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# SELECTIVE STATUS REPORTING IN INFORMATION SYSTEMS PROJECTS: A DYADIC-LEVEL INVESTIGATION[1]

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## Abstract

*This study investigates selective reporting behaviors that are pursued by project managers when communicating the status of their information system initiatives to their executives. To understand the types, motivations, impacts, and antecedents of such behaviors, a message-exchange perspective is adopted and the prior literature on IS project status reporting is reviewed. This study incorporates an empirical investigation that examined the influence of five dyadic factors on selective reporting using a survey of 561 project managers. The findings of the study reveal a positive effect of reporting quality on project performance and indicate that a specific type of selective reporting behavior (optimistic biasing) has a degrading effect on reporting quality. Moreover, the findings show that all five antecedents have a significant influence on the propensity of project managers to report selectively. Specifically, the project executive's power, the project manager's trust in the executive, and the executive's quality of communication impact selective reporting directly; the executive's familiarity with the IS development process and the executive's organizational affiliation vis-à-vis that of the project manager have an indirect influence (it is mediated through other factors). The effects of each of these factors on the two types of selective reporting (optimistic and pessimistic biasing) are examined, and the implications of these findings for both researchers and managers are discussed in this article.*

## Introduction

Unquestionably, managing information systems projects is a challenging endeavor. While many factors contribute to the difficulties of IS project management, our focus is on managerial challenges that are caused by the deliberate selective reporting of project managers. *Selective reporting* refers to

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[1]Vivek Choudhury was the accepting senior editor for this paper. James Thong served as the associate editor.

Note: The appendices for this paper are located at http://www.misq.org/archivist/appendices/IacovouThompsonAppendices.pdf.

behaviors that a manager pursues while providing status reports to his/her supervisor in order to convey an impression that does not accurately reflect the manager's perception of the project's bona fide status.[2]

To illustrate the complexities of selective reporting, assume that you are the sponsor of two different projects (A and B). In a status meeting for Project A, its manager delivers good news about the current state of the project and conveys the idea that the project is making solid progress toward its planned goals. In a status meeting for Project B, its manager delivers bad news, indicating that the project is facing major issues requiring additional resources. Given the above information, which of these two reports would cause you the most concern and be most likely to garner your attention? If one takes the status reports at face value, Project B would be the reasonable choice. But what if the manager of the project A is covering up major problems because (s)he is up for a promotion and wants to avoid any blame? Or what if the manager of project B is exaggerating project issues—even though the project is actually meeting its performance targets—so that (s)he can secure unnecessary, additional resources at the expense of other ongoing projects? If you were aware of such additional facts, you would likely change the intensity of monitoring and attention you paid to those two projects.

While the above vignette depicts a hypothetical scenario, research has documented the existence of selective reporting in IS development projects. For example, in a case study of a troubled IS project, Oz (1994) found that project managers deliberately concealed critical project problems from key decision makers. In another case study of three IS development initiatives, evidence revealed that project reporters ceased to provide negative progress information about their project activities once they felt that their supervisors were not welcoming such information (Iacovou 1999). Experimental studies corroborate the presence of selective reporting in IS projects. For example, Smith et al. (2001) demonstrated that project reporters would be reluctant to report problems if they are risk-averse and anticipate negative consequences for doing so. Additional experimental evidence demonstrates that selective reporting is likely to be an issue in organizational and national cultures that discourage the reporting of bad news (Keil et al. 2007; Keil et al. 2004; Tan et al. 2003). Recent surveys provide additional evidence about the pres-

ence of selective reporting in IS projects. In a survey of 56 project managers, Snow, Keil and Wallace (2007) found that selective reporting was employed in 60 percent of the project reports. And in surveys of 485 IS project managers and 210 project participants, Thompson et al. (2007) found that status reports are frequently incomplete and less than credible.

Selective reporting represents a significant managerial challenge because it prevents decision makers, such as project sponsors, from having accurate information that could be useful in the early detection of project problems, effective allocation of resources, and the execution of other project management tasks. Due to the complex and ambiguous nature of IS development environments (Snow and Keil 2002b), project decision makers must rely on real-time information that is generated during the execution of project tasks (Brehmer 1992; Galbraith 1974; Laufer et al. 1996; Sengupta and Abdel-Hamid 1996). Without accurate, real-time status information, project monitoring can become ineffectual.

Despite the prevalence and significance of selective reporting, we know very little about the nature of these behaviors, their impacts, and the factors that influence them (Snow et al. 2007). Thus, the purpose of this study is to address three related research questions:

1. *How and why does selective reporting occur in IS projects?*

2. *What are the key antecedents of selective reporting in the dyad between the project manager and his/her supervisor?*

3. *What is the impact of selective reporting on project outcomes?*

To address these questions, this paper provides a comprehensive conceptual treatment of selective reporting in IS projects by synthesizing prior work in this area. It also summarizes the results of an exploratory empirical investigation that assessed a subset of the research model that was formulated from the review of the literature.

Our work extends prior research in the area of selective reporting in two important ways. First, as we illustrate in our literature review, past work has singularly focused on just one type of selective reporting: *optimistic biasing* (which occurs when a manager reports a project to be in a better situation than s/he truly believes). With the notable exception of Snow et al. (2007), prior research has ignored *pessimistic biasing* (which occurs when a manager portrays a project to be in a worse shape that s/he perceives it to be). Our work represents

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[2]Snow and Keil (2002a, 2002b) and Snow et al. (2007) refer to these behaviors as "intentional bias" and view them as one component of reporting "distortion." On the other hand, organizational communication researchers tend to view these behaviors in and of themselves as "distortion" (Fulk and Mani 1986). To avoid confusion regarding these definitions, we have adopted the term *selective reporting*.

the first systematic attempt to investigate both types of selective reporting. By doing so, our research offers a more holistic and balanced treatment of selective reporting. Second, our investigation focuses on a subset of selective reporting antecedents (dyadic factors related to the relationship of the project manager with his/her supervisor and relevant characteristics of such supervisors), which have been neglected by prior empirical investigations in IS research. Given the extensive research validating the critical importance of relational attributes in dyadic communications (Barry and Crant 2000; Berger 2006; Buller and Burgoon 1996), we believe that focusing the scope of our work on the dyadic level is warranted as it provides insights that have not been encapsulated in previous investigations of selective reporting in information systems projects.

While we recognize that the status reporting process consists of a complex chain of information exchanges that involves many nodes of communication and control, such as team members, team leaders, project managers, project executives, project management officers, chief information officers, auditors, and so on, our work is focused exclusively on the "project manager to the project executive" communication link of this chain.[3] We have bounded our work within this dyad to reduce the conceptual and empirical complexity of our study. We selected this dyad because of the critical role it plays in managing the project. Project managers tend to be the key decision-makers in running the day-to-day project activities and are usually the single most important source of status information (even for data that are transmitted to other officers, besides the project executive). Project executives are responsible for setting and monitoring the overall direction of the project and usually have access to resources that can be allocated to it. Thus, the integrity of communication within this dyad is likely to be consequential to the project's outcomes.

The remainder of the paper is organized into five sections. First, we provide an overview of the prior work on selective reporting by reviewing relevant research that focused on its antecedents. Second, we provide a synopsis of the message exchange theory that guided the development of our conceptual model and discuss the antecedents and consequences of the two types of selective reporting. Third, we present the methodology that we employed to carry out our empirical investigation, and we summarize the investigation's findings.

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[3]Project executive refers to the senior manager who is tasked with the overall stewardship of the project and is ultimately responsible for its outcomes. Frequently, this person is called the project sponsor and chairs the steering committee of the project.

Fourth, we discuss the study's implications for researchers and managers, and outline the study's limitations. Finally, we conclude by highlighting the contributions of our research.

## Prior Research on Selective Reporting in IS Projects ▮▮▮▮▮▮

As mentioned above, project managers who engage in selective status reporting pursue one of two behaviors: (1) optimistic biasing and (2) pessimistic biasing. To optimistically bias their reports, project managers can (1) exaggerate successes in their projects and/or (2) omit problems or downplay their significance. Managers can achieve the opposite effect (i.e., pessimistically bias their reports) by (1) exaggerating problems and/or (2) downplaying (or omitting all together) accomplishments in their reports.

To document the body of knowledge on selective reporting, we completed a comprehensive review of prior research in this area. As our review reveals, the stream of research on IS project reporting is a recently developed one, and virtually all of the work focuses on optimistic biasing, especially the underreporting of problems (Gillard 2005; Keil et al. 2007; Keil and Robey 2001; Keil et al. 2004; Smith and Keil 2003; Smith et al. 2001; Tan et al. 2003).

Our review shows that the prior work focused on five categories of antecedents: (1) features of the project situation to be reported (reporting situation), (2) individual characteristics of the reporter (individual factors), (3) characteristics of the report receiver and his/her relationship with the reporter (dyadic factors), (4) features of the project itself (project factors), and (5) aspects of the environments in which the project exists (environmental factors). The influence of these factors on selective reporting in IS projects is cataloged in Table 1.

Most of the empirical work on selective reporting has investigated the characteristics of the project situation—and, more specifically, project problems—that managers consider in deciding whether to slant their reports. While factors related to individual, project, and environmental variables also received some attention in prior studies (albeit with less intensity), no study has empirically investigated the role of dyadic factors in selective reporting in IS initiatives. We believe that this is an important void in the literature as the nature of the dyad has been identified by both IS researchers (Smith and Keil 2003; Snow and Keil 2002b) and Organiza-

