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Investigating Antecedents to Social Loafing in IT Project Teams: Applying the Collective Effort Model

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ABSTRACT

Even with several decades of IT project management research and practice, there are still issues with keeping projects on time and within budget, with the final product adding value to the project organization. With the overwhelming majority of IT projects involving teams of workers, it is important to take advantage of insights drawn from work within the referent discipline of organizational behavior, and more specifically from work that focuses on teams and team member behaviors. This research focuses on antecedents impacting social loafing that would fall under the category of informal controls. Specifically, our research question is do antecedents identified as important in the Collective Effort Model in team projects have an impact on social loafing? These findings provide a contribution to the theoretical basis for social loafing and potentially lead to a better understanding of how IT project leaders can most effectively influence project processes and outcomes.

Keywords

Social loafing; project management; collective effort model; informal project controls

INTRODUCTION

Even with several decades of IT project management research and practice, there are still issues with keeping projects on time and within budget, with the final product adding value to the project organization. Several reasons have been posited that may impact the outcome of a project: requirements uncertainty (Nidumolu, 1996); the inaccurate assessment of project risk (Nidumolu, 1995; Wallace, Keil, and Rai, 2004); and a lack of sufficient project control, manifesting in project misreporting (Iacovou, Thompson, and Smith, 2009; Keil, Smith, Iacovou, and Thompson, 2014; Smith, Thompson, and Iacovou, 2009) and other detrimental project member behaviors.

With the overwhelming majority of IT projects involving teams of workers, it is important to take advantage of insights drawn from work within the referent discipline of organizational behavior, and more specifically from work that focuses on teams and team member behaviors. Additional insight into team member behavior can inform IT project managers on ways to better control project processes and outcomes. A team member's propensity to withhold effort toward achieving project goals can be a significant factor in poor project outcomes in team projects (Kerr and Bruun, 1983) and has been found across several different types of tasks (Karau and Williams, 1993). Kidwell and Bennett (1993) argued that the likelihood that an individual will give less than full effort on a job-related task in a team setting is the underlying concept behind shirking, social loafing and free riding.

The aspect of propensity to withhold effort of interest to IT project management is social loafing, where a project team member withholds effort as he or she moves from an individually performed task to performing a task in groups of increasing team member size (Latane, Williams, and Harkins, 1979). Prior literature identifies several antecedents to social loafing, including team size and task visibility among others (George, 1992; Lount and Wilk, 2014; Williams, Harkins, and Latane, 1981). Team members may feel that they can hide in a crowd, as it is a collective task. In addition, when the individual's performance is less personally identifiable, he or she may feel his or her contribution is less critical to the project outcome. Extensive research in the IS field has demonstrated that social loafing is a phenomenon that is pervasive in IT project team settings (Hasan and Ali, 2007; Mahaney and Lederer, 2010; McAvoy and Butler, 2009). These antecedents have also been shown to have an influence on IT project outcomes. Larger team sizes show greater social loafing (Alnuaimi, Robert, and Maruping, 2010; Chidambaram and Tung, 2005), while task visibility and project importance have been found to decrease social loafing in IT project teams (Hasan and Ali, 2007; McAvoy and Butler, 2009). Leadership characteristics of the

group, including peer leadership and supervisor support, are also shown to influence social loafing (Baker and Thompson, 2014).

One theoretical basis for project controls, based on Control theory, proposes both formal and informal control mechanisms for project teams (Kirsch, 1997). Clan control is one type of informal control that has been shown to be antecedent to team member behavior (Chua, Lim, Soh, and Sia, 2012). Another antecedent that falls in the spectrum of informal controls is internal integration, derived from a second theoretical basis, that of software project risk mitigation and contingency (Barki, Rivard, and Talbot, 2001).

This research focuses on antecedents impacting social loafing that would fall under the category of informal controls. In particular, this work investigates antecedents to social loafing on teams from prior literature and posits an overarching theoretical model for those factors, the Collective Effort Model (Karau and Williams, 2001). Testing this model with antecedents from prior literature would allow for the expansion of the nomological net of antecedents to social loafing in IT project teams. This has the potential to provide additional insight into which informal controls would have an impact on social loafing.

Our research question focuses on whether organizational behavior factors grouped in categories of rational choice, normative conformity, and affective bonding (Kidwell and Bennett, 1993) in line with the Collective Effort Model have an impact on an individual team member's social loafing behavior in an IT project team. Specifically, our research question is do antecedents identified as important in the Collective Effort model in team projects have an impact on social loafing? These findings provide a contribution to the theoretical basis for social loafing and potentially lead to a better understanding of how IT project leaders can most effectively influence project processes and outcomes.

