or hear each other. Feedback immediacy is the extent to which a medium enables users to give rapid feedback on the communications they receive (Daft & Lengel, 1986). FTF and video-conferencing systems are designed to enable feedback immediacy by allowing both concurrent (taking place simultaneously with the communication of a message) and sequential (occurring when the receiver interrupts the sender or uses a pause in the sender's communication to indicate understanding of a message or to direct the sender) feedbacks. Text-chat systems are designed not to allow concurrent or sequential feedbacks. In summarizing, FTF should have the highest media richness & social presence, followed by video-conferencing systems and text-chat systems in sequence.

Two tasks will be used to manipulate task equivocality. The high equivocality task is from Scudder (no date). Scudder's (no date) task is a van allocating task. The 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. The low equivocality tasks are contributed by Jarvenpaa (no date); it requires the participants to select a construction site for a new restaurant based on the scores of several important factors.

The pilot study focuses on the high and low MR & SP, and high & low equivocality treatments, so it is a 2×2 between-subject design with 4 treatments.

Experimental Settings and Subjects for Pilot Study

Groups of four people were used in line with other small group research in both group decision-making and social loafing fields. The experimental settings are shown in Figure 3. In the FTF setting, subjects sit around a table and communicate face-to-face. In the CMC settings, each subject sits in a different room; they can only communicate through the assigned computer medium - IBM Sametime.

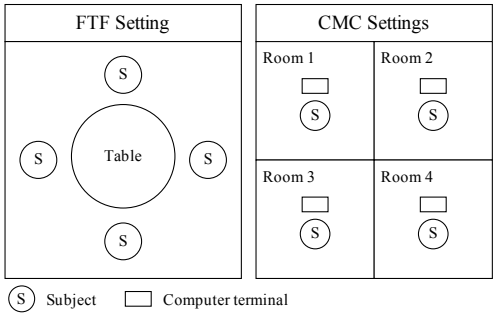

Figure 3: Experimental settings

A total of 36 subjects voluntarily participated in the pilot study. The subjects were undergraduates at a large public university in Australia. They were randomly assigned to totally 9 four-member groups and the groups were randomly assigned to the 4 treatments.

The experimental procedure considers five major steps: 1. Training – five minutes training on how to use IBM Sametime (the training was tested and found to be satisfactory); 2. Written task instructions were then handed to the participants; 3. Performing group task – group member followed the requirements and performed the task; 4. Post-meeting survey – all subjects completed and returned the questionnaire; 5. Debriefing – feedbacks and comments. All participants are required to use their first name as their ID during the experiment.

Measurement of Variables

Cue multiplicity and immediately of feedback will be measured by using the items developed by Ferry, Kydd, & Sawyer (2001). Media richness is measured by using eight questions from Dennis & Kinney (1998). Social presence is measured by using four questions from Short et al. (1976). Task equivocality is measured by using 4 questions used by Dennis & Kinney (1998). Task difficulty is measured by using three questions drawn from the definition of task difficulty. Task complexity is measured by using 2 questions formulated based on Wood's (1986) framework of task complexity plus one overall measurement of complexity. Task interdependence is measured by using 4 questions drawn from the combination of the definition of task interdependence, Argote & McGrath' (1993) specification of interdependence, and the questions used by Liden et al. (1997). Perceived social loafing is measured by using 4 questions from Mulvey & Klein (1998) and 2 questions adapted from George (1992). Actual loafing will be measured by six questions formulated with reference to the items used by Kidwell & Robie (2003), Mulvey & Klein (1998), and the definition of social loafing. Perceived anonymity will be measured by using questions developed by the writer with reference to Lea's (2001) research.

All questions mentioned above will use a seven-point Likert scale (from strongly disagree to strongly agree) except for those measuring social presence. Those questions measuring social presence are anchored on seven-point bipolar semantic differential scales.

For the low equivocality task, decision quality is measured by the condition of the answer being correct. For the high equivocality task, decision quality is measured using expert judgments of four experts in the task field. Each expert rates all the solutions using a seven-point scale (1 = a poor suggestion, 7 = an excellent suggestion). A team's decision quality will be then determined by averaging the scores from the four experts.

