

EXAMINING SOCIAL LOAFING WITHIN VIRTUAL TEAMS:
THE MODERATING INFLUENCE OF A TEAM'S COLLECTIVE ORIENTATION

by

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A thesis submitted in partial fulfillment of the requirements
for the Honors in the Major Program in Psychology
in the College of Sciences
and in The Burnett Honors College
at the University of Central Florida
Orlando, Florida

Spring Term 2013

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ABSTRACT

Social loafing is a growing concern for modern organizations. With advancement in computer technology, virtual tools are used more frequently to communicate, which may allow social loafing to occur in new and unfamiliar forms.

The intent of this thesis is to examine social loafing through the use of virtual tools, and to analyze whether collective orientation has a moderating influence on the relationship between social loafing and virtuality. 30 teams, each containing four participants, were randomly assigned to a condition of virtuality (i.e., instant messaging or videoconferencing). Participants then completed a computer simulation task in which social loafing, collective orientation of the team, and team performance were measured.

DEDICATIONS

For my Mom who has always been tremendously supportive of me, who inspires me to work towards my full potential, and who has raised me to be the man that I am today.

For my Dad who has encouraged me to pursue my passions and further my education, and who has ignited in me a curiosity of science and empirical knowledge.

And for all of my mentors, friends, and family who have given me support and encouragement along the way.

ACKNOWLEDGEMENTS

I wish to express my deepest gratitude to all who have helped me in the completion of this thesis.

Specifically, I would like to thank my committee members Dr. Salas, Dr. Saunders, Dr. Janowsky, and Marissa Shuffler. I also want to thank Alex Romano for her assistance during the coding process. To Dr. Salas, thank you for giving me the opportunity to write my own research and to practice this intricate process under your guidance. To Dr. Saunders, thank you for offering your personal knowledge regarding this subject, and for all of the extremely constructive feedback. To Dr. Janowsky, thank you for the knowledge and critical thinking you have provided me from your Social Psychology and Statistical Methods in Psychology courses, and for all of your support. And to Marissa Shuffler, thank you for your astounding mentorship in my academic development and during the progression of this research. Thank you also for your exceptional guidance throughout my graduate school admissions process. To my Mom, Dad, family, roommates, and friends, thank you so much for all of your encouragement and support.

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I. INTRODUCTION

As computer science research develops at a tremendously rapid pace, it is customary for modern organizations to apply this innovative technology to the workplace. The human-computer interaction theoretically allows organizations to function and communicate more efficiently than ever before. However, with such accelerated strides in applied science it is easy to overlook how virtual communications could potentially lead to an overall decrease in efficiency and process loss (Chidambaram & Tung, 2005). Virtual and face-to-face communication may be thought to operate by the same social principles, but this relationship is more complex than previously thought due to new research.

Traditionally described as the decrease in individual effort while working collectively (Karau & Williams, 1993), *social loafing* has been speculated to negatively affect task effort in teams communicating virtually. Individuals may become “lost in the crowd” within these virtual teams due to the lack of direct contact with other group members (Driskell, Radtke, & Salas, 2003). Since individuals are less visible to others while communicating through virtual tools such as videoconferencing software and e-mails, they may not feel as connected to the rest of their team.

Social loafing is a growing concern for modern organizations. It has even been described as a “social disease” because of its detrimental effects on teams, social institutions, and societies (Latané et al., 1979; Karau & Williams, 1993). With advancement in computer technology, virtual tools are used more frequently to communicate, which may allow social loafing to occur

in new and unfamiliar forms. This research explores social loafing within virtual teams, specifically if the level of virtuality has a significant effect on social loafing, if collective orientation moderates this relationship, and the effect on team performance.

Saunders and Ajuha assert that distributed team research is a field of study that is “maturing” rather than “matured” (2006). This research attempts to contribute to the current understanding of distributed teams, which in this study will be referred to by the term virtual teams. Besides adding to this “maturing” field, this research aims to provide implications for practitioners by further examining the constructs of virtual collaboration, and specifically how social loafing could be mitigated within virtual teams.

From a practical perspective, this research may assist with organizational training and selection. Managers could become more educated on selecting which virtual tools and personality types are most effective for their specific workforce. Particularly, corporations that correspond internationally could benefit from this research due to the exploration of collective orientation and virtual teams, both of which play vital roles in global and intercultural communications.

