

The Consequences of Completion: How Level of Completion Influences Information Concealment by Decision Makers

JACLYN M. JENSEN¹

*Department of Management
George Washington University*

DONALD E. CONLON

Michigan State University

STEPHEN E. HUMPHREY

Pennsylvania State University

HENRY MOON

London Business School

Numerous studies have demonstrated that decision makers will allocate additional resources to failing projects if those projects are close to completion, as opposed to far from completion. The present work considers whether high project completion leads to other effects; namely, decision-maker willingness to conceal negative information about a project. Three studies (1 at the group level, 2 at the individual level; 1 using qualitative data, 2 using quantitative data) established a link between project completion, incremental investment behavior, and the tendency to conceal negative information.

Consider the following scenario: After debating the merits of several investment opportunities, a group of investors (including yourself) has undertaken development of an upscale restaurant. After working on the project for several months and incurring substantial startup costs, your group is shocked to find that another group has decided to open an upscale restaurant in the same area, and this competitor will be open for business 6 months before your group can open its doors. Your economic analysis suggests that the community cannot support two fine dining restaurants. The decision your group now faces is either to abandon the project on which they have been working, or continue working on the project with greatly reduced expectations about its profitability. Do you continue funding your project?

Instances of “throwing good money after bad” are easy to find and are sometimes referred to as *entrapment situations* or *escalation dilemmas* (Brockner, 1992; Staw, 1997). Although the previous example is fictitious, numerous real-world examples exist of questionable continuing investment in failing projects (Drummond, 1996; McNamara, Moon, & Bromiley, 2002). A

¹Correspondence concerning this article should be addressed to Jaclyn M. Jensen, Department of Management, George Washington University, 2201 G Street, NW, Fungler Hall Suite 315, Washington, DC 20052. E-mail: jmn1@gwu.edu

growing body of literature suggests that a very important factor contributing to such investment behavior is how close one is to completing the plan of action that is in progress (i.e., level of project completion; Conlon & Garland, 1993; Garland & Conlon, 1998). This literature suggests that in the scenario we described, how close we are to finishing the restaurant will play an important role in our decision to continue or stop the project.

Prior research on these decision dilemmas has focused on the investment behavior of decision makers. However, these dilemmas may lead to other negative outcomes beyond financial losses. For example, imagine that only some members of the investment group in our hypothetical situation knew of the threat (i.e., the competing restaurant). Can we assume that the individuals with this information would freely divulge this information to the other parties involved? Would their likelihood of revealing this information be influenced by how close to completion the project was?

Street, Robertson, and Geiger (1997) speculated that such information asymmetries inherent in decision dilemmas frequently create situations in which decision makers may be tempted to engage in self-interested or unethical behavior. Street et al. provided the hypothetical example of a plumbing firm that has a contract with a large apartment developer guaranteeing a specific level of quality work for a specified price. Over time, it becomes apparent that the company cannot complete the promised work under the terms of the contract. The owner of the plumbing company thus has several options available, including the unethical action of substituting substandard materials without telling the developer.

A real-world example of self-interested behavior can be seen in the case of construction on the Big Dig, a large-scale transportation project in Boston. Murphy (2005) reported that tunnel leaks stemmed from soft spots in the tunnel wall created by debris concealed in the wall (i.e., debris that was not removed from the site) during construction. Moreover, to fix these leaks, the repair option selected by the Turnpike Authority was the least expensive of three possible options and was far less elaborate than what was recommended by an external engineering consultant. This information was divulged only after several cases of failures with the tunnel infrastructure brought attention to the quality of the construction (Murphy, 2005).

Another example supporting a potential link between escalation and self-interested behavior can be seen in the behavior of Nick Leeson. His unauthorized trading (performed in order to cover purchases; i.e., sunk costs, failed stock options) singlehandedly brought Barings Bank to bankruptcy ("Unlearned Lessons from Barings," n.d.).

The central contribution of the present paper is to extend the nomological network of constructs related to the project-completion effect beyond a

simple matter of judgment error related to investment behavior. The anecdotes provided in our introduction portray the classic dependent variable of wasteful spending. However, we introduce another potential outcome of high project completion: a propensity to behave unethically, operationalized here as the concealment of negative information related to the previously chosen course of action. To extend the relationship between project completion and escalation of commitment to information concealment, we draw on the work of Kirby and Davis (1998) and McNamara et al. (2002).

The omnipresence of escalation behavior has led to an ongoing discussion in the literature around strategies to mitigate this effect. For example, drawing on agency theory (Eisenhardt, 1989), Kirby and Davis (1998) suggested that agents will be less likely to escalate commitment if they know that their decisions have increased oversight. However, in a study on commercial lending decisions, McNamara et al. (2002) found that such oversight strategies have unintended consequences, including underassessment of borrower risk. By failing to downgrade a borrower's risk rating, decision makers helped to conceal the risk associated with continued commitment to a failing course of action. Thus, we propose that another consequence of escalation of commitment is information concealment, particularly when decision makers are controlling the information made available to auditors or upper management about their funding decision. This rationale is also consistent with threat-rigidity theory (Staw, Sandelands, & Dutton, 1981), which would suggest that decision makers could react to the threat of a failing project by restricting information that would otherwise reveal the status of the project. Thus, in an attempt to maintain control over a failing project, decision makers might conceal or withhold relevant information from those with oversight. We begin by addressing explanations for irrational investment behavior, and then directly develop hypotheses helping us to understand the conditions under which groups and individuals might conceal negative information.