## Table 1. Summary of Selective Reporting Antecedents

| Category | Factor | Impact on | | Sources |
|---|---|---|---|---|
| | | **Optimistic Biasing** | **Pessimistic Biasing** | |
| **Reporting Situation** | | | | |
| | **Perceived responsibility to report** | – | | Smith et al. (2001); Tan et al. (2003); Keil et al. (2004) |
| | **Perceived wrongdoing by others** | – | | Smith et al. (2001) |
| | **Perceived impact of project problem (risk)** | – | | Smith et al. (2001) |
| | **Perceived risk of negative consequences for reporting** | + | | Smith et al. (2001) |
| | **Information asymmetry** | + | | Tan et al. (2003); Keil et al. (2004) |
| | **Internal vs. external reporting channels** | yes | | Smith et al. (2001) |
| | **Belief that report receiver wants to get news** | – | | Iacovou (1999) |
| | Sense of urgency (time pressure) | –* | | Smith and Keil (2003) |
| | Diffusion of responsibility opportunities | +* | | Smith and Keil (2003) |
| | Perceived guilt | –* | | Smith and Keil (2003) |
| | Mood of reporter | yes* | | Smith and Keil (2003) |
| | Mood of report receiver | yes* | | Smith and Keil (2003) |
| **Individual** | | | | |
| | **Blame-avoidance (fear of being blamed)** | + | | Keil et al. (2007) |
| | **Job security** | – | | Keil and Robey (2001) |
| | **Risk propensity** | + | | Smith et al. (2001) |
| | Educational level | –* | | Smith and Keil (2003) |
| | Field independence | –* | | Smith and Keil (2003) |
| | Knowledge of reporting standards and channels | –* | | Smith and Keil (2003) |
| | Membership in professional organizations | –* | | Smith and Keil (2003) |
| | Religious beliefs | –* | | Smith and Keil (2003) |
| | Self-confidence | –* | | Smith and Keil (2003) |
| | Tolerance for ambiguity | –* | | Smith and Keil (2003) |
| | Years of service with organization | –* | | Smith and Keil (2003) |
| | Age | –* | | Smith and Keil (2003) |
| | Gender | yes* | | Smith and Keil (2003) |
| | Marital status | yes* | | Smith and Keil (2003) |
| | Perceived importance of job position/supervisory status | –* | | Smith and Keil (2003) |
| | Job satisfaction | –* | | Smith and Keil (2003) |
| | Locus of control | yes* | | Smith and Keil (2003) |
| | Pay level | –* | | Smith and Keil (2003) |
| | Propensity for ethical reasoning | –* | | Smith and Keil (2003) |
| | Perceived responsibility for reporting | –* | | Smith and Keil (2003) |
| | Cynical distrust | +* | | Smith and Keil (2003) |
| | Desire for upward mobility | +* | | Smith and Keil (2003) |
| | Paranoia | +* | | Smith and Keil (2003) |
| **Dyadic** | | | | |
| | Power/influence of report receiver | +* | | Smith and Keil (2003) |
| | Trust in report receiver | –* | | Smith and Keil (2003) |
| **Project** | | | | |
| | **Project risk** | + | + | Snow et al. (2007) |
| **Environment** | | | | |
| | **Organizational ethical climate** | yes | | Keil and Robey (2001); Tan et al. (2003); Keil et al. (2004) |
| | **National culture** | yes | yes | Tan et al. (2003); Keil et al. (2007 |
| | Reporting norms in organization | yes* | | Smith and Keil (2003) |

Notes: (1) A positive sign (+) indicates a positive association between the factor and selective reporting; a negative sign (–) indicates a negative association. A "yes" indicates an association between categorical data and selective reporting.

(2) Factors in bold reflect variables that have been empirically assessed in studies of IS projects. Impacts that are marked with an asterisk (*) denote hypothesized effects that have been identified in the IS literature but have not been tested empirically in the context of IS projects.

tional Communication researchers (Fulk and Mani 1986; Stohl and Redding 1987; Tynan 2005) as a critical element in achieving a holistic understanding of selective reporting. Given this, we focused our work on the dyad between the project manager and executive.

The remainder of our paper focuses on key dyadic factors that influence selective reporting and the impact that such reporting has on project outcomes. To study these antecedents and effects of selective reporting, we utilize the message exchange theory.

## A Message Exchange Perspective of Selective Reporting ▮▮▮▮▮▮▮▮

The message exchange theory (MET) views communication as a series of message exchanges within dyads of organizational actors (for an overview of the theory, see Stohl and Redding 1987). A major research stream in MET is devoted to the study of deliberate misreporting in message exchanges within hierarchical dyads (Athanassiades 1973; Chow et al. 2000; Fulk and Mani 1986; Jablin 1979; Mellinger 1958; Read 1962; Roberts and O'Reilly 1974b).

MET posits that communication messages serve various functions in organizational environs (such as to disseminate directives, to establish and maintain relationships, to reinforce group consensus, etc.). A predominant function of such messages is to serve as instruments that enable their senders to attain specific goals (Fulk and Mani 1986; Jablin and Sussman 1983; Stohl and Redding 1987). Thus, while full disclosure may be desirable from an information processing perspective, MET recognizes that such disclosure may be incongruent with the needs/goals of the reporters. The theory posits that reporters often prioritize their needs/goals (such a desire to further their own careers, secure resources for their work tasks, etc.) higher than the need to provide accurate and complete information to interested others (Grover 2005; Pfeffer 2004; Read 1962; Tesser and Rosen 1975; Uyttewaal 2003). Consequently, and as considerable empirical evidence shows, "less than full" disclosures occur in transmissions of reports in organizational settings (Fulk and Mani 1986; Grover 2005; Keil and Robey 2001; O'Reilly 1978; Read 1962; Roberts and O'Reilly 1974a). The theoretical underpinnings of MET are based on motivation theory that postulates that behavior is motivated by unsatisfied needs and that individuals actively engage in actions that they consider to be instrumental to the attainment of their goals (Athanassiades 1973; Latham and Pinder 2005). Given that the theory presumes that reporters are likely to have

individual needs that go beyond the desire to provide full disclosures to their supervising executives, conditions that intensify such needs are likely to yield increased biasing in their reporting.

While MET does not explicitly distinguish between the two types of selective reporting (optimistic versus pessimistic), a recent study on IS status reporting has shed some light on the needs/goals of projects managers that motivate each type of biasing. In this study, Snow et al. (2007) surveyed project managers to identify reasons for optimistic and pessimistic biasing. The most frequently cited reason for optimistic biasing was a fear of delivering bad news (because of a risk that executives may "shoot the messenger"). This finding is consistent with extensive prior research on optimistic biasing in IS reports that utilized various theories to explain the propensity of project managers toward underreporting project problems (Iacovou 1999; Keil and Robey 2001; Keil et al. 2004; Smith and Keil 2003; Smith et al. 2001; Tan et al. 2003). Other reasons for optimistic biasing include the project managers' desire to make themselves look good or to avoid looking bad, their belief that project problems could be overcome in the end, and their desire to avoid letting the users down. Pessimistic biasing, on the other hand, was chiefly motivated by the managers' desire to secure resources for the project. Other reasons for such biasing included the managers' hope to be perceived as "heroes" who turned around a troubled project, their concerns about the team's ability to meet the project's goals, and their desire to lower their executives' expectations.

Prior research confirms that various motivations are at play when managers are slanting their status reports. In general, these reasons can be classified in one of two categories (see Figure 1). *Self-serving motivations*, such as a desire to avoid personal blame, result in biased reporting that primarily aims to further the interests of the project managers (at times, at the expense of the project) (Turner and Muller 2003); *project-supporting motivations*, such as the desire to secure needed resources or create some buffer in project schedules and budgets (Uyttewaal 2003), lead to slanted reports that aim to achieve the goals of the project.

While from a conceptual perspective it is possible to have either form of biasing motivated by either self-serving or project-supporting reasons, the work by Snow et al. (2007) suggests that optimistic biasing is more likely to be motivated by self-serving motives (compared to pessimistic biasing). Moreover, project-supporting concerns are more likely to be associated with pessimistic biasing. Taken together, these two findings indicate that, *on average, optimistic biasing is more likely (compared to pessimistic biasing) to be used as a*

|  | Self-Serving | Project-Supporting |
|---|---|---|
| **Optimistic Biasing** | Project manager exaggerating the completion percentage of project tasks in anticipation of a review of his performance for promotion. | Project manager eliminating secondary development issues and problems from his reports to reduce the information load of the project executive so that the executive can perform her project-related tasks more effectively. |
| **Pessimistic Biasing** | Project manager overstating delay estimates in early stages of the project so that she appears to be a hero at the end of the project in anticipation of an annual review at that time. | Project manager exaggerating the complexity and risk of project tasks to secure needed resources that were not originally allocated to the project. |

**Figure 1. Examples of Motivation for Selective Reporting**

*strategy for advancing the project manager's own interests (or to protect his/her standing), and less likely to be used as a strategy for guarding the goals of the project.*

## Effects of Dyadic Antecedents on Selective Reporting

Our research model (see Figure 2) incorporates the two dyadic factors that have been identified by prior IS reporting research (Smith and Keil 2003) as relevant to selective reporting: (1) the power of the project executive as perceived by the project manager and (2) the project manager's trust in the executive (see Table 1). We supplement these recognized antecedents with three additional ones that we believe are salient in the IS development environment. The first one is the quality of downward communications from the project executive to the project manager. This factor has been identified as an influential distortion antecedent in prior MET research (Fulk and Mani 1986). The other two factors are (1) the executive's perceived familiarity with the IS development process and (2) his/her organizational membership vis-à-vis that of the project manager (in other words, whether they are employed by the same organization or by separate organizations, which can be the case in outsourcing arrangements).

These two factors were included in the model because IS research shows that the ability of a manager to lead a project effectively is affected by his/her understanding of the intricacies of the IS development process and his/her capacity to nurture cooperation among members of different organizations (e.g., the user organization, technology vendors, consul-

tants, outsourcers, etc.) (Evaristo et al. 2005; Kirsch 1996; Kirsch et al. 2002; Lander et al. 2004; Sakthivel 2005; Snow and Keil 2002b). To the best of our knowledge, the effect of these two variables on IS project reporting has not been investigated previously; moreover, we believe that our assessment of these two factors represents the first empirical study of their impact on selective reporting, either in IS or non-IS contexts. Figure 2 shows the proposed relationships among the constructs of interest.

The linkage between each of the above five antecedents and selective reporting is discussed next. We hold that these five factors can affect a project managers' ability to meet goals that may be distinct from a need to inform his/her executive about the status of the project. While discussing our hypotheses, an attempt is made to distinguish between the likely motivations for the two types of biasing. However, it is important to note the exploratory nature of this attempt. As discussed previously, (1) MET (and other organizational communication perspectives) do not distinguish between optimistic and pessimistic biasing, and (2) prior empirical research has focused only on optimistic biasing. As a result, our ability to provide *a priori* theoretical conjectures about differences in the motivations for the two types of biasing is limited.