Universities and higher education facilities could benefit from this study as well, considering distance learning has become extremely prevalent within the past decade (Harper, Chen, & Yen, 2004). Further knowledge about virtual collaboration and distributed teams could allow educators to mitigate unwanted behaviors, such as social loafing, within virtual classrooms. Little research has been conducted examining social loafing within computer-mediated environments (Driskell, Radtke, & Salas, 2003), especially how different forms of

virtuality, through the use of virtual tools, affect social loafing. This research attempts to comprehensively examine the relationships between social loafing, team virtuality, team performance, and collective orientation.

II. THEORY, VARIABLES, AND HYPOTHESES

Social Loafing

Social loafing is the tendency for individuals to exert less effort on a task while in the social presence of others, than they would individually (Latané et al. 1979). Research supporting social loafing was initially produced by W. Moede (1927) from the research of Max Ringelmann. As a professor of agricultural engineering, Ringelmann studied the maximum performance of individual workers and groups of workers, as a function of the method which the worker(s) used to move weight loads horizontally (Kravitz & Martin, 1986). Ringelmann discovered a decrease in total performance as group size increased, which he postulated was due to “coordination loss” instead of directly attributing this to motivational factors. Almost one hundred years later Latané, Williams, and Harkins (1979) coined the term social loafing to be the reduced effort they measured in their experiments, which compared individual and group efforts by the noise produced from clapping and shouting. The central role of their study was to differentiate social loafing from coordination loss, but sequentially social loafing was labeled as a “social disease” because of the negative consequences it presents for individuals, organizations, and societies.

This study uses Bibb Latané’s (1981) Social Impact Theory (SIT) as a theoretical framework to explain the presence of social loafing within virtual teams. SIT suggests that the immediacy, defined as the “closeness in space or time and absence of intervening barriers or filters,” is essential in determining the social forces being acted on an individual. SIT predicts an inverse function between the immediacy of an individual in relation to others, and the effort put

forth by that individual member. As humanity continues to interact in more innovative ways than ever through the use of technological mediums, there is an increasing obligation to explore new ways in which social loafing could potentially appear within teams, and how social loafing could be mitigated in forthcoming technology.

Team Virtuality

The term *virtual team* is defined by Driskell, Radtke, and Salas as “a team or group whose members are mediated by time, distance, or technology” (2003). On the other hand, face-to-face teams are groups working within the same proximity to each other, at the same time. Media Richness Theory (Daft & Lengel, 1986) laid the pathway to research about virtuality by describing different forms of communication as a continuum. This theory describes face-to-face interaction as the richest form of media, while text and other comparable forms of communication are the least rich form of media due to their lack of social cues. The richness of the media can be manipulated through the use of *virtual tools*, specifically in this research the use of instant messaging and videoconferencing software.

Research on *team virtuality* has borrowed Media Richness Theory’s concept of informational value and tools to describe three dimensions of virtuality which include (1) extent of reliance on virtual tools, (2) the informational value that can be communicated, and (3) the synchronicity afforded by the tools (Kirkman & Mathieu, 2005). Teams that are highly virtual are extremely reliant on tools and transmission of information which contains little informational

value. Inversely, teams that are less virtual most closely mimic face-to-face interactions, and use transmission of information with a lot of informational value (Mesmer-Magnus et al., 2011). Virtual teams are less visible (Chidambaram & Tung, 2005) than face-to-face teams, which may be the reason why virtual teams are more prone to the counterproductive behavior of social loafing (Blaskovich, 2008).

Two different virtual tools will be used in this study to control the level of virtuality within each team (instant messaging and videoconferencing software). Teams communicating with tools of high virtuality are the least visible form, so I propose that these teams will exhibit greater social loafing than virtual teams communicating with tools of low virtuality. For the purpose of this research, I will label videoconferencing as having low virtuality and instant messaging as having high virtuality, as seen in Table 1.

Table 1. Levels of Virtuality & Virtual Tools Utilized

Level of Virtuality	Characteristics	Virtual Tool Utilized
High virtuality	<ul style="list-style-type: none"> • Low informational value • Provides few social cues 	Instant Messaging
Low virtuality	<ul style="list-style-type: none"> • High informational value • Provides many social cues 	Videoconferencing

Hypothesis 1: Teams utilizing tools with high virtuality will exhibit greater social loafing than teams utilizing tools with low virtuality.