THEORETICAL BACKGROUND

The concept of social loafing in groups has been studied extensively in the fields of organizational behavior and social psychology. Kidwell and Bennett's (1993) work on effort withholding grouped the factors influencing social loafing into those of rational choice, normative conformity, and affective bonding to give a more nuanced view of individual effort withheld beyond the traditional economic incentive-based concerns of organizational justice and effort-performance expectancy. Karau and Williams (1993) performed a meta-analysis on studies of social loafing and provided a theoretical integration of prior theories applied to individual motivation in team settings, the Collective Effort Model (CEM). CEM integrates expectancy-value models of effort with theory on social identity and self-evaluation processes in groups. The model posits that "individuals will be willing to exert effort on a collective task only to the degree that they expect their efforts to be instrumental in obtaining outcomes that they value personally." (Karau and Williams**,** 2001, p. 119) Thus, group project settings that provide clear information relevant to individual team member evaluation have stronger implications for motivation than project settings that do not provide such information or make it ambiguous. In the context of IT project teams, those IT project settings that promote clear individual member evaluation from the group members, important referent groups, and the team member herself, will likely engender less social loafing than those where this feedback is less clear, not valued, or absent.

IT project management literature views controls in group projects through two different theoretical lenses. The first lens, internal integration, comes from the contingency perspective and risk literature. In IS literature, the terms "uncertainty" and "risk" describe project characteristics that tend to raise the likelihood of IT project failure. To lower the risk of a project, Barki, Rivard and Talbot (2001) posit internal integration as "management practices that enhance cohesion among team members" (McFarlan, 1981). The second lens, clan control, originates in IT project control literature (Chua et al., 2012; Remus and Wiener, 2012). Chua et al. (2012) define clan control as groups with higher social capital "where members develop social ties to the point they share common beliefs, values and norms" (p. 276). To reduce risk in a project, clan control aims to direct or influence others in the group for goal achievement. Wiener et al. (2014) found that clan control has a positive, direct impact on project performance. Under the CEM, both clan control and internal integration would have impacts on the individual effort exerted on a project because both present individual evaluation information from group members that is valuable to that individual team member.

RESEARCH MODEL

The Collective Effort Model can be used to hypothesize the impact of antecedents on social loafing in group IT projects. The model suggests that group projects are highly susceptible to social loafing because individual team members perceive a stronger contingency between individual effort and valued outcomes when working individually rather than in a group (Karau and Williams, 2001). Prior research has also shown that factors contributing to affective bonding among the individual, group, project leader and organization mediate factors of rational choice and normative conformity (Tsay, Lin, Yoon, and Huang, 2014), as presented in Kidwell and Bennett's (1993) work on team member effort withholding, of which social loafing is one aspect.

Kidwell and Bennett (1993) posited that effort withholding by individual team members is influenced by three groups of factors: rational choice; normative conformity; and affective bonding. Rational choice factors reflect that individuals make economically rational decisions based on a cost-benefit analysis of their project and group environment. The decision to exhibit social loafing on a project is made by considering situational characteristics such as perceived task visibility and task interdependence. Normative conformity factors reflect an individual team member's perception of peer compliance norms, justice and equality on the team. If members perceive inequality in outcomes within the project team members, members are likely to engage in social loafing.

Factors of normative conformity are influenced by the role of affective bonding factors within a group. Affective bonding is the emotional attachment between members of the group. Levels of group cohesion, interpersonal relationships and levels of respect all contribute to affective bonding. Thus, we propose factors of rational choice (task interdependence, perceived task visibility, and perceived co-worker loafing) have a direct impact on social loafing, and factors of normative conformity (procedural justice, distributive justice, interactional justice and role ambiguity) will be mediated by factors of affective bonding (perceived organizational support, leader-member exchange, and team-member exchange) in their impact on social loafing. Our research model is presented in Figure 1.