### Project Executive's Power

*Project executive's power* refers to the level of control that the executive has in influencing the allocation of organizational resources. In general, the power of an executive is deter-
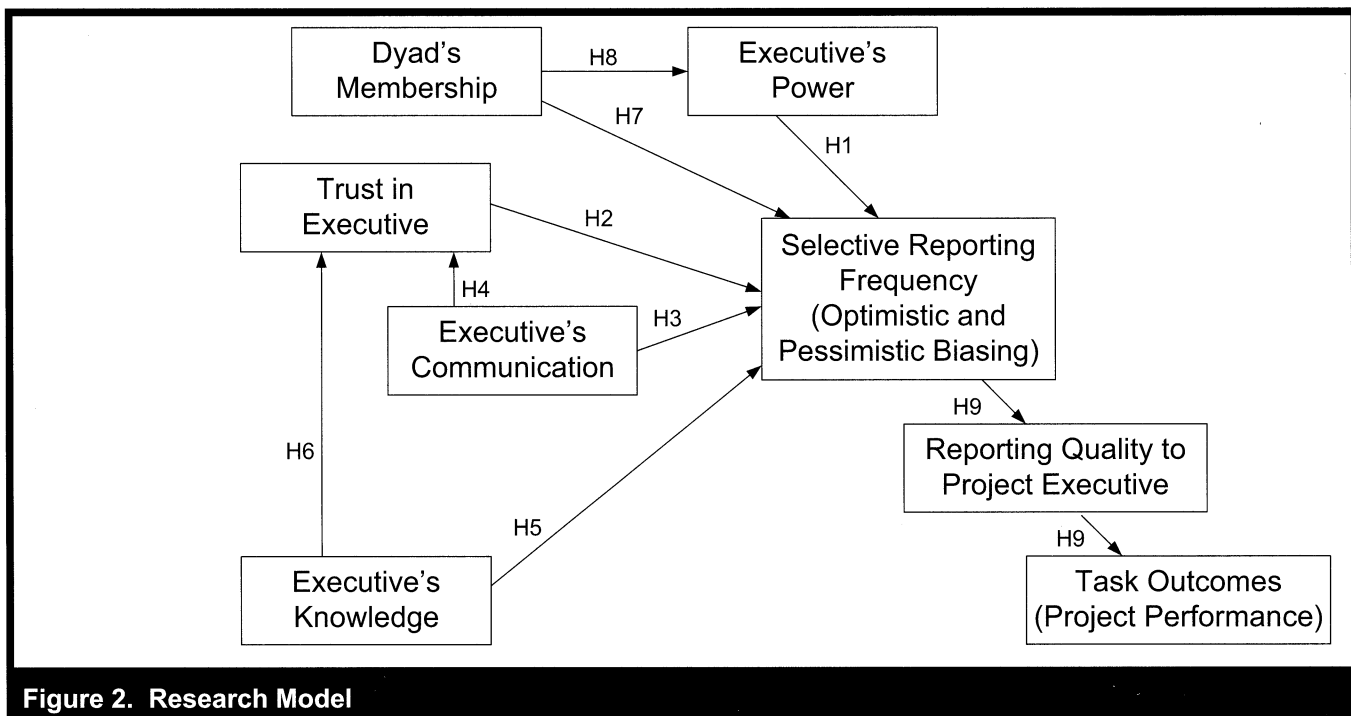
**Figure 2. Research Model**

mined by his/her formal authority (position in the organizational hierarchy) along with informal influence that the executive can exert within the organization (Fulk and Mani 1986; Stohl and Redding 1987). This is a relevant construct because it determines (1) the level of influence that the executive has over the project manager (through the dissemination of appropriate rewards and punishments) and (2) his/her ability to secure resources for the project. These two dimensions of the construct (relative power and resource access) are likely to influence the perceptions of project managers and impact their propensity to report selectively.

The theory posits that reporters are more likely to slant their reports when communicating with powerful others as effective exploitation of such individuals is likely to magnify the benefits that accrue to the reporters in furthering their needs (when such needs are motivated by goals that go beyond a desire to simply inform the executive on the project's status). Indeed, prior empirical research reveals that reporters tend to engage in selective reporting when communicating with powerful executives (Bavelas et al. 1990; Bean 2001; Bessarabova 2005; Fulk and Mani 1986). In our context, we anticipate that this effect will hold true both for optimistic and pessimistic biasing, albeit for different reasons. Specifically, as discussed previously, we expect that self-serving motivations are more likely to be at play when biasing optimistically, while project-enhancing ones are likely to be behind pessimistic reporting to powerful executives.

In terms of optimistic biasing, project managers who misreport successfully to powerful executives—by providing a more positive assessment of their projects—can reap high rewards (or, reduce potential punishment). As Snow et al. (2007) suggest, IS project managers are sometimes motivated by a desire to avoid reporting project problems because they fear that they will be punished due to retribution or blame. Such a need is likely to lead to optimistic biasing. Indeed, past IS research indicates that, when faced with bad project news, project managers engage in the withholding of negative information and the positive framing of status reports (Iacovou 1999; Smith and Keil 2003). Similarly, one would expect that a successful amplification of a project manager's accomplishments (through optimistic biasing) is likely to yield high rewards when targeting powerful supervisors. Given that the magnitude of the benefits of such self-serving biasing is likely to increase with the power of the executive, there should be a positive relationship between power and intensity of optimistic reporting. Consistent with the above evidence regarding the linkage between the *relative power* dimension of this factor and biasing, we propose that

> H1a: Project managers who report to more powerful executives will provide optimistic biasing in their reports more often than those reporting to less powerful ones.

While no prior study investigated the role of power on pessimistic biasing, we anticipate that powerful executives are likely to induce pessimistic selective reporting as well (due to project-supporting motivations that are often associated with such biasing). Recall that one of the major motives behind such biasing is the desire to tap into resources that could be useful to the project. Given this, one would expect that biasing that aims to secure additional resources for the project is more likely to be advantageous when targeting executives who have the capacity to influence access to such resources. Since resource-related concerns are a significant motivator for pessimistic biasing (Snow et al. 2007), we anticipate a positive association between the *resource access* dimension of power and selective reporting. Thus, we expect that

> H1b: Project managers who report to more powerful executives will provide pessimistic biasing in their reports more often than those reporting to less powerful ones.

## Trust in Project Executive

*Trust* is the "behavioral reliance on another person under a condition of risk" (Currall and Judge 1995, p. 153). MET posits that individuals are more likely to be forthcoming with their status reports when informing supervisors whom they perceive to be trustworthy (Fulk and Mani 1986; Jablin and Sussman 1983; O'Reilly 1978). Selective reporting is more likely to take place when interacting with less trustworthy executives as reporters are frequently concerned about the potential misuse of the transmitted information to further the executive's interests (at the expense of the reporter or even the project itself). Empirical work on upward communication and threat sensitivity (Tynan 2005) confirms that the need for biasing is reduced with increased confidence as reporters feel more psychologically secure in dealing with trusted supervisors.

In the IS development context, optimistic biasing is likely to be a useful strategy when dealing with untrustworthy executives as it enables project managers to control the information that they disseminate to them. By conveying more positive assessments of their projects, managers can minimize the threat of unjustifiable blame by withholding (or minimizing) potentially damaging status disclosures. The risk of such blame is, of course, lower when dealing with trusted executives, thereby reducing the need for optimistic biasing (Smith and Keil 2003). Consistent with past empirical research that demonstrates an inverse relationship between trust and optimistic biasing (Bessarabova 2005; Mellinger 1958), we propose that project managers are more likely to

engage in optimistic biasing when dealing with untrustworthy executives. Thus, we assert that

> H2a: Project managers who report to distrusted executives will provide optimistic biasing in their reports more often than those reporting to trusted ones.

We believe that a negative association between perceived trustworthiness and pessimistic biasing will exist as well. As mentioned above, pessimistic biasing is more likely to be motivated by project-supporting needs (Snow et al. 2007). As untrustworthy executives cannot be expected to always be motivated by good intentions, managers who are concerned about protecting the interests of the project may turn to pessimistic biasing when dealing with such individuals. Thus, status disclosures are likely to play an impression management role when reporting to less trusted supervisors. The need to pursue such proactive impression management techniques is likely to diminish when dealing with executives who are trusted as their interests are more likely to be in sync with those of the project. As the need to engage in such impression management tactics decreases with the presence of a trusted executive, we posit that

> H2b: Project managers who report to distrusted executives will provide pessimistic biasing in their reports more often than those reporting to trusted ones.

## Executive's Communication

*Executive's communication* refers to the quality of project-related information that is provided to the project manager by his/her executive. High quality communications from project executives consist of information that is complete, credible, accurate, timely, and adequate for the purposes of the project. Prior MET research shows that the perceived accuracy of downward communication from one's executive is associated negatively with the use of selective reporting (Stohl and Redding 1987). Thus, we expect that project managers who feel that they consistently receive reliable information from their executives are prone to feel more comfortable in their dealings with them and reciprocate in kind (Tynan 2005). Such a behavior is less likely to occur when one is reporting to an executive who is seen as a poor, unreliable communicator (Fulk and Mani 1986; Henderson and Lee 1992; Pinto and Mantel 1990).

While prior empirical research investigated (and confirmed) the linkage between the communication quality of the report

receiver and optimistic biasing only, we anticipate that both optimistic and pessimistic biasing will be affected by this factor. With respect to optimistic biasing, we expect that managers will be less likely to slant their reports when dealing with executives who are good communicators because their desire to reciprocate in kind (for the good communication they receive from their executives) will have a suppressing effect on other self-serving motivations. Similarly, managers are likely to be less concerned about project-supporting motivations that typically lead them to pessimistically bias their reports when dealing with communicators who are open and supportive. Consequently, we posit that

> H3a: Project managers who receive low quality communications from their executives will provide optimistic biasing in their reports more often than those who receive high quality communications.

> H3b: Project managers who receive low quality communications from their executives will provide pessimistic biasing in their reports more often than those who receive high quality communications.

Good communication from an executive is likely to have an additional suppressing effect on biased reporting. This effect is an indirect one; it is mediated by the perceived trust in the executive. As research shows, managers who are effective communicators tend to be more trusted by others, especially by subordinates (Hyvonen 1993; Tzafrir et al. 2004). Given this, we hypothesize that

> H4: Project managers who receive low quality communications from their executives will perceive them to be less trusted than those who receive high quality communications.[4]

## Project Executive's Knowledge of IS Development

*Executive's knowledge* refers to his/her level of familiarity with the IS development process. Because IS development is a complex process that requires the execution of specialized tasks, unqualified executives can have a difficult time in understanding how to best monitor and manage an IS project (Gillard 2005). Indeed, research shows that one's ability to gauge the progress of project work and his/her capacity to

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[4]While this and hypotheses 6 and 8 do not describe *direct* effects on selective reporting, they are included in our model for completeness. By incorporating such hypotheses in our work, we are able to assess the indirect effects that these factors have on biasing.

implement effective monitoring controls is affected by his/her understanding of the IS development process (Kirsch 1996; Kirsch et al. 2002; Snow and Keil 2002b). Given this, we anticipate that executives who are intimately familiar with the intricacies of IS project management would be better equipped to scrutinize progress reports by posing the "right" questions to their project managers. Thus, such well-informed executives would be more likely to detect incomplete or slanted project reports.

Project managers who recognize that their executives are competent in IS development are less likely to pursue optimistic biasing. This is because they are likely to realize that their biasing attempts are likely to prove unproductive due to the ability of the executives to detect them. Moreover, as optimistic biasing is more likely to be associated with self-serving motivations, managers will recognize the increased penalty risk that is associated with its detection. Thus, they will be less likely to optimistically bias their reports because of concerns that such bias will be detected by conversant executives. Therefore,

> H5a: Project managers who report to executives with low knowledge of IS development will provide optimistic biasing in their reports more often than those reporting to executives with high knowledge of IS development.