Among all the measured variables, task difficulty, task complexity, task interdependence, and perceived anonymity are control variables.

ANALYSES AND RESULTS

Table 1 describes the groups which successfully completed the experiment. There were 30 participants who took part in the pilot study and finished the questionnaire. It is worth noting that one group in the FTF treatment had only two members because the other two did not join the experiment. This group was excluded from data analysis because its group size was too small and may influence the occurrence of social loafing. Including it may influence the accuracy of data analysis. Hence, all the analyses thereafter were based on the data from 28 participants. The individual will be the level of analysis except for the test of Hypothesis 4. All the analyses were performed using SPSS v13.0.

Treatment	Participants	Groups	2 member groups	3 member groups	4 member groups
FTF, High Equivocality		3	1		2
FTF, Low Equivocality		2		2	
CMC, High Equivocality		2		2	
CMC, Low Equivocality		2			2
Total	30	9	1	4	4

Table 1: Final sample

Demographic information was collected and nonparametric tests (Kruskal-Wallis & Mann-Whitney tests) were carried out to confirm that various external factors did not have any significant effects on measured variables. Factors that were taken into account included the following points of interest:

- Gender – There was an uneven distribution of males and females, with females (75%) clearly outnumbering the number of males (25%).
- Year of Studies – 14.3% of the participants were in their first year of study, 25% were in their 2nd and 4th year respectively, and the remaining 35.7% were in their 3rd year.
- Work Experience – 67.9% of the participants had an average of 2.5 years work experience.
- Task Experience – Most of the participants (78.6%) had not ever completed a similar task.
- Group Experience – The majority of participants (85.7%) had either worked or studied in a group.
- Text-chat Experience – More than half of the participants (64.3%) indicated that they are very experienced with text-chat.

Reliability and Validity

Reliability and validity tests on the measured variables were conducted. All the measurement indicators achieved adequate reliability and validity (all the items had factor loadings of at least 0.61 on the appropriate variables and the Cronbach's alphas of all the variables were at least 0.72) except for those of task complexity. This problem may be caused by the complexity of the construct of task complexity (Mennecke & Wheeler, no date). In the following analyses, the overall measurement of complexity is used as the sole indicator for task complexity.

Manipulation & Control Checks

The manipulations on cue multiplicity (CM), feedback immediacy (FI), media richness (MR), social presence (SP) and control on perceived anonymity (PA) tested by a nonparametric test (Mann-Whitney test). The results are shown in Table 2: CM, FI, MR, & SP differ significantly across media but PA does not. The manipulations on CM, FI, MR, & SP and control on PA were thus successful.

Media	CM			FI			MR			SP			PA		
	Mean	S.D.	Z	Mean	S.D.	Z	Mean	S.D.	Z	Mean	S.D.	Z	Mean	S.D.	Z
FTF	6.25	0.73	-4.03**	5.40	1.31	-2.38*	6.14	.69	-4.33**	5.98	1.00	-4.10**	2.60	1.20	-1.64
CMC	3.23	1.49		4.26	1.10		4.12	1.10		3.66	1.10		3.60	1.62	

* $p < 0.05$, ** $p < 0.01$.

Table 2: Manipulation & control checks on media

The manipulation on task equivocality (TE) and controls on task difficulty (TD), task complexity (TC), task interdependence (TI) were tested by a nonparametric test (Mann-Whitney test). The results are shown in Table 3: only TE differs significantly across tasks. This confirms the success of the manipulation and controls on task factors.

Task	TE			TD			TC			TI		
	Mean	S.D.	Z	Mean	S.D.	Z	Mean	S.D.	Z	Mean	S.D.	Z
High TE	6.17	0.60	-2.59**	2.86	1.41	.82	3.71	1.49	.33	5.38	1.23	.32
Low TE	4.90	1.49		2.74	1.11		3.14	1.56		5.81	1.12	

** $p < 0.01$.

Table 3: Manipulation & control checks on tasks

Hypotheses Test

Table 4 summarises the descriptive statistics for the dependent variables.