Team Performance

Recent research regarding team performance within computer-mediated environments has been focused on the disadvantages that team members encounter while performing apart from one another (Driskell, Radtke, & Salas, 2003). Using different virtual tools can change the dynamics of team communication, and potentially affect team performance. Saunders and Ajuha infer from the Daft and Lengel (1984) model that the use of “lean” media, or virtual tools with high virtuality, would be appropriate for tasks with high uncertainty. “Rich” media, or virtual tools with low virtuality, should then be selected for more ambiguous and complex tasks (2006). While researchers and practitioners would prefer the use of virtual tools to strengthen team performance, it has been found that virtuality can negatively affect team performance (Hollingshead, McGrath & O’Connor, 1993). Since social loafing is essentially a decrease in individual effort while performing with others, I propose that social loafing will negatively affect team performance.

Hypothesis 2: Social loafing will negatively affect team performance.

Collective Orientation

Collective orientation has frequently been positively correlated to effective team outcome (Driskell & Salas, 1992; Earley, 1993; Eby & Dobbins, 1998; Stout, Driskell & Salas, 1997;

Wagner, 1995). Also referred to as team concept (Driskell, Salas, & Johnston, 1999), *collective orientation* can be understood as the “mutual interdependence of team members” (Driskell & Salas, 1992). Groups who are collectively oriented think of themselves and the group as one interdependent system, accomplishing their tasks together with the help of all members. Groups which are less collectively oriented are much more autonomous in their decision making, viewing themselves and the other group members as individual and separate.

Collective orientation has been shown to have positive effects on team performance (Driskell, Salas, & Hughes, 2010), while social loafing has been determined to provide negative effects towards team performance within computer-mediated environments (Chidambaram & Tung, 2005). Social loafing is more likely to occur when teams lack cohesiveness and are less aware of their individual and collective performance outcomes (Driskell, Radtke, & Salas, 2003). Inversely, cohesive teams are less likely to contain individuals who slack and work autonomously. As Karau and Williams suggested, identifying the variables which moderate social loafing is essential towards developing a greater understanding of performance and motivation, at an individual and group level (1993).

In reference to Social Impact Theory, the low immediacy as a result from team members working distributed, or virtually, will likely result in weakened social forces being acted on the team, potentially causing the emergence of social loafing. “Strength” of a target in SIT’s theory would help to increase or decrease the social forces being acted on the individual, in function to the team member’s immediacy to one another. In this case, strength could be interpreted as the extent to which the team holds a collective orientation, ultimately increasing or decreasing the social forces acting on individual team members. This counter-balance would essentially be a

moderating influence to the social loafing. From this I propose that a team's collective orientation acts as a moderating influence on the social loafing. Essentially, the more collectively oriented a team is, the weaker the relationship will be between virtuality and social loafing; the less collectively oriented a team is, the stronger the relationship will be between virtuality and social loafing.

Hypothesis 3: Collective orientation will moderate social loafing within virtual teams, such that:

Hypothesis 3a: When a team's collective orientation is high, the relationship between virtuality and social loafing will be weaker.

Hypothesis 3b: When a team's collective orientation is low, the relationship between virtuality and social loafing will be stronger.

III. METHODOLOGY

Participants

Participants in this study were undergraduate students recruited from local colleges and universities in the southeastern United States. 30 four-person teams were composed, each for a three-hour laboratory study. For participating in the study, individuals have been compensated by receiving their choice of either 3.25 research credit points or a financial compensation of \$24. Participants were recruited through IRB-approved advertisements posted online and on campus in approved locations, and through the use of an online sign up system provided for undergraduates in need of class credit.

Design

This research data is utilized as part of a larger on-going data collection for a National Science Foundation funded research project. All methods and materials of this study have been approved through the university institutional review board. Prior to the session starting, teams of participants were randomly assigned to one of the three virtuality conditions, which are described below. In each condition, the team member's rooms were located within the same building. Experimenters were not in the participant's rooms, but with the use of video and audio equipment, the experimenters were able to see and hear the participants at all times during the

sessions. Participants were able to ask the experimenters questions in all of the conditions via audio equipment.