While we anticipate a similar effect for pessimistic bias, we believe that a different dynamic may be at play. Research suggests that individuals who are savvy with respect to IS development would tend to be more understanding about the need to create some slack in their projects (to account for future problems, prepare for possible scope creep, and deal with other idiosyncrasies related to IS work) (Uyttewaal 2003). Given that access to slack resources (and other project-supporting goals) are frequent motives behind pessimistic reporting and that IS-competent executives would tend to share the same resource-related goals and concerns as the project managers, we expect that the need for pessimistic biasing would be reduced. Consequently, we propose that

> H5b: Project managers who report to executives with low knowledge of IS development will provide pessimistic biasing in their reports more often than those reporting to executives with high knowledge of IS development.

We also expect that there will be an association between the executive's level of IS development knowledge and his/her perceived trustworthiness by the project manager. While we recognize that the possession of IS expertise by an individual

does not automatically lead to credibility and trustworthiness (Bashein and Markus 1997), we hypothesize that IS-competent executives would be more likely to engage in supervisory actions and project-related decisions that will lead project managers to increase their trust toward them, leading to fewer biased disclosures. This assertion is supported by prior empirical findings on the relationship between expertise and trustworthiness (Joiner et al. 2002). Thus, we assert that

> H6: Project executives with high knowledge of IS development will be perceived to be more trusted than those with low knowledge of IS development.

## Dyad's Membership

*Dyad's membership* refers to whether or not both the project executive and project manager are employed by the same organization. Homogeneous dyads include a project manager and an executive who are employed by the same firm; heterogeneous dyads include individuals who work for different organizations (for example, a business sponsor who is an executive in the user organization and a project manager who works for a consultancy/vendor organization).

A dyad's membership is likely to affect misreporting in two ways (representing an effect that is partially mediated through the power of the executive). First, we expect that biasing efforts will be more intense in heterogeneous dyads. In terms of optimistic selective reporting, managers are more likely to try to impress executives who are less familiar with them (which is more likely to be the case when the executive does not work for the same organization as the project manager). Similarly, project managers are more likely to think that they will have to protect the interests of the project when dealing with executives who are outsiders and unfamiliar with the project, the team, and the organization. Given that such project-supporting motivations are more likely to lead to intensified pessimistic biasing, we expect that such reporting will be more prevalent in heterogeneous dyads. These arguments are consistent with prior research on organizational teams that suggest that impression management needs and power struggles are more likely to exist in diverse groups (Oetzel 2001). Thus, we posit that

> H7a: Project managers who report to executives in another organization will provide optimistic biasing in their reports more often than those reporting to executives in their own organization.

> H7b: Project managers who report to executives in another organization will provide pessimistic biasing

in their reports more often than those reporting to executives in their own organization.

Second, we assert that organizational membership is likely to impact selective reporting indirectly by affecting the level of the project executive's perceived power. One would expect that the relative power of the project executive over the project manager would be lower in dyads with heterogeneous membership than in those with homogeneous membership. In homogeneous dyads, it is likely that the executive will be at a higher position on the organizational ladder than the project manager and can thus have some influence over his/her future in the organization. Such power imbalance is less likely across organizations, when the executive may not have any hierarchically dictated authority over the project manager. Thus, heterogeneous membership could be expected to have a suppressing effect on biased reporting, mediated through the project executive's power. Because of this, we expect that

> H8: Project managers who report to executives in their organization will perceive them to be more powerful than those reporting to executives in another organization.

## Impact of Selective Reporting on Project Outcomes

Our last hypothesis deals with the impact of selective reporting on project performance. Understanding the association between these two constructs is a bit challenging because of (1) the multidimensional nature of the performance factor and (2) the complicated relationship between the two types of biasing and project outcomes. Each of these issues are addressed before our hypothesis is presented.

Assessing the outcomes of projects is a difficult endeavor because of the complex nature of such initiatives and the diverse objectives of various stakeholders (Bryde and Robinson 2005). In an extensive review of the project performance literature, Aladwani (2002) identified three relevant perspectives that may be considered in evaluating IS projects. From a technological perspective, a successful project should produce high quality deliverables in an efficient manner (this refers to the *task outcomes* dimension of project performance). From a social perspective, an IS project should result in satisfied project participants that are content with their project work (i.e., it should achieve positive *psychological outcomes*). Finally, from an organizational perspective, an effective project should yield a positive net value to the organization through the use of the developed system (i.e., it should result in positive *organizational outcomes*) (Aladwani 2002; Henderson and Lee 1992; Pinto and Slevin 1988).

Whether selective reporting contributes to or detracts from the likelihood of success across the above performance dimensions depends on the intended purpose of such reporting and whether it is effective in achieving its goals. As MET posits, biased reporting is pursued to achieve certain goals of the project manager. In some cases, such goals aim to protect the interests of the project; in others, they may be counter-productive to the project in order to meet the personal needs of the manager.

In the presence of well-intended, project-enhancing motives, effectual biasing is likely to have a positive impact on the performance of the project. For example, when selective reporting is pursued to obtain needed resources for the project, it could contribute to success by enabling an under-equipped project to access essential resources to complete the planned deliverables. Tapping into such resources would naturally increase the likelihood of positive task outcomes (Turner and Muller 2003). The success in completing the work should also contribute to the satisfaction of the project participants (thus improving psychological outcomes). Finally, a well-resourced implementation effort is more likely to deliver a usable system that would result in a positive organizational outcome (compared to projects that struggle because of lack of resources). In sum, effectual, project-supporting biasing should have a positive influence on project outcomes.[5]

On the other hand, self-serving biasing that ignores the project's goals to further the interests of the project manager can be quite damaging (Snow et al. 2007). Such motivations often result in incomplete, inaccurate representations of the project status, few benefits to the project itself, and a state in which executives are prevented from effectively monitoring progress and responding to problems early (Heng et al. 2003), all of which ultimately yield poorer task outcomes. In sum, without accurate status reports that identify problems early, management of the project becomes ineffectual and is likely to result in poor task outcomes. Moreover, self-serving reports are likely to affect psychological outcomes negatively because they may distort project problems and/or magnify accomplishments unjustifiably, making the dissemination of

appropriate rewards and punishments unreliable. Finally, self-serving reports may result in poor organizational outcomes as their biased signals may affect the ability of managers to detect and remedy issues that could affect eventual system acceptance by users (Amoako-Gyampah and Salam 2004; Thompson et al. 2007).

As can be deduced from the above discussion, conflicting arguments could be made about the *net* effect of selective reporting on project outcomes. On the one hand, when such reporting is motivated by self-serving interests that lie outside the project's goals, it can be damaging. On the other hand, when it aims to further the project's goals, its effects could be beneficial. Based on the supposition that we established in the literature review section of our paper, this realization leads us to assert that, *on average, optimistic biasing will have a suppressing effect on outcomes (as it is more highly correlated with self-serving motives), while pessimistic biasing will have an enhancing effect (as it is more highly correlated with project-enhancing motives).*

Given the above, and while we recognize that not all selective reporting has the same effect on project outcomes, we also assert that, *on average, selective reporting has a negative net impact on project performance.* This conjecture is supported by two facts. First, research indicates that selective reporting is dominated by optimistic bias. As Snow et al. (2007) state, "when [project managers] do bias, they are twice as likely to bias optimistically" (p. 137). Given this and the fact that such biasing is likely to have a damaging effect on performance, one can deduce that the overall effect will be a negative one. Second, and in support of the above arguments, recent empirical evidence suggests that the *overall* impact of selective reporting on project performance is indeed negative. In two surveys of project managers and team members, Thompson et al. (2007) investigated the relationship between reporting quality and the three dimensions of project outcomes (task, psychological, and organizational). The results of their study revealed an association between reporting quality and these three dimensions, suggesting that an incomplete status report (independent of the type of biasing that it may contain) will have a negative net impact on performance.

While the focus of our work is on *selective reporting behaviors*, we recognize that the impact of these behaviors on project outcomes is likely to be mediated by another construct: the overall *quality of status reporting* that the project manager provides to his/her executive. Obviously, selective reporting behaviors will have a degrading effect on the quality of reporting, but we must recognize that reporting behaviors and reporting quality are two distinct yet related constructs. Several other factors, besides the reporters' intentional biasing

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[5]Although well-executed, project-supporting biasing is likely to have a positive impact on project outcomes, it is conceivable that such biasing may yield a negative impact on *other* projects. For example, if a project manager is successful in capturing resources that are needed by other projects because of his/her biasing, this may actually cause damage to those other projects. Even though calculating the net impact of such bias across a program of projects (or even the whole organization) is beyond the scope of our work, it is important to recognize that such bias (even when well-intended) may result in undesirable outcomes.

behaviors, are likely to influence the quality of project reports (Muller 2003). Such factors include the reporting experience and communication skills of the project manager, the specifications of the project's internal control and measurement system (that dictates the frequency and format of progress reports), limitations of transmission media (face-to-face meetings versus e-mail updates, for example) and so on. It is not our intent to develop or test an exhaustive model that attempts to explain all the antecedents of reporting quality; such would be an unwieldy task that would quickly become unmanageable when combined with the other objectives of our research. In our more limited domain, we assume that project managers who engage in selective reporting behaviors will tend to produce lower-quality reports for their executives. In other words, we posit that the behavior of project managers (selective reporting) is likely to have a significant impact on project performance, and such impact will be mediated by the quality of the progress reports that these managers produce for their executives. Thus, we propose that

> H9: A project manager's selective reporting behaviors will be negatively associated with the project's outcomes; this relationship will be fully mediated by the quality of the project manager's status reports.

# Research Methods ▪▪▪▪▪▪▪▪▪▪▪▪

To assess the above hypotheses, we relied on a written survey of project managers. This section describes the sample, measures, and other elements of our research design for the empirical investigation.

## Sample

The sample for the survey consisted of project managers who were members of the Project Management Institute (PMI). In total, 3,000 surveys were mailed to randomly selected PMI members who were IS project managers in the eastern United States, with 52 surveys returned as undeliverable. One reminder (10 days after the survey mailing) was mailed to each subject. In all, 599 responses were received, yielding a gross response rate of 20.3 percent. Of these, 38 were missing responses to two or more of the items for one or more constructs. These cases were removed, leaving 561 usable responses (for a net response rate of 19 percent).