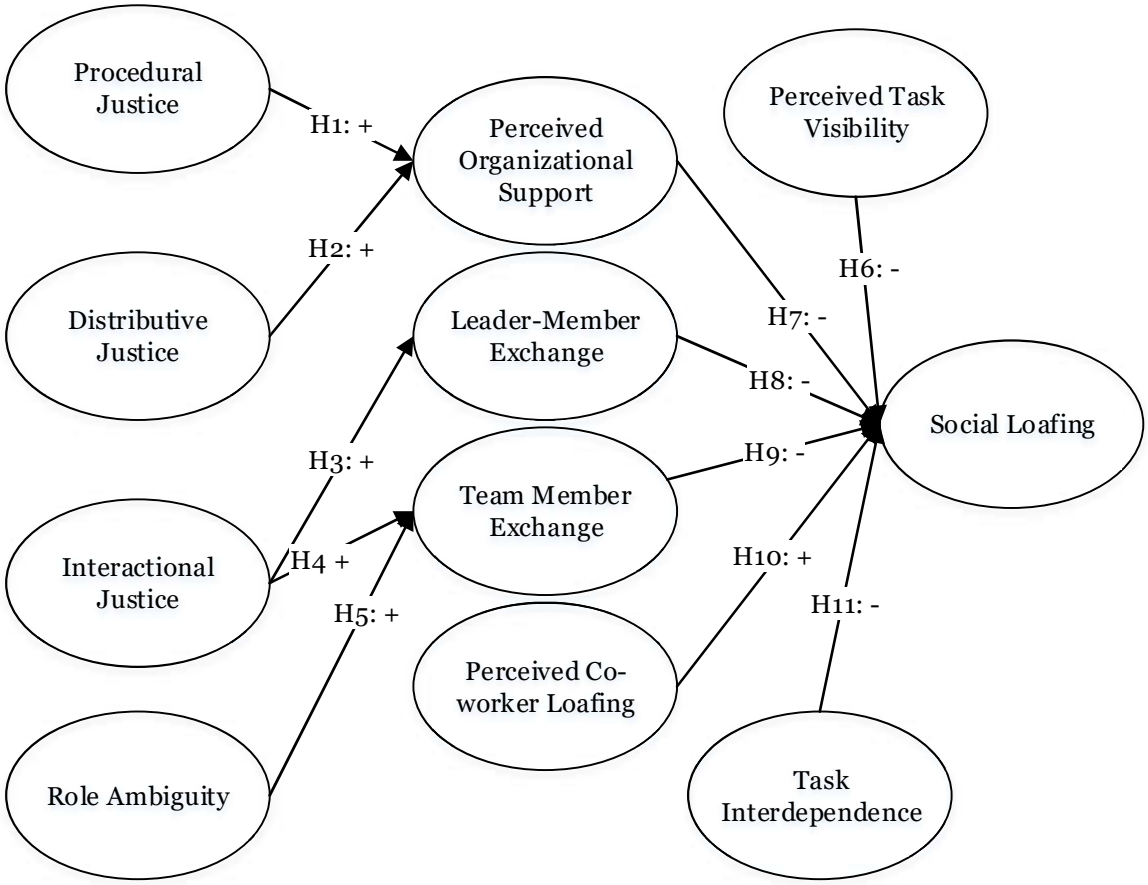

Figure 1. Research Model

Hypotheses

Normative Conformity Factors

Organizational justice has frequently been studied with respect to its influence on group work efforts and serves as a factor of normative conformity to individual effort withholding in groups. Colquitt (2001) gives the definitions for the three dimensions of organizational justice. Procedural justice is an individual team member's perceptions of fairness in the policies or procedures used to make decisions in the group environment (Leventhal, 1980). Distributive justice reflects an individual team member's perception of the extent that the outcome allocation (salary, bonuses are examples) is consistent with the goals of the group scenario, that rewards and resources are distributed in line with the recipient's contributions to achievement of the goal (Adams, 1965). Interactional justice describes the interpersonal treatment an individual receives as procedures are enacted (Bies and Moag, 1986). Colquitt (2001) discusses how breaking them up into two factors, interpersonal justice and informational justice is the superior dimensional model; however, frequently the items for both factors are asked together and modeled as one construct.

Perceptions of Procedural Justice and Distributive Justice will influence the individual team member's view of the support that they receive from their organizations (Wayne, Shore, and Liden, 1997). The organizational-level affective bonding variable, Perceived Organizational Support, is defined as the overarching beliefs an individual team member holds concerning the extent to which the organization values their contributions and cares about their well-being (Eisenberger, Huntington, Hutchison, and Sowa, 1986). If the individual perceives fairness in the policies and procedures of decision-making and fairness in the allocation of outcomes related to the project, then it is likely that he/she will feel that the organization as a whole values him/her. Therefore, we hypothesize:

H_1: Procedural Justice is positively related to Perceived Organizational Support.

H_2: Distributive Justice is positively related to Perceived Organizational Support.

Interactional Justice was not included as being mediated by Perceived Organizational Support as this dimension of justice is more reflective of an individual's treatment by another team member or a team leader and is not a reflection of the organization as a whole. However, Interactional Justice does have an influence on the affective bonding variables among team members and team leadership, those factors of Leader-Member Exchange and Team-Member Exchange.

Wayne et al. (1997) define Leader-Member Exchange as the measure of an interpersonal relationship between a supervisor and subordinates again the background of the formal organization based on social exchanges of value and fairness. Team-Member exchange measures the effectiveness of the working relationship and the reciprocity between a team member and his/her group members (Seers, 1989). When a team member feels that they were well-treated by the project leader and other team members as procedures were effected, then it is likely that the team member feels more positively toward his/her supervisor and the other team members (Murphy, Wayne, Liden, and Erdogan, 2003).