The levels of virtuality were manipulated by the use of two different types of virtual tools: 1) instant messaging (high virtuality), and 2) videoconferencing software (low virtuality), both which used the same meeting software system (GoToMeeting). Only one of these virtual tools has been utilized by each team during their session; this design enables a direct comparison between differing levels of virtuality.

GoToMeeting was used during the sessions in order for teams to communicate with one another. GoToMeeting is a web-based program which allows participants in different locations to connect at a central location virtually, allowing teams to see, hear, and instant message one another as well as share control of a computer screen. For the videoconferencing conditions, teams were able to see and hear one another using webcams attached to large 36" flat screen monitors, with videos of their teammates displayed above the simulation screen they were sharing. For the instant messaging conditions, both audio and video were disabled, but participants were able to communicate with each other by utilizing the chat system. Within both conditions, participants had been instructed to use their role name (Prime Minister A, B, C, or D) during communications with their team in order to clarify who is talking or typing at any point.

Task

Teams played Democracy 2, a computer based simulation similar to other computer based testbeds utilized in team-based research studies (e.g., Marks, DeChurch, Mathieu, Panzer, & Alonso, 2005; Wildman, 2010). Democracy 2 placed participants in the role of a team of prime ministers responsible for a fictional country (Libria). The overall goal of this simulation was to improve the well-being of the country in order to gain re-election. To achieve this, team members worked together to decide if and how policies in the country should be changed in order to satisfy the needs of various constituent groups which comprise the population (e.g., parents, farmers, socialists, middle income). In order for teams to cancel or change policies, the teams of prime ministers were allocated political capital points which could be spent over 10 decision rounds.

At the end of each round, teams received an updated summary of the variables affecting their re-election which included constituent happiness, expenses, debt, and the percentage of the population which planned to vote for the team in the next election. After reviewing this information, teams then decided which policies to change or cancel each round in order to please the constituent groups, and ultimately to get re-elected. Depending on which changes were made each round, the country's debt, expenditures, percentage of voters, and happiness of constituents either increased or decreased. After the final decision round, the population of voters as well as the outcome of the team's re-election was displayed.

Each prime minister was responsible for a set of five constituents, and each prime minister had been given unique information regarding the policies which directly impacted each minister's constituents. This information was provided in handouts including decisions of their constituents,

descriptions of each policy, which constituent the policy impacts, which department they belong to, how many capital points it costs to cancel, raise, or lower policies, and how long it would take for the policies to have an impact. Each prime minister within the team had one constituent which made up a large majority of the population, making it vital for all prime ministers to make policy changes which pleased their constituents. The most effective strategy to win the simulation was for the team members to work together to make decisions which pleased all four larger constituents as a whole. Some of the needs of the constituents conflicted with others, so teams had to work together through these conflicts in order to develop an effective strategy.

To interact within Democracy 2, team members all shared the same game screen across their computers. Any team member could take control of the game screen at any point in the game; however, control of the screen was given to only one team member at a time. A time limit of 60 minutes was imposed on teams during the performance round.

Procedure

Prior to participating in the study, each participant had been randomly assigned to one of two conditions, and to one of four prime minister roles. Upon arrival, all four of the participants were escorted to their appropriate research rooms. Each room included a large 36" monitor, a mouse and keyboard, and computers that were networked to an experimenter computer and the Internet in order to connect to the GoToMeeting software. The participant's study materials had been placed in the designated study rooms in advance; these study materials included a notebook

with information on their prime minister role, informed consent, training materials, scrap paper, and pens. Four research rooms were utilized for each of the 30 teams. Care had been taken by the experimenters to escort participants into their designated research room as soon as they arrived, in effort to minimize any interaction time prior to the beginning of the study. Participants were also asked to remain quiet and to not talk to other participants prior to the start of the session.

The experimenter at the computer utilized the GoToMeeting software to communicate with the participants throughout the session. Experimenters were able to see and hear participants during each session via GoToMeeting regardless of the session's condition. Consequently, participants were able to communicate with the experimenters at any point by simply speaking out loud, even in instant messaging conditions. However, participants were only able to communicate with their teammates using the virtual tool assigned to their study condition (i.e., instant messaging or videoconferencing).