The above response rate is comparable to that of prior studies on sensitive IS issues; for example, a survey on computer abuse (Straub and Nance 1990) also yielded a 19 percent response rate. It is also consistent with the typical response rate (10 to 20 percent) for surveys of PMI members (Stefanou 2003). Despite this, we tested for the possibility of response bias by comparing the responses from the first 20 percent of questionnaires received to those from the last 20 percent received. Statistical tests revealed that only two (out of 56) of the relevant measurement items (see the next section and Appendix A) had differences that were significant (at the $p <$ .05 level). This result is about what we would expect from chance alone and we thus conclude that there is little evidence of a difference in responses between early and late responders. This suggests that nonresponse bias is unlikely to be a major issue in this study (Chatterjee et al. 2002).

The profile of the respondents can be found in Table 2. When responding to the questions in the questionnaire, the respondents were asked to think of their most recently completed project. A profile of the identified projects is shown in Table 3.

## Measures

Wherever possible, we utilized previously developed and validated survey measures to assess the constructs of interest (see Appendix A for a list of our measures). With two exceptions, each measure was selected in such a way so that it fully captures the construct of interest. The two exceptions relate to the ways in which we operationalized selective reporting and project outcomes. With respect to the selective reporting measurement, we confined our investigation to the frequency dimension of biasing as opposed to other related dimensions, such as the magnitude of biasing. This approach is consistent with attempts to reduce social desirability bias in prior MET research (Fulk and Mani 1986; Roberts and O'Reilly 1974b). With respect to project outcomes, we bounded our investigation on the task outcomes dimension. Among all three dimensions of project performance, this one has been shown to be influenced the most by reporting quality (Thompson et al. 2007). Although we recognize that a more comprehensive assessment of these two constructs would have yielded additional knowledge about selective reporting, we made these choices to simplify the complexity of our model.

In addition to the constructs that were incorporated in our research model (see Figure 2), we included five control factors in our survey instrument. The first control factor was frequency of reporting. This factor is one that research has shown to exert influence on the project manager's reporting quality (Fulk and Mani 1986), but it remains outside the scope

| Table 2.  Profile of Respondents | N | % |
|---|---|---|
| **Gender** | | |
| Male | 390 | 69.5 |
| Female | 166 | 29.6 |
| Not specified | 5 | 0.1 |
| **Organizational Affiliation** | | |
| Employee of organization completing the project | 361 | 64.3 |
| Employee of a third party (e.g., vendor or consulting firm) | 150 | 26.7 |
| Not specified | 50 | 8.9 |
| **Years of Project Management Experience** | | |
| Fewer than 8 | 142 | 25.3 |
| 8 to 9 | 143 | 25.5 |
| 10 to 15 | 121 | 21.6 |
| More than 15 | 151 | 26.9 |
| Not specified | 4 | 0.1 |
| **Number of Projects Managed** | | |
| Fewer than 10 | 122 | 21.7 |
| 10 to 15 | 137 | 24.4 |
| 16 to 30 | 140 | 25.0 |
| More than 30 | 158 | 28.2 |
| Not specified | 4 | 0.1 |

| Table 3.  Profile of Projects | N | % |
|---|---|---|
| **Project Cost ($)** | | |
| Less than 500,000 | 185 | 33.0 |
| 500,000 to 3,000,000 | 222 | 39.6 |
| 3,000,000 to 8,000,000 | 62 | 11.1 |
| More than 8,000,000 | 70 | 12.5 |
| Not specified | 22 | 3.9 |
| **Maximum Project Team Size (Members)** | | |
| Less than 10 | 173 | 30.8 |
| 10 to 50 | 276 | 49.2 |
| More than 50 | 81 | 14.4 |
| Not specified | 31 | 5.5 |
| **Project Duation (Months)** | | |
| Less than 5 | 92 | 16.4 |
| 5 to 7 | 114 | 20.3 |
| 8 to 11 | 102 | 18.2 |
| 12 to 15 | 90 | 16.0 |
| More than 15 | 141 | 25.1 |
| Not specified | 22 | 3.9 |

of our theoretical treatment. The three items measuring frequency of reporting were adapted from the measures originally employed by Roberts and O'Reilly (1974a, 1974b). (Details of the process that was used to adapt and validate these items are described below.)

The four remaining control factors were project-level factors, including project control, project uncertainty, project size, and project importance. Each of these four factors were modeled as potential influences on optimistic biasing, pessimistic biasing, and task outcomes. The four items measuring project control were adopted from Barki et al. (2001), and the six items measuring project uncertainty were adopted from Nidumolu (1995). The two items we used to indicate the size of the project were the budget and the total number of person-months of effort required to complete it; these indicators were adopted from Nidumolu. Project importance was measured using a summated-scale derived from 11 items, as developed by Barki et al.

Finally, we included two additional possible influences as controls. These were the influences of executive's knowledge and executive's power on task outcomes. We did this because we believe that the executive's power may have a direct effect on the outcome of a project. When projects are led by executives who can sway the allocation of organizational resources and can influence top management support, they are more likely to succeed because of favorable access to such resources through said executives (Jiang et al. 2000). Also, given that knowledge of the IS development process enables executives to better monitor projects and more effectively employ appropriate control and management practices, we anticipate that this factor may result in an increased likelihood of project success. Past empirical findings (Kirsch 1996; Kirsch et al. 2002; Snow and Keil 2002b) are consistent with this conjecture. While these effects were outside of the scope of our theoretical model, they still provide potential influences on task outcomes. By including all of these control factors in our analysis, we attempted to minimize the threat of spurious results.

To measure project task outcomes, we used a seven-item scale that was developed and validated by Aladwani (2002). To assess the quality of reporting (from the project manager to the project executive) and the executive's communication (to the project manager), we utilized Mohr and Spekman's (1994) communication quality scale. This scale assesses the following five dimensions of reporting quality: timeliness, accuracy, adequacy, completeness, and credibility.

The three items for trust in the project executive, as well as the three items measuring power of the project executive,

were taken from Roberts and O'Reilly (1974b). While Roberts and O'Reilly (1974b) viewed power as a unidimensional construct, a closer examination of their scale items reveals that they actually measure two distinct dimensions. The first dimension contains two items, and measures the perceived influence the report receiver (in our case, executive) has over the career of the report sender (in our context, this refers to the project manager). The second dimension has a single item relating to the perceived ability of the report receiver to access organizational resources. For this reason, we decided to model power as a higher-order construct, with *relative power* (two indicators) and *resource access* (one indicator) as two related but distinct dimensions.

The three-item scale for measuring the project executive's understanding of the IS development process was taken from Kirsch et al. (2002). We also included a single, binary item in our instrument to determine whether or not the project manager and the project executive were employed by the same organization (i.e., dyad's membership).

The selective reporting construct was defined theoretically as being comprised of optimistic biasing and pessimistic biasing; items that were used to measure these two dimensions were developed specifically for this study. We composed two items for optimistic biasing and two for pessimistic. One of the investigators created the initial set of items; the other researchers scrutinized them for face validity. Based on this review, the items were revised through consensus by all researchers. Following this, we conducted an item validation process using a card-sorting exercise with six participants as prescribed by Moore and Benbasat (1991). In keeping with the tradition established by Fulk and Mani (1986), we used non-pejorative, value-neutral language in these items (e.g., "How often did you find it necessary..."). During this process, we also validated the three items measuring frequency of reporting.

## Results

To analyze the data we collected, we utilized the partial least squares (PLS) technique, and specifically PLS-Graph Version 3.0, build 1130 (Chin and Frye 2001). We modeled all the primary (non-control) constructs with reflective indicators except for optimistic and pessimistic biasing. The responses to reflective items are expected to reflect perceptions of a single underlying construct, and hence they should be strongly correlated. The measures for each of two dimensions of selective reporting represent conceptually separate, but related, items, however. For example, the measures for

optimistic biasing assess understating of project problems and overstating of project achievements. While related, responses to these items do not necessarily need to reflect a single, uni-dimensional construct. As such, both optimistic and pessimistic biasing were modeled using formative measures (Petter et al. 2007). In addition, the control factor of project size was modeled using formative measures, composed of two items (budget and total person-months of effort required).[6]

The results of the PLS analysis are described next. First, we explain our assessment of the measurement model; we then turn to our analysis of the structural model.

## Measurement Model Assessment

To assess the quality of the measurement model, we conducted several tests of convergent and discriminant validity, as prescribed by Chin (1998) and Fornell and Larcker (1981). To assess convergent validity, we assessed (1) individual item reliability and (2) construct reliability. To check item reliability, we examined the item-to-construct loadings for all multi-item variables composed of reflective indicators. Although standardized loadings of 0.707 or greater are needed for the shared variance between each item and its construct to exceed the error variance, loadings of .60 to .70 are often considered acceptable if the loadings of other items within the same construct are high (Chin 1998).

Although most of the measures displayed adequate reliability and validity, there were some potential minor issues. Specifically, six of the reflective items displayed loadings of less than .707. After reviewing these items and their associated constructs, we concluded that while these items did exhibit minor weaknesses, overall the measures were adequate for our purposes. First, two of these indicators were for the task outcomes construct; both were above .60, and the remaining five items for task outcomes were above .707. Second, the remaining four items with lower loadings were associated with control variables (one with project control and three with project uncertainty), and both of these constructs had several other items with loadings well above .707. While removing them would improve the psychometric properties of the measures, it would also reduce the content validity of the

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[6]We recognize that some authors have questioned the use of formative measures for theoretical and empirical reasons (Diamantopoulos et al. 2008). While we acknowledge these concerns, we believe that formative measurement is most appropriate under these circumstances. In addition, we ran the model twice, once with these items modeled as formative and again with them modeled as reflective, and obtained similar results, suggesting that any such concerns are not material within the context of this particular study.

constructs. Therefore, we concluded that it was appropriate to continue. The descriptive statistics, weights, and loadings can be found in Appendix A.

Construct reliability was assessed utilizing two internal consistency indicators: composite reliability and average variance extracted (AVE) scores. All relevant composite reliability measures in our survey are higher than .80 (see Table 4), providing strong evidence of reliability (Bearden et al. 1993). With respect to the AVE scores, a value of 0.5 is required to provide evidence of satisfactory construct reliability (Fornell and Larcker 1981). All of our scores meet this standard. Given this, we find the reliability of our measures (items and scales) to be adequate.

Note that for formative indicators, the weights (rather than loadings) are of interest. The weights for all four of the formative items were statistically significant, indicating that the items contributed to the construct score. In addition, the weights were relatively large and balanced (e.g., weights of .48 and .63 for the optimistic biasing measures, and .60 and .55 for the pessimistic biasing measures), indicating that each of the items provided a substantive contribution to the overall construct score.

To assess the discriminant validity of the reflective measures, we conducted two tests. In the first test, we calculated each item's loading on its own construct and its cross-loadings on all other constructs (see Table 5). We found that each item had a higher loading with its intended construct than its cross-loadings with other constructs. Moreover, the loadings of the indicators for each construct were higher than the cross-loadings of the items in the other constructs. Note that we only included the items for the reflective constructs in this table, as this test is only applicable for reflective indicators.