H_3: Interactional Justice is positively related to Leader Member Exchange.

H_4: Interactional Justice is positively related to Team Member Exchange.

The normative conformity variable of Role Ambiguity reflects an individual team member's certainty (or lack thereof) of his/her responsibilities and expectations on the group project. Role Ambiguity is the perception that the individual team member cannot predict outcomes of his/her behavior and that he/she has little in the way of guidelines to indicate appropriate behavior in the project effort (Rizzo, House, and Lirtzman, 1970). When a team member is certain of his/her place in the project, it leads to greater effectiveness in the working relationship between that team member and the other group members – a positive relationship to Team Member Exchange. It is important in this instance to review the items measuring Role Ambiguity, as they really describe the lack of Role Ambiguity (e.g, I feel certain about how much authority I have on the project, and There are clear, planned goals and objectives for my role on the project.) Thus, while it seems counterintuitive, Role Ambiguity has a positive impact on Team Member Exchange, as Role Ambiguity as a construct measures the lack of Role Ambiguity on the individual team member's part.

H_5: Role Ambiguity is positively related to Team Member Exchange.

Rational Choice and Affective Bonding Factors

The Collective Effort model hypothesizes the impact of rational choice and affective bonding variables on social loafing. Latane et al. (1979) define social loafing as a tendency to reduce one's effort when working collectively (i.e., in groups) compared with working individually on the same task. Perceived Task Visibility, a rational choice variable, reflects an individual team member's belief that the project manager is aware of that individual's effort on the group project (George, 1992). The more visibly important the task is to the project manager, the less likely social loafing will develop. Because a team member will work harder on the task when they expect their effort to be instrumental in obtaining the outcomes, social loafing is more likely when individual output cannot be evaluated, or a lack of individual evaluations exists.

H_6: Perceived Task Visibility is negatively related to Social Loafing.

From the perspective of the Collective Effort Model, the influence of affective bonding variables on social loafing rests on group cohesiveness at the organizational level and group level and the extent to which the individual team member feels this is a valued outcome of the project work, in addition to any other extrinsic valued outcomes. When the individual team member perceives support on the organizational level, he/she is less likely to engage in social loafing (Eder and Eisenberger, 2008). If the relationship between the team member and the project manager is valued and is reflected in the work that the individual team member performs, social loafing is less likely. Indeed, prior research has shown that social loafing is less likely when there are high-quality leader-member relations (Murphy et al., 2003). In their meta-analysis of social loafing, Karau and Williams (1993) found social loafing is more likely when individuals are working with strangers or are working with a group that has low cohesiveness on a group task. Subsequent studies provide direct evidence that social loafing can be reduced when an individual works with respected people or in a situation that activates a salient group identity (increases group cohesiveness).

H_7: Perceived Organizational Support is negatively related to Social Loafing.

H_8: Leader Member Exchange is negatively related to Social Loafing.

H_9: Team Member Exchange is negatively related to Social Loafing.

George (1992) defines perceived co-worker loafing as the extent to which individual team members feel that one or more team members engage in loafing. From the perspective of rational choice, when a team member feels that his/her co-workers are loafing, then it incentivizes the individual team member to loaf as well. While the Collective Effort Model posits that individuals might be likely to work harder when they expect their co-workers to loaf, this is only the case if the performance of the task is useful to the final outcome, the individual sees the outcome of that task as meaningful, and value the group to not find it difficult to devote more than his/her fair share of effort to the task. Yet, it is rarely likely that this contingent scenario would arise, leading to more social loafing when it is perceived others on the team are loafing.

H_{10}: Perceived Co-worker Loafing is positively related to Social Loafing.

The rational choice variable of Task Interdependence measures each individual team member's perception of the extent to which he/she needs to interact with other group members when working on tasks in the group project (Pearce and Gregersen, 1991). The more that an individual needs to interact with others on the team to get his/her tasks completed, the less likely social loafing will occur, as it would be easier for an individual evaluation of that team member's contribution to be conducted. Others in the group would be aware that particular tasks from that team member were not being completed.

H_{11}: Task Interdependence is negatively related to Social Loafing.

METHODS

To test the research model and hypotheses, we conducted a survey. Respondents were solicited through a panel research company (Survata). The following criteria were used for screening potential respondents:

1. Currently working on (or recently worked as) a member of an Information Systems project team.
2. Have worked on (or did work on) the project for at least 3 months.
3. The project team has (or had) at least 5 team members.