At the beginning of each session, participants had been informed that they were working as a four-person team of prime ministers for a fictional country, using the game Democracy 2. Each participant was then given an informed consent form which was reviewed with them by the experimenter. After the participants had agreed to participate by signing the informed consent form, the initial training video was displayed which described how to play Democracy 2. The 20-minute training video had been based on a tutorial which was developed by the designers of Democracy 2, and explained the purpose of the game, the goals, and how to maneuver the game. All participants received the same information regarding Democracy 2. At the end of each training video, participants received information specific to their virtuality condition on how to use GoToMeeting.

Once participants completed the training video, the experimenter allowed time for questions. The experimenter then lead team members through a guided practice session. Each team member was given a list of tasks to complete in a practice country, and ten minutes to complete these tasks. Once the ten minutes was up, the experimenter walked the team through the correct answers and responded to any questions the participants had. The team then was given an additional 30 minutes to play in the practice country, with the goal of trying to achieve re-election.

Once the teams completed their 30-minute practice session, they filled out a survey. Teams then engaged in a 60-minute performance session, in which they completed a series of ten decision rounds within the Democracy 2 game. Once the performance round started, teams were not able to ask game specific questions to the experimenters, but could receive technical assistance, if needed, at any time. No specific instructions were provided from the experimenters other than for the team to work together to achieve their goals. Once the 60-minute performance round was up or the team had completed all decision rounds, the participants filled out a second survey. Finally, team members were debriefed regarding the themes of the study and the participants were then compensated for their participation.

Measures

Survey data was collected from the participants by the means of self-report, team member ratings, and data output from Democracy 2. Before participating in the study, participants

completed a pre-survey which was used to collect the individual difference variables needed to assess team capacity in terms of collective orientation. During the study, team performance was measured using output from the Democracy 2 simulation, created from a formula specific to the goals of the specific tasks involved. After the study, social loafing was observationally coded and measured by using video recordings and chat logs from the 30 team's performance rounds.

Pre-Task Measures

Collective Orientation

To assess an individual's collective orientation, Driskell, Salas, and Hughes' (2010) Collective Orientation Scale has been utilized. This scale is attached as Appendix B. Individuals were asked to rate 15 statements from 1 (strongly disagree) to 5 (strongly agree) evaluating how they feel about working in team settings. The teams' collective orientation has been aggregated from individual scores.

Control Variables

Age, GPA (grade point average) and CGSE (computer game self-efficacy) were all controlled for. These variables were collected from the pre-survey.

In-Task Measures

Social Loafing

Each team received a score rating their social loafing, established from a coding scheme and the performance round data. Since there had not been a behaviorally anchored coding scheme for social loafing in existence at the time of this study, one was created for this research. This coding scheme is attached as Appendix C. The 30 teams were coded for social loafing behaviors, by two raters. The two raters jointly coded 20 percent of the sessions, and reached a consensus on these sessions with 100 percent agreement. The remainder of the sessions were then divided between the raters, and completed individually. The scale ranges from 1-5. The rating 5 represents “complete social loafing” while inversely the rating 1 represents “hardly any social loafing”.

Team Performance

Performance of the team was measured via performance outcomes produced by the Democracy 2 simulation. A formula was used to provide a weighted score combining the team’s amount of debt, final balance, overall popularity scores, and the popularity scores for the four largest constituents.

IV. RESULTS

Descriptive Statistics

The means, standard deviations, and correlations among the variables are presented below in Table 2.

Table 2. Descriptive Statistics and Correlations

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. Social Loafing	2.50	.77	1.00	-1.25	-.39*	-.13	-.09	-.41*	.04
2. Collective Orientation	3.15	.19	-.13	1.00	-.03	-.47	-.06	.21	.15
3. Team Performance	.20	.07	-.39*	-.03	1.00	.18	.44	.17	-.05
4. Virtuality	.50	.509	-.13	-.47	.18	1.00	.04	.22	-.01
5. Age	19.56	2.38	-.09	-.06	.44	.04	1.00	-.16	.04
6. GPA	3.46	.29	-.41*	.21	.17	.22	-.16	1.00	.05
7. CGSE	2.78	.45	.04	.15	-.05	-.01	.04	.05	1.00

*Note, N = 30 teams (120 individuals). GPA = Grade Point Average. CGSE = Computer Game Self- Efficacy. *p<.05*

Hypothesis 1

Firstly, I was interested in examining if teams utilizing tools with high virtuality would exhibit greater social loafing than teams utilizing tools with low virtuality. To answer this, an

independent sample t-test was conducted on the data collected from the 30 teams. Results indicated that between the videoconferencing condition ($M = 3.06, SD = 0.19$) and the instant messaging condition ($M = 3.23, SD = 0.15$), there was not a significant difference in terms of the amount of social loafing ($t(27) = -2.76, n.s.$). Therefore, Hypothesis 1 is not supported.