In the second test of discriminant validity, we examined whether the square root of the AVE score of each construct was greater than its correlations with the other latent constructs (Chin 1998). This test allows us to assess whether the variance that is shared between the construct and its items is greater than the variance shared with other constructs. Again, the formative constructs are excluded, as this test is only applicable for reflective constructs. As Table 6 indicates (the square root of the AVEs are shaded), all of our measures passed this test.

Based on the above evidence, it appears that the measures in our study exhibited appropriate reliability and discriminant validity. With a satisfactory measurement model in place, we evaluated our hypotheses using the structural model. Our findings are described next.

## Table 4. Construct (Scale) Reliability

| Construct | | Number of Items | Composite Reliability (CR) | Average Variance Extracted (AVE) |
|---|---|:---:|:---:|:---:|
| **Dependent Variables** | | | | |
| (TO) | Task outcomes | 7 | .89 | .53 |
| (RQ) | Reporting quality to project executive | 5 | .93 | .73 |
| **Antecedent Factors** | | | | |
| (EC) | Communications quality from project executive | 5 | .95 | .78 |
| (RP) | Executive's power – relative power | 2 | .87 | .77 |
| (RA) | Executive's power – resource access | 1 | N/A | N/A |
| (TE) | Trust in executive | 3 | .89 | .74 |
| (EK) | Executive's knowledge | 3 | .92 | .80 |
| (DY) | Dyad membership | 1 | N/A | N/A |
| **Control Factors** | | | | |
| (FR) | Frequency of reporting | 3 | .84 | .63 |
| (CL) | Project control | 4 | .79 | .50 |
| (UN) | Project uncertainty | 6 | .87 | .53 |
| (IM) | Project importance (summated scale) | 1 | N/A | N/A |

**Note:** Optimistic biasing, pessimistic biasing, and size were modeled as formative constructs, and hence CR and AVE are not relevant indicators of measurement properties. They are, therefore, excluded from this table.

## Table 5. Loadings and Cross-Loadings of Measurement Items

| | RQ | EK | RP | TE | EC | TO |
|---|:---:|:---:|:---:|:---:|:---:|:---:|
| RQ1 | .76 | .13 | .07 | .14 | .28 | .30 |
| RQ2 | .88 | .14 | .05 | .24 | .33 | .27 |
| RQ3 | .89 | .12 | .07 | .21 | .31 | .31 |
| RQ4 | .88 | .17 | .10 | .27 | .36 | .26 |
| RQ5 | .86 | .14 | .04 | .25 | .34 | .32 |
| EK1 | .15 | .82 | .27 | .38 | .38 | .19 |
| EK2 | .17 | .93 | .35 | .50 | .52 | .20 |
| EK3 | .12 | .92 | .34 | .47 | .45 | .12 |
| RP1 | .07 | .36 | .88 | .34 | .32 | .15 |
| RP2 | .06 | .27 | .87 | .26 | .23 | .14 |
| TE1 | .23 | .45 | .34 | .90 | .72 | .26 |
| TE2 | .22 | .38 | .19 | .81 | .51 | .15 |
| TE3 | .22 | .47 | .36 | .87 | .60 | .24 |
| EC1 | .32 | .42 | .20 | .57 | .83 | .25 |
| EC2 | .35 | .46 | .30 | .65 | .91 | .27 |
| EC3 | .32 | .46 | .28 | .64 | .91 | .25 |
| EC4 | .35 | .44 | .29 | .61 | .91 | .28 |
| EC5 | .33 | .46 | .30 | .68 | .87 | .30 |
| TO1 | .26 | .15 | .16 | .24 | .25 | .76 |
| TO2 | .25 | .09 | .08 | .14 | .19 | .75 |
| TO3 | .25 | .14 | .06 | .11 | .15 | .65 |
| TO4 | .18 | .13 | .15 | .15 | .20 | .73 |
| TO5 | .25 | .15 | .16 | .22 | .26 | .75 |
| TO6 | .26 | .17 | .07 | .20 | .21 | .61 |
| TO7 | .29 | .15 | .15 | .22 | .28 | .84 |

Notes:
1. RQ = reporting quality to project executive; EK = executive's knowledge; RP = executive's power – relative power; TE = trust in executive; EC = communication quality from executive; TO = task outcomes.
2. Since optimistic biasing and pessimistic biasing are modeled as formative constructs, these tests of convergent and discriminant validity are not relevant.
3. Loadings and cross-loadings were checked for control variables as well.

## Table 6. Discriminant Validity among Latent Constructs

|  | RQ | EK | RP | TE | EC | TO |
|---|---|---|---|---|---|---|
| RQ | .85 | | | | | |
| EK | .16 | .89 | | | | |
| RP | .08 | .36 | .88 | | | |
| TE | .26 | .51 | .35 | .86 | | |
| EC | .38 | .51 | .31 | .71 | .88 | |
| TO | .34 | .19 | .16 | .26 | .31 | .73 |

**Notes:**
1. RQ = reporting quality to project executive; EK = executive's knowledge; RP = executive's power – relative power; TE = trust in executive; EC = communication quality from executive; TO = task outcomes.
2. The values on the diagonal (shaded cells) represent the square-root of the average variance extracted (AVE). The off-diagonal values display the correlations among constructs. For adequate discriminant validity, the values in the shaded cells should be greater than those in the corresponding row and column.
3. Since optimistic biasing and pessimistic biasing are modeled as formative constructs, this test of discriminant validity is not relevant for them.

## Structural Model

We ran the PLS model twice; first without the control factors, and then with them included. Following the lead of Choudhury and Karahanna (2008), we are not reporting the results from the first PLS run, but these are available from the authors upon request.

In terms of explanatory power, our results indicate that 35 percent of the variance in the project task performance factor was explained by reporting quality and the various control factors (see Table 7). Without the control factors, this value was 12 percent, providing clear evidence that the control factors added substantively to the explained variance in task outcomes. In addition, 19 percent of the variance in reporting quality was explained by selective reporting behaviors along with the control factor of reporting frequency (the variance explained without frequency considered is 13 percent). The $R^2$ value for optimistic biasing was 20 percent with the control factors, and 19 percent without. Similarly, the $R^2$ value for pessimistic biasing was 14 percent with the control factors, and 13 percent without. The $R^2$ values for the mediating variables in the model were 3 percent for the executive's power[7] and 54 percent for trust in the executive.

Overall, it appears that the above explained variance values are sufficiently high to make the examination of the path coefficients practically meaningful. Moreover, these ex-

plained variances are comparable to results from other social research studies that focused on organizational performance outcomes; for example, explained variance in Arthurs et al. (2008) ranged from .05 to .14 for organization outcome constructs. In terms of project outcomes, research suggests that several other factors (other than the ones in the model) impact project performance (Aladwani 2002). With respect to the levels of explained variance for the two biasing dimensions, we consider them to be substantial as well given that our analysis did not incorporate antecedents from non-dyadic levels of analysis.

To assess the statistical significance of the model's path estimates, the bootstrapping method (with 500 re-samples) was used (Chin 1998). The target t-test value was 1.960 (for $p < 0.05$, using two-tailed tests). A summary of the test results is shown in Table 7. To assess the mediating effect in H9, we ran a second model that included direct paths from optimistic and pessimistic biasing to task outcomes. These path coefficients were small (less than .06) and not statistically significant, suggesting that the influence of optimistic biasing was fully mediated by reporting quality, as predicted by the hypothesis.
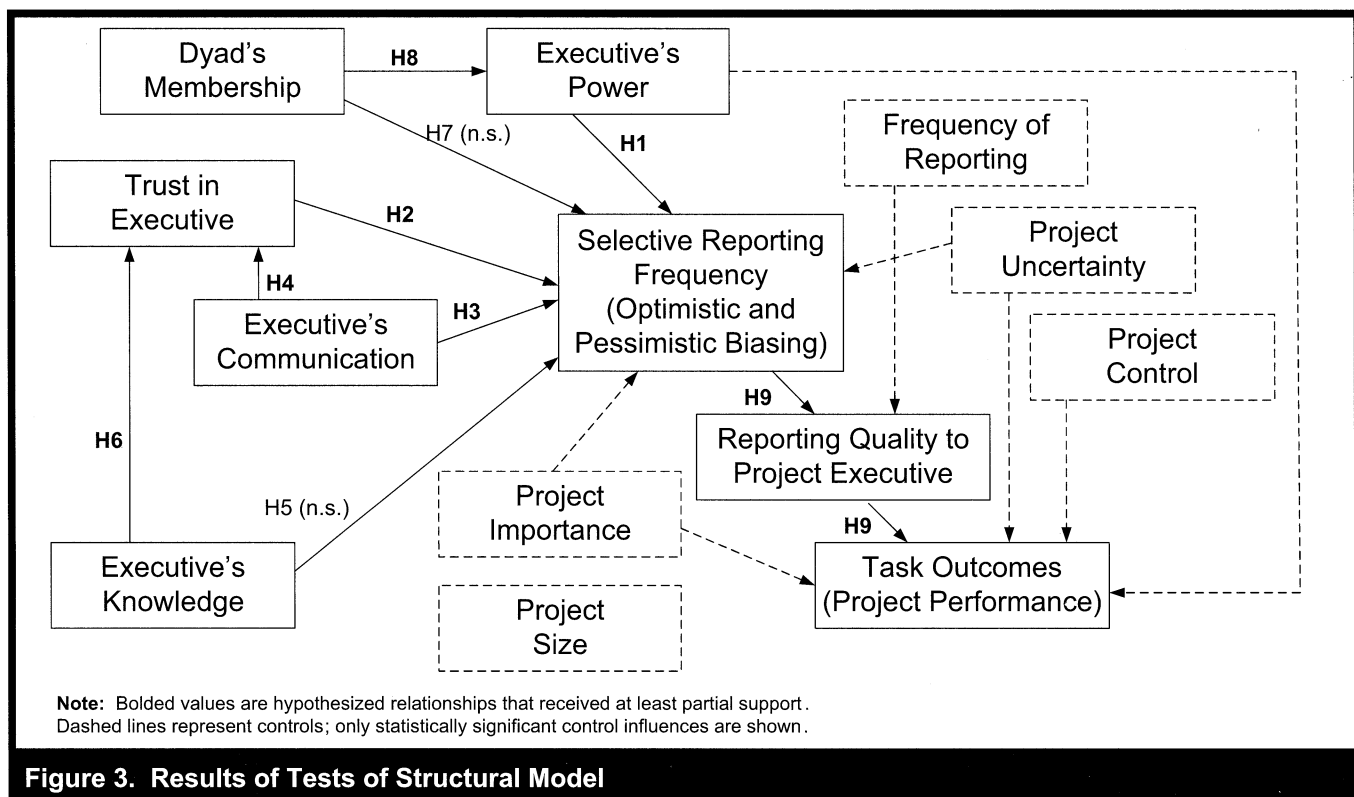
## Discussion

As the survey's findings indicate, seven (out of our nine) hypotheses received some level of empirical support (see Figure 3). Before examining the effects of the selective reporting antecedents in more detail, we will review the findings as they relate to the impact of misreporting on project outcomes.