The survey was conducted online. All of the questions used for the survey were taken from previously tested measurement scales. The measures for social loafing were taken from Kidwell and Robie (2003). Items measuring Procedural Justice, Distributive Justice, and Interactional Justice are from Colquitt (2001). Perceived Co-Worker Loafing and Perceived Task Visibility item measures were adopted from George (1992). Measures for Role Ambiguity were taken from Rizzo et al. (1970). Perceived Organizational Support measures were adopted from Eisenberger et al. (1986). While the measures for Leader Member Exchange came from Scandura and Graen (1984), the measures for Team Member Exchange came from Seers (1989). Lastly, Task Interdependence was measured with items adopted from Pearce and Gregersen (1991). Where necessary, wording of items was modified to be consistent with the context and scale anchors that were employed. Final wording of the item measures are provided in the Appendix. We received 102 responses to the survey with respondent demographic information shown in Table 1.

		Frequency	Percent
Age	18 – 25	9	8.8
	26 – 30	21	20.5
	31 – 40	39	38.2
	41 – 50	24	23.5
	> 50	9	8.8
Education	2-year degree (Associate's) or less	13	12.7
	4-year degree (BA, BS)	61	59.8
	Master's degree	25	24.5
	Ph.D. or professional (JD, MD)	3	2.9
Job Tenure	< 1 year	4	3.9
	1 to 2 years	14	13.7
	3 to 5 years	34	33.3
	5 - 10 years	29	28.4
	10 + years	21	20.6

Table 1: Respondent Demographics

FINDINGS

The data were analyzed using SmartPLS (Ringle, Wende, and Will, 2005). As is customary when employing PLS, the measurement model was examined first.

The Measurement Model

To begin, the item loadings on the constructs they were intended to measure were examined. Some observations indicated potential weaknesses. First, three items intended to measure Perceived Co-Worker Loafing had low loadings thus were removed, leaving three items to measure the construct. Next, three items intended to measure Perceived Organizational Support had low loadings. Of note were that those three items for Perceived Organizational Support were negatively worded and had been reverse-scored. Thus an exploratory factor analysis using all seven items was run. This revealed that the item measures loaded onto two factors; one with the positively-worded items, and one with the negatively-worded items. Rather than attempting to force these items to measure a single construct, the negatively worded items which were loading on a construct having unacceptable reliabilities were removed (leaving four items to measure Perceived Organizational Support).

Next, seven items intended to measure Task Interdependence had low loadings. The remaining three items for Task Interdependence were negatively worded and had been reverse-scored. Thus an exploratory factor analysis using all ten items was run. This revealed that the item measures loaded onto two factors; one with the positively-worded items, and one with the negatively-worded items. Rather than attempting to force these items to measure a single construct, the positively worded items which were loading on a positive construct having unacceptable reliabilities were removed, leaving three items to measure Task Interdependence. A similar situation existed with the five items that were intended to measure Task Visibility. When an exploratory factor analysis was conducted, the three negatively-worded items loaded on one factor, and the two positively-worded items loaded on a second. The two positively-worded items were removed. Lastly, four items intended to measure Team Member Exchange had low loadings thus were removed, still leaving six items to measure this construct.

The computed Composite Reliability (CR) and Average Variance Extracted (AVE) for each of the measurement scales are shown in Table 2. All of the CR values exceed .70 and all of the AVE values exceed .60, except for Team Member Exchange and Task Interdependence. Overall, these results indicate acceptable reliability. In addition, the square root of the AVE was compared to the correlations among constructs (shown in Table 2). For adequate discriminant validity, the square root of the AVE should be higher than the correlations on the related columns and rows. From Table 2, the correlation between Leader Member Exchange (LME) and Interactional Justice (IJ) is .92, which is higher than the square root of the AVE for IJ. The cross-loadings of items on constructs were checked (not shown here for space reasons). The items intended to measure IJ also loaded fairly highly on LME, and vice versa; however, all of the items loaded more highly on their own construct than on other constructs. In examining the items for these two constructs, it was observed that they refer to different objects, so it does not appear they should be measuring the same construct and the VIF values of 2.75 is well below the threshold of 5.0. The item weights and loadings for the final set of items are shown in the Appendix.

Construct	CR	AVE	SL	PJ	DJ	IJ	CWL	RA	POS	LME	TME	PTV	TI
SL	.94	.63	.79										
PJ	.93	.69	.36	.83									
DJ	.95	.77	.29	.71	.88								
IJ	.95	.70	.24	.73	.80	.84							
CWL	.81	.60	.67	.37	.35	.31	.77						
RA	.90	.60	.01	.69	.65	.69	.29	.77					
POS	.93	.78	.28	.69	.87	.81	.30	.65	.88				
LME	.93	.66	.31	.71	.80	.92	.38	.68	.79	.81			
TME	.86	.50	.29	.73	.76	.70	.35	.69	.80	.72	.71		
PTV	.88	.72	-.54	-.05	-.08	-.10	-.61	-.03	-.06	-.14	-.11	.85	
TI	.79	.56	-.63	-.25	-.26	-.27	-.68	-.19	-.30	-.32	-.35	.58	.75