		Actual Loafing		Perceived Loafing		Sample
Media Condition	Task Type	Mean	S.D.	Mean	S.D.	Size
FTF	High Equivocality	3.17	1.44	2.25	0.71	8
	Low Equivocality	3.44	1.76	1.70	0.81	6
CMC	High Equivocality	4.06	1.61	3.23	0.54	6
	Low Equivocality	3.75	0.81	2.68	0.87	8

Table 4: Descriptive statistics for the dependent variables

Because the pilot study involved only 8 groups, hypothesis 4 was not tested here. The other hypotheses were tested by a MANOVA test (the dependent variables met the homogeneity and the normality requirements of the MANOVA test). Table 5 reports the results. Hypothesis 1 was partially supported: perceived loafing was severer in CMC setting but not actual loafing was not. Hypotheses 2 & 3 were not supported.

Variable	Perceived Loafing		Actual Loafing	
	F	*p*	F	*p*
Media	11.68	0.002**	1.24	0.277
Task	3.74	0.065	0.00	0.980
Media × Task	0.00	0.989	0.30	0.592

For all comparisons, $df = 1$. ** $p < 0.01$.

Table 5: Hypotheses test

Other Interesting Findings

A nonparametric test (Mann-Whitney test) was conducted to determine if media has any effect on participants' perception on the tasks. Table 6 reports the results. The interesting finding is that CMC participants perceived both lower task equivocality and lower task interdependence ($Z = -2.48$, $p < 0.05$; $Z = -3.39$, $p < 0.01$).

Media	TE			TD			TC			TI		
	Mean	S.D.	Z	Mean	S.D.	Z	Mean	S.D.	Z	Mean	S.D.	Z
FTF	6.14	0.64	-2.48*	2.76	1.17	-.09	3.79	1.63	-1.38	6.33	0.67	-3.39**
CMC	4.93	1.49		2.83	1.36		3.07	1.38		4.86	1.12	

* $p < 0.05$, ** $p < 0.01$.

Table 6: Media effect on task perceptions

Another nonparametric test (Mann-Whitney test) was conducted to determine if task has any effect on participants' perception on the media. Table 7 reports the results. One interesting finding is that participants doing the high equivocality task perceived lower feedback immediacy ($Z = -2.15$, $p < 0.05$).

Task	CM			FI			MR			SP			PA		
	Mean	S.D.	Z	Mean	S.D.	Z	Mean	S.D.	Z	Mean	S.D.	Z	Mean	S.D.	Z
High TE	4.63	2.17	-.09	4.24	1.00	-2.15*	5.07	1.35	-.16	5.04	1.41	-.76	3.31	1.46	-1.09
Low TE	4.86	1.71		5.43	1.36		5.19	1.44		4.61	1.73		2.88	1.54	

* $p < 0.05$.

Table 7: Task effect on media perceptions

CONCLUSION

The main goal in this study is to find out if CMC will affect social loafing in small group decision-making. The three main findings of the pilot study are summarized below:

(1) CMC has an impact on perceived loafing: CMC participants reported higher perceived loafing than FTF participants did (H1 was partially supported). It seems that group members tended 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. This seems lead to higher perceived loafing.

(2) Media has an effect on participants' perception on the tasks. CMC participants perceived both lower task equivocality and lower task interdependence. This is a very interesting finding because CMC researchers normally focus on the effects brought by tasks on people's media perceptions. Further research is required to find out the function that caused this effect.

(3) Task has an effect on participants' perception of the media. Participants doing the high equivocality task perceived lower feedback immediacy. This maybe caused by the fact that when doing the high equivocality task, participants needed more time to process the multiple and possible conflicting interpretations for information from other participants and thus could not give a rapid response.

One of the limitations of this pilot study is that the sample is small (28 participants, 8 groups). In fact, small sample sizes are a common limitation plaguing many group-based research studies (cited in Barrick et al., 1998). It could have contributed to lack of support for some hypotheses. Nevertheless, this pilot study demonstrated that the measurement indicators are well-developed and can be used for the main experiments. In addition, the forthcoming three main experiments will address the small sample limitation by increasing the sample size. Another limitation of this study was its laboratory setting. Laboratory experimental study is normally limited by its low external validity although its internal validity is high (Babbie, 1995). As a result, the generalization of the research findings into real world contexts should be done cautiously.

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