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[7]Besides dyad membership, there are many other factors that impact perceived power (that are outside the scope of our investigation). This may partially account for the low level of explained variance.

## Table 7. Results of Hypothesis Tests (Structural Model Results)

| Hypothesis | Antecedent Factor | Dependent Variable | Path Coeff. | t-statistic | Supported? |
|---|---|---|---|---|---|
| H1a | Executive's power | Optimistic biasing | **.18** | **3.62** | Partially |
| H1b | Executive's power | Pessimistic biasing | -.10 | 0.72 | |
| H2a | Trust in executive | Optimistic biasing | **-.28** | **4.00** | Partially |
| H2b | Trust in executive | Pessimistic biasing | -.04 | 0.56 | |
| H3a | Executive's communication | Optimistic biasing | **-.18** | **2.77** | Yes |
| H3b | Executive's communication | Pessimistic biasing | **-.26** | **4.01** | |
| H4 | Executive's communication | Trust in executive | **.61** | **16.77** | Yes |
| H5a | Executive's knowledge | Optimistic biasing | -.10 | 1.75 | No |
| H5b | Executive's knowledge | Pessimistic biasing | -.07 | 1.45 | |
| H6 | Executive's knowledge | Trust in executive | **.20** | **4.73** | Yes |
| H7a | Dyad membership | Optimistic biasing | .05 | 1.19 | No |
| H7b | Dyad membership | Pessimistic biasing | .01 | 0.24 | |
| H8 | Dyad membership | Executive's power | **-.17** | **3.791** | Yes |
| H9a | Optimistic biasing | Reporting quality | **-.29** | **5.83** | Partially |
| H9b | Pessimistic biasing | Reporting quality | -.04 | 0.80 | |
| H9c | Reporting quality | Task outcomes | **.17** | **4.11** | |
| **Controls** | | | | | **Significant?** |
| | Frequency of reporting | Task outcomes | **.26** | **6.18** | Yes |
| | Executive's knowledge | Task outcomes | -.01 | 0.28 | No |
| | Executive's power | Task outcomes | **.11** | **2.48** | Yes |
| | Project control | Optimistic biasing | -.05 | 0.98 | No |
| | Project control | Pessimistic biasing | -.02 | 0.41 | No |
| | Project control | Task outcomes | **.40** | **9.35** | Yes |
| | Project uncertainty | Optimistic biasing | .06 | 1.56 | No |
| | Project uncertainty | Pessimistic biasing | **.11** | **2.51** | Yes |
| | Project uncertainty | Task outcomes | **-.16** | **4.34** | Yes |
| | Project size | Optimistic biasing | .01 | 0.08 | No |
| | Project size | Pessimistic biasing | -.02 | 0.38 | No |
| | Project size | Task outcomes | -.01 | 0.16 | No |
| | Project importance | Optimistic biasing | .05 | 1.16 | No |
| | Project importance | Pessimistic biasing | **.10** | **2.36** | Yes |
| | Project importance | Task outcomes | **.09** | **2.78** | Yes |

**Variance Explained**

| | |
|---|---|
| Task outcomes | .35 |
| Reporting quality | .19 |
| Optimistic biasing | .20 |
| Pessimistic biasing | .14 |
| Trust in executive | .54 |
| Executive's power | .03 |

**Note:** **Bolded** values are statistically significant at $p < .05$ (two-tailed test).

**Figure 3. Results of Tests of Structural Model**

Note: Bolded values are hypothesized relationships that received at least partial support.
Dashed lines represent controls; only statistically significant control influences are shown.

Our findings provide support to the hypothesized negative effect of misreporting on project task outcomes (see H9 in Table 7). Moreover, the results suggest that this effect is fully mediated through the reporting quality of the status updates, as hypothesized. With respect to the specific effects of the two forms of biasing, our results suggest that the effect of optimistic biasing (on reporting quality) is significant, but pessimistic biasing was not found to have a significant impact in this relationship. At least two factors may be responsible for this finding. First, pessimistic reporting seems to be employed in a more limited fashion (compared to optimistic biasing). On average, 42 percent of the respondents in our study indicated that they virtually never pursued pessimistic biasing, while only 35 percent made a similar claim for optimistic reporting (see Table 8). Moreover, only 9.25 percent of our respondents indicated that they engaged in intensive pessimistic biasing, while about 13.1 percent of them acknowledged that they engaged in intensive optimistic biasing.[8] This unequal utilization of the two misreporting strategies is consistent with prior research findings (Snow et al. 2007) and can potentially explain the discrepancy in the effects of the two forms of biasing. Second, it is possible that,

on average, pessimistic biasing may be inherently less effective in meeting its intended goals either because it gets detected more easily or because its goals tend to be more difficult to achieve (recall that its motivations tend to be more project-supporting than those of optimistic biasing). To explore this alternative explanation, additional empirical research would be needed.

With respect to the effect of the five antecedents on selective reporting, the executive's communication quality was found to influence both optimistic and pessimistic biasing (it also influenced the perceived trustworthiness of the executive). Two other antecedents (the executive's power and trustworthiness) were influential on optimistic biasing, but not on pessimistic. The other two antecedents—the executive's knowledge of IS development and his/her organizational affiliation—did not receive any support in terms of their direct effects on selective reporting (thus, H5 and H7 were not supported). However, our findings suggest that these two factors have significant indirect effects that are mediated through other antecedents. Specifically, the executive's knowledge affects his/her perceived trustworthiness; and dyad membership influences the executive's power. Thus, even though these two factors do not directly affect selective reporting, they are still important due to their indirect effects.

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[8]Intensive biasing refers to reports of biasing that are above the midpoint of the scale that we used to measure selective reporting behaviors.

| Table 8. Frequency Distribution of Selective Reporting Levels | Optimistic Biasing | | | | Pessimistic Biasing | | | |
|---|---|---|---|---|---|---|---|---|
| | OB1 | | OB2 | | PB1 | | PB2 | |
| | N | % | N | % | N | % | N | % |
| 1 - virtually never | 183 | 32.6 | 209 | 37.3 | 215 | 38.3 | 253 | 45.1 |
| 2 | 162 | 28.9 | 146 | 26.0 | 162 | 28.9 | 149 | 26.6 |
| 3 | 70 | 12.5 | 57 | 10.2 | 51 | 9.1 | 53 | 9.4 |
| 4 | 70 | 12.5 | 78 | 13.9 | 58 | 10.3 | 77 | 13.7 |
| 5 | 60 | 10.7 | 47 | 8.4 | 47 | 8.4 | 17 | 3.0 |
| 6 | 12 | 2.1 | 18 | 3.2 | 24 | 4.3 | 9 | 1.6 |
| 7 - very frequently | 4 | 0.7 | 6 | 1.1 | 4 | 0.7 | 3 | 0.5 |

Optimistic biasing was influenced directly by the power of the executive, his/her trustworthiness and his/her communication quality. Pessimistic biasing, on the other hand, was influenced directly by the executive's communication only. In our view, two possible explanations could account for the differences across the two types of biasing. First, the differences may be attributed to the motivations behind each type of biasing. The executive's power and trustworthiness are likely to be more relevant when the motivations of the project managers are more self-serving, which is more likely to be the case when one is pursuing optimistic biasing (Snow et al. 2007). Pessimistic biasing seems to be more likely to be provoked by project-enhancing motivations. Therefore, it follows that features of the project itself may play a more consequential role than some of the dyadic factors (such as the power and trustworthiness of the executive). Our findings corroborate this conjecture. As Table 7 shows, pessimistic (but not optimistic) biasing was also directly affected by two project (control) variables: the uncertainty and importance of the project itself. Given that project managers are likely to consider the features of the project when making determinations about the use of selective reporting (when motivated by project-enhancing goals), this should not be surprising. For example, genuine concerns about the project's goals (that could lead to pessimistic biasing) are likely to be amplified when dealing with more important undertakings that suffer from low structure. Such concerns are likely to be less important when making determinations about the use of optimistic biasing (that is likely to be motivated by self-serving needs). Interestingly, the executive's communication quality impacted both types of biasing, suggesting that managers, motivated by either self-serving or project-enhancing motivations, are likely to consider the communication dynamic in their relationship with their executive before making a decision about whether or not to use selective reporting. This suggests that employing executives with well developed communication skills as project sponsors is likely to act as an effective deterrent for both types of selective reporting.

An alternative explanation for these differences across the two types of biasing may have to do with the lower variability of the pessimistic biasing data that were provided by the respondents. The average variance for the optimistic biasing items was 8.6, while for the pessimistic ones was 7.9. Given this, it is possible that smaller, yet direct impacts of these antecedents were not fully detected by our statistical analysis. Once again, additional empirical work could shed more light on the efficacy of these alternative explanations.

In terms of the reported levels of biasing, our data indicate that a significant portion of the respondents (ranging from 32.6 percent to 45.1 percent across the four indicators of selective reporting) "virtually never" biased their reports to their executives in their project (see Table 8). While the low averages of the scale ratings (see Appendix A) may be interpreted to suggest that selective reporting is an uncommon phenomenon in IS projects, we believe that such a conclusion may be inappropriate as the data suggest that most of the managers engage in at least *some* biasing. Moreover, we suspect that our estimates of selective reporting may be suppressed for two reasons. First, given that our study measured a sensitive phenomenon using self-reports, social desirability bias may be at play (Snow et al. 2007). Second, given that our sample consisted of certified PMI members, there is a chance that the selective reporting level of the study's participants may be lower than that of the typical project manager. This may be so because of the Institute's explicit professional standards and certification training that sensitizes its members to the biasing issue.[9]

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[9]While the presence of such a ceiling effect is likely to bias the data's measures of central tendency, our primary interest lies in the variance of the reported levels of selective reporting (as our study's primary goal was to identify differences across levels of the antecedent factors).

In sum, our findings tend to support our conceptual framework. Specifically, the managers in our study confirmed that, at times, they slant the status of their projects to their executives by engaging in optimistic and pessimistic biasing. Moreover, our work suggests that the quality of reporting is a significant predictor of project success and that reporting quality is influenced significantly by optimistic biasing. Finally, our research identified and empirically confirmed the influence (either direct or indirect) of five antecedents on the propensity of project managers to engage in selective reporting. Our study's results have significant implications for both researchers and practitioners. These implications are discussed next.