Notes: Shaded cells indicate the square root of AVE. SL – Social Loafing; PJ – Procedural Justice, DJ – Distributive Justice, IJ – Interactional Justice, CWL – Perceived Co-worker Loafing, RA – Role Ambiguity, POS – Perceived Organizational Support, LME – Leader Member Exchange, TME – Team Member Exchange, PTV - Perceived Task Visibility and TI – Task Interdependence

Table 2: Tests of Reliability and Discriminant Validity

The Structural Model

All constructs were retained for structural model analysis for testing of the hypotheses, although there are mixed indicators regarding multicollinearity as stated above. The dependent variable Leader Member Exchange has a R^2 value of .87, Perceived Organizational Support has a R^2 value of .76, Team Member Exchange has a R^2 value of .57 and the primary dependent variable of interest has a R^2 value of .52. This indicates that the model is explaining the variance occurring in Social Loafing. In addition, results provide support for five of the hypotheses (see Table 3). While Task Interdependence negatively impacts Social Loafing, Perceived Co-worker Loafing impacts Social Loafing in a significant positive manner and has it has the strongest effect on Social Loafing. Distributive Justice does significantly influence Perceived Organizational Support as evidenced by the .763 path coefficient. Also, Interactional Justice is important given its significant path coefficients of .788 and .441 on Leader Member Exchange and Team Member Exchange, respectively. In addition to Interactional Justice's influence, Role Ambiguity also impacts Team Member Exchange.

Hypothesis	Path Coefficient	Supported	Hypothesis	Path Coefficient	Supported
H1: PJ -> POS (+)	.149		H6: PTV -> SL (-)	-.154	
H2: DJ -> POS (+)	.763***	Yes	H7: POS -> SL (-)	.085	
H3: IJ -> LME (+)	.788***	Yes	H8: LME -> SL (-)	.020	
H4: IJ -> TME (+)	.441**	Yes	H9: TME -> SL (-)	-.028	
H5: RA -> TME (+)	.382*	Yes	H10: CWL-> SL (+)	.387**	Yes
			H11: TI -> SL (-)	-.251*	Yes

Table 3: Hypothesis Testing Results

Mediating Effect Testing

To assess if there are partial or full mediation effects in play with the constructs of Perceived Organizational Support (POS), Leader Member Exchange (LME), and Team Member Exchange (TME), the procedures proposed by Lau and Cheung (2012) were applied. In this approach, the total effect of an independent variable is deconstructed into its direct and indirect elements. The standardized path coefficients from this analysis are shown in Table 4. The presence of both the direct effect of Role Ambiguity being insignificant and its indirect effect through TME being significant indicates full mediation. The presence of a significant indirect effect and significant direct effect is an indication of partial mediation. Thus, the presence of a significant indirect effect of Procedural Justice on Social Loafing in the presence of an indirect effect through POS indicates that POS has a partial mediating effect.

Direct Effect	Path Coefficient	Indirect Effect	Path Coefficient
PJ -> SL	.358 *	PJ ->POS -> SL	.334*
DJ -> SL	.047	DJ -> POS-> SL	.028
IJ -> SL	-.260	IJ -> LME -> SL	-.256
		IJ -> TME -> SL	-.423
RA -> SL	.037	RA -> TME -> SL	-.471***

Table 4: Significance of mediated paths from PJ, DJ, IJ and RA to SL

IMPLICATIONS

Research

The results from our study strongly suggest that that the Collective Effort Model gives us a solid theoretical foundation to study social loafing in IS project teams. At the same time, there are plenty of opportunities to build on this research effort. The issues in the measurement model that were the result of reverse-scored items warrants further investigation. These issues have been seen in prior research (Baker and Thompson, 2014) conducted with a different research sample, indicating that this might be a systematic occurrence. Perhaps it is the nature of virtual teams vs. co-located teams, or the characteristics of IS projects as contrasted with other types of group projects more typically used in such studies that leads to these constructs behaving poorly in these studies. Further research into this measurement model phenomenon is critical to the validity of the findings of this study, as well as further studies into the mediating effects of the affective bonding variables on the normative conformity variables in the model.

Practice

The findings from this line of research will help guide IT project managers to examine their projects to identify those that are prone to social loafing (those with high perceived co-worker loafing, low role ambiguity and/or low task interdependence). To reduce the potential for social loafing, it would be of significant benefit to the project outcomes to address the conditions underlying these factors.

CONCLUSION

This study represents the initial attempt to draw insights into the context of IS project teams using the Collective Effort Model. While the current findings suggest limitations in this particular study, we believe that the demonstrated influence of rational choice, normative conformity and affective bonding variables on social loafing in IS project teams provides a promising research avenue for research aimed at expanding our understanding of

antecedents to social loafing that go beyond those identified through the control theory and project risk research streams.