Hypothesis 2

To test Hypothesis 2, a regression was conducted with age included as a control variable due to its significant relationship with performance. The results indicated that social loafing negatively predicted team performance ($\beta = -.35, F(2, 26) = 5.92, p < .05$). As predicted from the literature, social loafing did have a significant effect on team performance, supporting Hypothesis 2.

Hypothesis 3

The final hypothesis questioned whether collective orientation played a moderating role regarding the relationship between social loafing and virtuality. It was hypothesized that when a team's collective orientation was high, the relationship between virtuality and social loafing would be weaker, and when a team's collective orientation was low, the relationship between virtuality and social loafing would be stronger. Hierarchical regression was conducted, in order to test the moderation of collective orientation on the relationship between virtuality and social loafing. The results indicated that there were no significant main effects for virtuality or collective orientation in terms of their influence on social loafing ($R = .57, F(6,22) = 1.79, p =$

n.s.). Additionally, the interaction between collective orientation and virtuality was not significant ($B = 3.99$, $p = .06$). Although Hypothesis 3 is not supported from these findings, the results for the interaction effect are approaching significance, showing promise for future research.

V. DISCUSSION

While two of the three hypotheses were not supported by the results, there were still some meaningful findings. The output for all three of the hypotheses resulted in the directions hypothesized, which could offer implications for future research. There were two limitations discovered within this research. The first limitation is power. If there had been a larger number of teams tested, the results may have yielded more substantial findings. The second limitation is that there were uneven levels of collective orientation between the conditions of virtuality. Although the participants had been randomly assigned, teams within the instant messaging condition contained significantly higher levels of collective orientation than teams within the videoconferencing condition; this alone may have nulled some of the effects. Collective orientation may have been found to significantly moderate virtuality and social loafing if these conditions contained teams with similar levels of collective orientation.

Alternatively, it may be the case that the level of virtuality does not have a significant effect on social loafing. Even with both of these limitations adjusted in future studies, similar results may be produced. Possibly, the fully distributed individuals in the instant messaging condition felt more accountable for their actions, due to being physically isolated from other team members.

For future research, a great avenue to explore would be testing teams with differing physical distributions, rather than only testing fully distributed teams. This variation in team distribution may yield different outcomes than the results offered from this study. While a behaviorally anchored coding scheme was used within this research to measure social loafing,

future researchers may wish to refine this measure. Social loafing has typically been measured by participant feedback from surveys and questionnaires. Larger sample sizes should also be considered for future research, which could comprehensively balance out the extent of teams' collective orientation, between the conditions of virtuality.

VI. CONCLUSION

The results from this study demonstrate that distributed team research truly is still “maturing” (Saunders & Ahuja, 2006). Although not all of the hypotheses were supported, the results could still provide some assistance to researchers and practitioners. The most substantial finding to be derived from this study is that social loafing negatively affects team performance.

While not all of the hypotheses were supported by the results, there are still many implications that could be taken from this research regarding the construct of virtual teams and social loafing. For researchers, this study could contribute more to this “maturing” field and allow deeper analysis regarding distributed teams; specifically which limitations need to be overcome in future research. For practitioners, this research could help to distinguish social loafing as a detrimental behavior within workplace teams. A substantial amount of distributed team research must be conducted in the field before it can be considered “matured”. Nonetheless, research within this field continues to progress in the right direction.