### Implications for Future Research

The findings of the study provide four particular avenues for further research. First, as indicated above, the results of our analysis highlight that the two forms of selective reporting are dissimilar in a variety of ways. Prior work (Snow et al. 2007) suggested that different motivations may be at play in these two types of slanting; our work supports that conjecture. Given that virtually all prior IS research focused exclusively on optimistic biasing (see Table 1), there is a need for additional holistic assessments that consider and compare the two types of biasing. Second, in the discussion of our findings, we put forward conjectures about the possible differences between the two forms of biasing. Overall, it seems that pessimistic biasing occurs less frequently, and there seems to be less variability in its frequency when it does occur. Given this, it will be important to conduct a large scale survey to more fully explore pessimistic biasing; it will be advisable to pursue a large sample size when conducting such a study to overcome the limitations that may be caused by the low occurrence and variability of pessimistic biasing. Third, our extensive review of prior work on selective reporting antecedents identified several factors that have not been empirically evaluated in the context of IS development. In particular, our review suggested that project-level factors have been mostly neglected in prior IS project reporting research. While we included a few such factors in our study as controls, and some were proven to be relevant when it comes to pessimistic reporting, we believe that a more targeted study could yield additional insights about the effects of such factors. Finally, the findings of this study raise a research question with relevance to IS managerial practice: given that selective reporting takes place in IS projects and can have negative impacts on performance, how can such behavior be remedied? Future research can be undertaken to address this question.

Our findings have important implications for researchers who study IS project risks and success as well. Until now, status reporting quality has been omitted from studies that aim to assess the risk profile of a project (Ropponen 1999) or predict its eventual outcomes (Nidumolu 1995; Saarinen 1996). Moreover, our work highlights a possible danger that may be caused by following an axiom that is advocated by this stream of research. Traditionally, IS project risk researchers have advocated the assignment of very senior executives as sponsors to the project. While such an assignment may be quite beneficial to a project (from a resource access perspective), our work reveals that it may lead to optimistic reporting unless the project manager is also powerful (to minimize the relative power distance in the reporting dyad). Given these results, future studies on project performance should consider the effects of misreporting and its relationship to senior-level sponsorship.

It is important to note that our research has significant implications for researchers who study project management and communication in general (outside the IS discipline). We believe that our findings can be generalized to non-IS projects that share similar characteristics with IS development environments. Specifically, projects that experience a lack of clarity in their goals and/or changes in the requirements throughout their execution are likely to suffer from increased complexity and status assessment ambiguity, even when the methods for executing the projects are well defined (such initiatives are classified as type-3 projects by Turner and Cochrane (1993)). Such projects are likely to be prone to slanted reporting. Selective reporting is also likely to be an issue in type-4 projects—such as research and development and organizational change initiatives—as they tend to suffer from both poorly defined goals and execution methods (Cicmil 1999; Turner and Cochrane 1993).

Finally, our work highlights the need to increase the relevancy of reference theories by introducing constructs that are uniquely salient to the IS context. Our research has recognized and empirically tested two such constructs as antecedents of misreporting: the executive's understanding of the IS development process and the organizational membership of the executive relative to that of the project manager. Attempts to incorporate pertinent IS factors in conceptual models not only contribute back to the reference discipline but also delineate the applicability of the theory to the attributes of the "information technology artifact" (Benbasat and Zmud 2003; Orlikowski and Iacono 2001). Additional IS project-specific factors that may influence project monitoring, reporting, and management could be appended to our model for future empirical investigations.

## Implications for Practice

The results of this investigation support the notion that reliable reporting is a critical project success factor. Because of this, we advocate a three step strategy to (1) prevent, (2) detect, and (3) respond effectively to biasing that may occur in IS projects.

*Step 1: Structuring the dyad to minimize the need for selective reporting.* While we recognize that identifying and establishing project manager–executive dyads that can communicate effectively is not always feasible when making resource assignments to new projects, our work shows that *who* the executive is makes a difference when it comes to selective reporting. Specifically, our research reveals that the communication capability of the project executive has a suppressing effect on both optimistic and pessimistic biasing. Given this, organizations will be well advised to provide communications training to executives who do not have well-developed communications skills before asking such individuals to oversee IT projects. Our work also shows that executives who are perceived to be trustworthy and/or are not power-distant from their project managers will induce lower levels of optimistic reporting. While characteristics such as these are seldom used to identify and pair executives to specific projects, our research highlights the potential value of carefully planned project assignments. Interestingly, while specialized knowledge of IS development and homogeneous organizational affiliation are often used as criteria in the project pairing process, our work reveals that these two tend to have secondary effects on selective reporting. In sum, executives who are proficient in interpersonal communications, who are trusted by project managers and who tend to be less power-distant from them, should be preferred when it comes to sponsor assignments.

*Step 2: Detecting possible selective reporting.* Ideally, taking steps to create IS development cultures that are governed by "open communications" and support reasonable levels of risk-tasking will create safe environments that could motivate managers to be forthcoming with their reports. However, we recognize that while such environs are ideal, they are not always present in organizations. Having recognized the challenges associated with communication issues in IS projects, practitioners have devised tactics to help them detect selective reporting when it occurs. Such tactics include the use of communication audits and the establishment of multiple reporting channels that allow report recipients to triangulate status information. While these detection tactics can lead to the discovery of biasing, there are two concerns that are associated with their use. First, increased scrutiny is likely to require substantial resources for the implementation

of these procedures. Second, their use can have unanticipated, detrimental effects on the culture of the project and the morale of its members. Thus, their use should be restricted in environments in which high risk for selective reporting exists. According to our findings, projects that are sponsored by executives who do not exhibit the desired traits (as described in step 1 above) should be considered as candidates for the employment of such tactics. Moreover, our work shows that projects that are perceived to be important and/or unstructured are more prone to pessimistic reporting. Thus, such projects are also likely to benefit from the use of biasing detection tactics.

*Step 3: Responding to selective reporting effectively.* As discussed, we view selective reporting as a complex phenomenon that can be influenced by various motives and can manifest in two distinct ways. Thus, not all detected biasing should be treated the same. When biasing is detected, it is important to spend some time to understand the forces that contributed to it (insecurity of the reporter, concern for the well being of the project, etc.) so that the root causes can be addressed effectively. Reprimanding managers who contributed to selective reporting should be done with care to protect their privacy and to avoid recriminations. While it is important to take appropriate action in response to detected biasing in order to signal to the offending reporters (and others) the undesirability of such actions, doing so in a measured manner will go a long way in maintaining respect and team morale.

## Limitations

We recognize several limitations of our study. First, with respect to measurement, our instruments gauged self-reported perceptions. While such perceptual self-reports tend to be subjective, we believe that they shed significant light on the phenomenon under investigation. Indeed, evidence suggests that insiders' evaluations of projects are consistent with assessments by outsiders (Hoegl and Gemuenden 2001; Sicotte et al. 2004). Also associated with measurement is the use of new items to assess selective reporting. This was required as no validated selective reporting scale exists. In addition, some of our scales included only a few measurement items (for example, the biasing measures included two items each). As described in the "Methods" section, we took specific steps to safeguard and empirically assess the validity of these measures, but we hope that future work could develop them further.

Second, with respect to sampling, our work is cross-sectional in nature. The lack of longitudinal data did not allow us to

assess causality in an unequivocal fashion. To address this issue, future research investigations that include multi-round data collections could be useful.

Third, in terms of scope, our work was limited by three boundary conditions. As discussed, our focus was bounded to status reporting within the project manager–project executive dyad. While we suspect that the conceptual arguments in our work may apply to other dyads in a project, we are unable to confirm this at this point. Also, when empirically assessing the impact of reporting quality, only one dimension of project performance (task outcomes) was considered. Other dimensions, such as team member satisfaction and the level of usage of the produced system, were not included in the study. Finally, our work was limited to the examination of the frequency of selective reporting; future work could include other aspects of biasing (such as the magnitude of slanting).

Fourth, the applicability of our findings may be limited because of the use of a single source (the project manager) to derive our measures. We embraced this approach in order to protect the anonymity of the respondents and to minimize their personal risk in participating in the study. To assess the magnitude of the common method bias risk in our study, we used the approach that is outlined in Liang et al. (2007). Our analysis suggests that this threat was not serious in our study (see Appendix B for a summary of the analysis).

Fifth, our work was limited because it did not pursue an exhaustive view of selective reporting that considered all possible perspectives and factors that may be related to it. In terms of additional dyadic variables, the exact responsibility of the project executive (whether [s]he is a program manager in an IS group, a business sponsor, or a member of a project management office [PMO] was not explored in our work). Also, our perspective limited our focus to dyadic factors and did not consider other potential levels of analysis, such as individual factors. Additional perspectives could be employed in future studies. For example, control theories (Choudhury and Sabherwal 2003; Kirsch 1996; Kirsch et al. 2002) could be employed to explore project-related factors (such as the stage of the project and the presence of a PMO) that have not been addressed in prior project reporting research.

Finally, we must acknowledge that our exclusive focus on selective reporting did not allow us to consider other behaviors that can result in the generation and transmission of inaccurate status reports. Past research has focused on two such behaviors: (1) reporting errors and (2) denial by report recipients. *Reporting errors* refer to cognitive limitations that

prevent project managers from obtaining an accurate assessment of the true state of the project (Snow and Keil 2002a, 2002b; Snow et al. 2007). Reporting errors result in a variance between the "true" state of a project and the state as perceived by the project manager. *Denial by report recipients* refers to behaviors by executives (not project managers) that lead them to discount the status information that they receive in project status updates. Extensive research work by Mark Keil and his colleagues demonstrates that executives are sometimes unwilling to "listen" to reports about problems in their projects, especially when such undertakings are perceived to be politically important (Keil 1995; Keil et al. 1994; Keil and Montealegre 2000). The result of this denial is a variance between the status of the project as reported by the project manager and as accepted by the project executive. While we recognize that both of the above behaviors can be significant impediments to effective project monitoring, they were not considered in this investigation.

## Conclusion

This study has shed additional light onto the presence of biased status reporting in IS projects. This work approached the two types of selective reporting in a methodical fashion to highlight their varied motivations and effects. Also, it offers empirical evidence to support the linkage between reporting quality and project outcomes and has identified five dyadic factors that influence project managers' propensity to report selectively.

Our study represents the first systematic attempt to assess the role of project reporters as status informants in a dyadic communication process that considers the impact that project executives have on that role. It is also the first attempt to offer a rigorous delineation of optimistic and pessimistic biasing. It is our hope that our investigation has provided insights to both researchers and practitioners in reaching a more complete understanding of selective reporting in IS project management. Given the effects of biased reporting, we contend that there is a need to further examine both the factors and the management practices that impact reporting quality. We hope that our work can serve as a useful starting point.

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