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APPENDIX: MEASURES

Item	Mean	Std. Dev.	Loading	Weight	Item Wording
NOTE: unless otherwise noted, all items used the following scale anchors: Strongly Disagree (1) (2) Neither Agree nor Disagree (3) (4) (5) Strongly Agree (6) (7) Please indicate your level of agreement with each of the following statements. Please remember that your individual responses will not be revealed to anyone, nor will they be included in any of our reports.					
Social Loafing (SL), Cronbach's alpha is .92					
SL1	3.73	1.96	.67	.11	I daydream while working on the project.
SL2	3.84	2.01	.85	.14	I pretend to be busy while working on the project.
SL3	3.67	2.02	.81	.17	I fail to report trouble while working on the project.
SL4	4.01	2.07	.70	.13	I leave extra work for others while working on the project.
SL5	3.20	2.09	.78	.13	I come to work late when working on this project.
SL6	3.86	2.00	.87	.15	I put forth less effort when working on the project when others are around to do the work.
SL7	3.51	1.99	.83	.13	While working on the project, I give less effort than other members of the project team.
SL8	4.08	1.95	.77	.12	While working on the project, I take it easy if others are around to do the work.
SL9	3.59	2.01	.85	.15	While working on the project, I do not do my share of the project team's work.
Procedural Justice (PJ), Cronbach's alpha is .91					
PJ1	5.10	1.30	.85	.21	There are formal procedures in the project to provide opportunities to appeal or challenge a decision.
PJ2	5.10	1.34	.88	.24	There are formal procedures in the project to generate standards so that decisions can be made with consistency.
PJ3	5.12	1.38	.80	.18	There are formal procedures in the project to hear the concerns of all those affected by the decision.
PJ4	5.16	1.28	.86	.20	There are formal procedures in the project to provide useful feedback regarding the decision and its implementation.
PJ5	5.30	1.11	.81	.18	There are formal procedures in the project to allow for requests for clarification or additional information about the decision.
PJ6	5.38	1.14	.80	.18	There are formal procedures in the project to collect accurate information necessary for making decisions.
Distributive Justice (DJ), Cronbach's alpha is .94					
DJ1	5.08	1.49	.91	.19	I am fairly rewarded considering the responsibilities I have.
DJ2	5.08	1.46	.85	.18	I am fairly rewarded taking into account the amount of education and training that I have.
DJ3	5.23	1.36	.82	.19	I am fairly rewarded in view of the amount of experience that I have.
DJ4	5.25	1.26	.90	.19	I am fairly rewarded for the amount of effort that I put forth.
DJ5	5.04	1.43	.90	.19	I am fairly rewarded for the work that I have done well.
DJ6	5.03	1.50	.89	.19	I am fairly rewarded for the stresses and strains of my job.

Item	Mean	Std. Dev.	Loading	Weight	Item Wording
Interactional Justice (IJ) Cronbach's alpha is .95					
IJ1	5.42	1.20	.86	.23	When your project manager makes decisions about you, your viewpoints are considered.
IJ2	5.19	1.27	.87	.23	When your project manager makes decisions about you, you are treated with kindness and consideration.
IJ3	5.25	1.26	.89	.24	When your project manager makes decisions about you, your rights as an employee ae considered.
IJ4	5.27	1.39	.79	.22	When your project manager makes decisions about you, you are treated with respect and dignity.
IJ5	5.06	1.36	.86	.25	When your project manager makes decisions about you, your personal needs are sensed.
IJ6	5.41	1.31	.84	.26	When your project manager makes decisions about you, you are provided with timely feedback about decisions and their implications.
IJ7	5.29	1.34	.89	.29	When your project manager makes decisions about you, you are dealt with in an honest and truthful manner.
IJ8	5.29	1.34	.91	.30	When your project manager makes decisions about you, you are offered adequate justification for decisions.
IJ9	5.31	1.26	.85	.29	When your project manager makes decisions about you, you are provided with clear explanations about decisions.
Perceived Co-worker Loafing (CWL) Cronbach's alpha is .66					
CWL1	4.89	1.50	.86	.54	Other project team members defer to other team members responsibilities he or she should assume.
CWL2	Removed				Other project team members put forth less effort on the project when other project members are available to do the work.
CWL3	Removed				Other project team members do not do his or her share of the work on the project.
CWL4	4.66	1.49	.70	.38	Team members spend less time helping others on the project if other project members are present to do so.
CWL5	Removed				Some project team members put forth less effort than other members of the project team.
CWL6	4.87	1.56	.74	.36	Project members take it easy of other project members are available to do the work on the project.
Role Ambiguity (RA) Cronbach's alpha is .86					
RA1	5.63	1.11	.85	.25	I feel certain about how much authority I have on the project.
RA2	5.48	1.11	.85	.25	There are clear, planned goals and objectives for my role on the project.
RA3	5.61	1.04	.71	.18	I know that I have divided my time properly on the project.
RA4	5.96	1.24	.68	.17	I know what my responsibilities are on the project.
RA5	5.72	.98	.72	.17	I know exactly what is expected of me on the project.
RA6	5.49	1.22	.81	.24	Explanation is clear of what has to be done on the project.