APPENDIX A: IRB APPROVAL LETTER



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Human Research

From: **UCF Institutional Review Board #1
FWA00000351, IRB00001138**

To: **Shawn Burke and Co-PIs: Eduardo Salas, Stephen M. Fiore**

Date: **October 18, 2012**

Dear Researcher:

On 10/18/2012, the IRB approved the following modifications in human participant research until 05/13/2013 inclusive:

Type of Review: IRB Addendum and Modification Request Form
Modification Type: Recruitment has been expanded to include any college or university student.
Project Title: Shared Leadership: Moving Beyond Virtuality and Distribution to Build Capacity in Virtual Organizations
Investigator: Shawn Burke
IRB Number: SBE-10-07005
Funding Agency: National Science Foundation
Grant Title:
Research ID: N/A

The Continuing Review Application must be submitted 30 days prior to the expiration date for studies that were previously expedited, and 60 days prior to the expiration date for research that was previously reviewed at a convened meeting. Do not make changes to the study (i.e., protocol, methodology, consent form, personnel, site, etc.) before obtaining IRB approval. A Modification Form **cannot** be used to extend the approval period of a study. All forms may be completed and submitted online at <https://iris.research.ucf.edu>.

If continuing review approval is not granted before the expiration date of 05/13/2013, approval of this research expires on that date. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

Use of the approved, stamped consent document(s) is required. The new form supersedes all previous versions, which are now invalid for further use. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Participants or their representatives must receive a signed and dated copy of the consent form(s).

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Patria Davis on 10/19/2012 10:20:48 AM EDT

IRB Coordinator

APPENDIX B: COLLECTIVE ORIENTATION SCALE

COLLECTIVE ORIENTATION SCALE

Driskell, J. E., Salas, E., & Hughes, S. (2009). Collective orientation in teams: Development of an individual difference measure. *Unpublished Manuscript*. Florida Maxima Corporation, University of Central Florida, and Naval Air Warfare Center Training Systems Division.

Working as part of a team can have positive as well as negative aspects. We are interested in how you feel about working in team settings. Below are a number of statements regarding teams. There are no right or wrong answers; however you may agree more or less strongly with each statement.

$\alpha = .85$, subscales = .85 and .75

Scale

- 1 = Strongly Disagree
- 2 = Somewhat Disagree
- 3 = Neither Agree nor Disagree
- 4 = Somewhat Agree
- 5 = Strongly Agree

Items

1. When solving a problem, it is very important to make your own decision and stick by it.
2. When I disagree with other team members, I tend to go with my own gut feelings.
3. I find working on team projects to be very satisfying.
4. I would rather take action on my own than to wait around for others' input.
5. I find that it is often more productive to work on my own than with others.
6. I find it easy to negotiate with others who hold a different viewpoint than I hold.
7. When I have a different opinion than another group member, I usually try to stick with my own opinion.
8. I think it is usually better to take the bull by the horns and do something yourself, rather than wait to get input from others.
9. For most tasks, I would rather work alone than as part of a group.
10. I always ask for information from others before making any important decision.
11. I can usually perform better when I work on my own.
12. It is important to stick to your own decisions, even when others around you are trying to get you to change.
13. Teams usually work very effectively.
14. I prefer to complete a task from beginning to end with no assistance from others.
15. When others disagree, it is important to hold one's ground and not give in.

APPENDIX C: SOCIAL LOAFING CODING SCHEME

SOCIAL LOAFING CODING SCHEME

Definition: The tendency for individuals to exert less effort on a task while in the social presence of others, than they would individually (Latané et al. 1979).

Examples:

- Team members put forth imbalanced effort into tasks and communication
- Not all team members are engaged in communication, and contribute unequally to the group
- Teams fail to demonstrate initiative in completing tasks conjointly and communicating with each other
- Team members provide minimal feedback when individual members are not contributing to the team's task or decision making

Scale:

Complete Social Loafing (5) – Team members are unevenly engaged in the completion of the team's goals, progress, and course of action. Team members do not work or communicate with each other. One or few individuals are communicating and putting forth effort towards the completion of the team's objectives.

Very Much Social Loafing (4)

Moderate Social Loafing (3) - All team members are somewhat engaged in the completion of the team's goals, progress, and course of action. Communication is moderate between all team members, and some individuals are less engaged in decision making than others.

Some Social Loafing (2)

Hardly Any Social Loafing (1) - All team members are very engaged in the completion of the team's goals, progress, and course of action. Communication is consistent between all team members, and each individual's effort is clear and defined.

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