

Moderating effects of information access on project management behavior, performance and perceptions

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Abstract

Effective project management relies on the timely exchange of information regarding appropriate resource availability, associated scheduling options, and related costs and benefits. At the same time, such information, or lack thereof, can also impact the behavior of project managers in ways that do not directly focus on work objectives but nevertheless affect performance. The research developed in this paper is primarily focused on demonstrating both direct and moderating effects that information can have on decision makers' actions and perceptions in an environment where multiple projects are pursued simultaneously. In order to study these linkages we designed and executed a controlled experiment designed to simulate aspects common to a multi-party project management environment. Our findings suggest that greater visibility of situational information in this environment impacts project outcomes mainly by affecting a project manager's actions and perceptions regarding both the behavior of others and the priority given to his/her task. The study extends existing information processing theory by developing and examining notions of informed rationality and reciprocity, as well as examining the effect of information on post-task sense making. Insights from the study suggest a set of behavioral issues that should be considered in future information processing and project management research.

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1. Introduction

In environments characterized by moderate to high task uncertainty, informational mechanisms can provide indispensable benefits to rational decision-making (Galbraith, 1977). However, in many cases information-driven non-task behaviors (e.g. social behavior; Podsakoff et al., 2000) can impact task specific outcomes as well (Puffer, 1987; O'Reilly and Chatman,

1986). Particularly in environments where multiple parties interact to allocate limited resources (e.g. project management settings), the same informational mechanisms that provide insights towards superior operational performance may also serve to bias perceptions of organizational behavior. Since the implications of these perceptions apply both to immediate task-related decisions as well as future behavior and task performance, managers need to consider the role that increased information visibility can have across a range of behaviors, task and non-task alike. This point is increasingly relevant given the rapid evolution of modern IT infrastructures capable of disseminating task-related information more effectively.

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Project management is an area in which these issues are tremendously relevant. In an environment of multiple simultaneous projects, there are interdependencies between projects as they interact in order to share scarce resources. Thompson (1967) referred to these interdependencies as inverse interdependencies, since the resource allocation for each project is inversely related to resources available for other concurrent projects. Verma and Sinha (2002) describe cases in which human resource availability and priorities placed on projects drive performance both for the local project and for the overall project pool. The perceptions and resource sharing behaviors of decision makers in this environment are likely to be influenced by the information available to them, in complex ways. Unfortunately, such broad consideration of the role of information sources is not yet common practice among higher level managers. Often, their infatuations with the planning and scheduling capabilities of project management information system tools may lead them to neglect behavioral implications of their use (Tukel and Rom, 1998; Gray and Larson, 2000; Brown, 2002). A similar limitation exists in academic research of concurrent project management issues. Numerous research studies have examined the effectiveness of various rules for assigning resources to concurrent projects (Yang and Sum, 1993; Icmeli and Erenguc, 1996; Smith-Daniels et al., 1996; Kolisch, 1996; Ozdamar and Ulusoy, 1996), yet there has been very little study of the behavioral factors that affect decision makers' willingness to share resources. Moreover, researchers have not addressed the impacts of sharing behaviors on local, global, and future project outcomes.

The research developed in this paper is primarily focused on demonstrating the critical role that information can have on a decision makers' actions and perceptions in project management contexts. This role includes both direct and moderating effects on decision makers' actions, which in turn affect immediate task performance. Information also affects decision makers' perceptions about the project task and the related work environment, which may affect their actions and performance in future tasks. In order to study these linkages we designed and executed a controlled experiment with the intent of simulating aspects common to an environment of multiple simultaneous projects.

Our findings suggest that greater visibility of information that is current and specific to a multi-project environment (i.e. situational information) impacts performance mainly by affecting a project manager's actions and perceptions regarding both the behavior of others and the priority given to his/her task. The study extends existing information processing theory by developing and examining notions of informed rationality and reciprocity, as well as examining the effect of information on post-task sense making. Insights from the study suggest a set of behavioral issues that should be considered in future information processing research. Further, the results offer implications for development and effective use of information systems in a project management environment. In the following sections of this paper we develop the theory supporting our expectations regarding effects of situational information, we describe the experimental method used to test related hypotheses, and we discuss the implications of the results for theory development, for practice, and for future research.

2. Research models

Uncertainty is an unavoidable aspect of all projects (Gallstedt, 2003; Tatikonda and Rosenthal, 2000). It can come in a variety of forms, including uncertainty regarding the time to complete specific steps within a project, uncertainty regarding the availability of resources that might assist in project completion, and the uncertainty of the impacts that other projects and associated managing parties might have upon the focal project (Verma and Sinha, 2002). From the standpoint of Information Processing Theory, increased informational visibility aimed at reducing uncertainty in these settings should ultimately enable better decisions which create positive impacts on task performance (Galbraith, 1977; Goodhue and Thompson, 1995; Wright and Cordery, 1999). A simplistic view of information impacts is provided in Fig. 1.

While a model of direct informational impacts on performance provides a good starting point for general discussion, in complex interactive tasks (e.g., simultaneous multi-project management environments) it is likely that information visibility takes on a subtler and

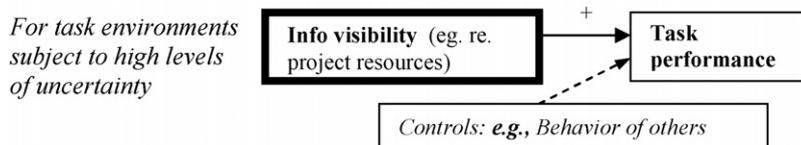


Fig. 1. Basic task-oriented focus of IPT.

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