Item	Mean	Std. Dev.	Loading	Weight	Item Wording
Perceived Organizational Support (POS) Cronbach's alpha is .90					
POS1	5.31	1.34	.90	.27	The organization values my contribution to the project's well-being.
POS2	Removed				The organization fails to appreciate any extra effort from me exerted on the project (reversed).
POS3	Removed				The organization would ignore my complaints about project work (reversed).
POS4	5.18	1.42	.86	.30	The organization really cares about my well-being.
POS5	Removed				Even if I did the best job possible, the organization would fail to notice (reversed).
POS6	5.24	1.26	.91	.29	The organization cares about my general satisfaction with project work.
POS7	5.21	1.28	.86	.27	The organization takes pride in my accomplishments in project work.
Leader-Member Exchange (LME) Cronbach's alpha is .91					
LME1	5.44	1.31	.84	.18	My project manager understands my problems and needs.
LME2	5.42	1.37	.84	.18	My project manager recognizes my potential.
LME3	5.20	1.27	.82	.17	Regardless of my project manager's formal authority, my manager would be personally inclined to use his/her power to help me solve problems on the project.
LME4	4.61	1.65	.63	.15	Regardless of my project manager's formal authority, I can count on my manager to "bail me out" at his/her expense when I really need it on the project.
LME5	5.25	1.36	.88	.19	I have enough confidence in my project manager to defend and justify his/her decisions on the project when he/she is not present to do so.
LME6	5.19	1.41	.84	.18	I would characterize my working relationship with my project manager as extremely effective.
LME7	5.48	1.36	.80	.16	I usually know where I stand with my project manager.
Team-Member Exchange (TME) Cronbach's alpha is .80					
TME1	4.97	1.35	.81	.29	When I am busy, other project team members often volunteer to help me out of the project.
TME2	Removed				When other project team members are busy, I often help them out on the project.
TME3	5.60	1.10	.73	.24	Other members of my project team recognize my potential.
TME4	5.37	1.27	.71	.25	Other members of my project team understand my problems and needs.
TME5	5.61	1.07	.60	.16	I am willing to help finish project work that has been assigned to other project team members.
TME6	5.09	1.33	.76	.26	Other members of my project team are willing to help finish project work that has been assigned to me.
TME7	Removed				I let other project team members know when they have done something that affects my work.
TME8	Removed				Other project team members let me know when I do something that affects their project work.
TME9	Removed				I make suggestions about better project work methods to other project team members.
TME10	5.47	1.02	.62	.18	I am flexible about switching responsibilities on the project to make

					things easier for other project team members.
Item	**Mean**	**Std. Dev.**	**Loading**	**Weight**	**Item Wording**
Perceived Task Visibility (PTV) Cronbach's alpha is .81					
PTV1	Removed				My project manager is aware of the amount of work I do on the project.
PTV2	3.46	1.67	.86	.39	It is generally hard for my project manager to figure how hard I am working (reversed).
PTV3	Removed				My project manager usually notices when a team member is slacking off on the project.
PTV4	3.63	1.70	.87	.47	It is difficult for my manager to determine how hard we are working on the project (reversed).
PTV5	3.55	1.57	.82	.31	It is hard for my manager to determine how much effort I exert on the project (reversed).
Task Interdependence (TI) Cronbach's alpha is .61					
TI1	Removed				I work closely with others in doing my work on this project.
TI2	Removed				I frequently must coordinate my efforts with others on this project.
TI3	Removed				My own performance on this project is dependent on receiving accurate information from others.
TI4	Removed				The way I perform my job on this project has a significant impact on others.
TI5	Removed				My work on this project requires me to consult with others fairly frequently.
TI6	2.90	1.33	.69	.35	I can work fairly independently of others in my work on this project (reversed).
TI7	3.38	1.56	.85	.55	I can plan my own work on this project with little need to coordinate with others (reversed).
TI8	3.55	1.80	.70	.41	I rarely have to obtain information from others to complete my work on this project (reversed).
TI9	Removed				In order to do my job on this project, I need to spend most of my time talking to other people.
TI10	Removed				In my role on this project, I am frequently called on to provide information and advice.