Study 1

Theory Development and Hypotheses

A classic explanation for why decision makers throw good money after bad has focused on sunk-cost effects. Early research in this area (for a review, see Brockner, 1992) argued that decision makers were unduly influenced by the amount they had already invested in the course of action (i.e., sunk costs). The underlying reasons provided for this behavior ranged from feelings of felt responsibility (Staw, 1976), entrapment (Brockner, Rubin, & Lang, 1981), and attempts not to appear wasteful (Arkes & Blumer, 1985).

However, the importance of sunk costs in incremental investment contexts has recently been challenged by a number of scholars. Conlon and Garland (1993) pointed out that in many prior studies, information about sunk costs was confounded with information about level of project completion, and that it was possible that decision makers were influenced by level of completion, rather than sunk costs. In a series of five studies (Conlon & Garland, 1993; Garland & Conlon, 1998), these authors independently manipulated sunk costs and project completion and found that level of completion was the key driver of escalation behavior.

Recent work by other scholars, some with the explicit goal of refuting the project-completion hypothesis, has, in fact, provided more support. For example, Boehne and Paese (2000) argued that by providing decision makers with economic information about the value of a project, decision makers would make “rational” decisions and not be influenced by level of completion information. Despite receiving this information, decision makers continued to be influenced by level of completion, frequently recommending completing projects even when it was clearly unwise to do so. In a field study, Keil, Mann, and Rai (2000) surveyed information-systems professionals and tested four competing explanations (self-justification, sunk-cost effects, agency effects, and project-completion effects) of escalation. Keil et al. found that the project-completion construct best discriminated between escalated and non-escalated projects.

To summarize, past studies have found that when sunk costs and project completion are unconfounded, sunk costs have no effect on incremental investment behavior. Given the past findings, we expect the historical pattern of no sunk-costs effects, but significant project-completion effects will be found in the present study. Thus, although we will test for both effects, we only hypothesize that project completion will significantly impact incremental investment. Therefore, we begin by underscoring the importance of level of completion in project-related dilemmas.

Hypothesis 1. As the level of project completion increases, decision makers will be more likely to escalate their commitment.

From Completion to Information Concealment

Unethical behavior has been defined by Lewis (1985) as “violating rules, standards, codes, or principles, which provide guidelines for morally right behavior and truthfulness in specific situations” (p. 381). Although obviously a difficult concept to measure in the real world, unethical communication has been identified as a tactic on which organizations might rely in

response to an organizational error or an unexpected outcome in an effort to project a positive view of themselves and to protect their identities (Ginzel, Kramer, & Sutton, 1992). To date, the literature regarding unethical behavior has relied on case analyses, such as the Challenger launch, the behavior of corporations (e.g., Enron, Worldcom), and the behavior of individuals (e.g., Barings Bank trader Nick Leeson). Common to these types of situations is the underlying dilemma of how to handle negative information. In each case, information that would be deemed harmful to an evaluation of the individual or organization's decision was purposely withheld from critical stakeholders. Therefore, our dependent variable of interest is the *proclivity of actors to engage in information concealment*, which is defined as the unethical behavior of avoiding or withholding negative information about a current project.

Past research on informational concealment has characterized the behavior in a variety of ways. Decision makers can conceal information by lying (Messick, 1999) or by misrepresenting the facts (O'Connor & Carnevale, 1997). Both of these acts are "sins of commission" in which the holders of information actively try to alter the truth. Information concealment can also be a "sin of omission" in that decision makers can hide problems (Schweitzer & Croson, 1999) or withhold information (Palmbloom, Willems, Janssen, & de Haes, 2007) that ultimately leads to an obscured or incomplete version of the truth being revealed to managers, supervisors, stakeholders, and so forth. For example, in their review of previously secret, internal tobacco-industry documents, LeGresley, Muggli, and Hurt (2005) suspected that in trying to conceal information, the primary objective of tobacco companies was not to destroy information, but was focused on preventing public disclosure of said information.

As noted by Messick (1999), decision makers may present an argument that simply tells one side of the story; as such, we posit that their story inevitably withholds information that is still relevant to the decision scenario. By defining information concealment as both a sin of commission and of omission, we open the possibility that failure to mention relevant, factual details surrounding a decision is akin to information concealment, particularly when those details are negative and would shed an unfavorable light on a decision maker's chosen course of action. A similar parallel has been drawn around the concept of deception in research. Some researchers define *deception* as "concealing or camouflaging the real purpose of an experiment" (Broder, 1998, p. 806), whereas others define it as "telling participants things that are not true necessarily" (Ortmann & Hertwig, 1997, p. 807). For our purposes, we will explore information concealment as a sin of omission and focus on decision makers' failure to mention relevant details surrounding the escalation situation. Such sins of omission have been similarly defined in

other research in the area of deception (e.g., Bok, 1999; Schweitzer & Croson, 1999).

Moreover, as we focus in Study 1 on information concealment as a sin of omission, the type of behavior we expect to see will be revealed through a post hoc analysis of the rationale that decision makers present when asked to justify a course of action. For example, in the tobacco-industry scandals described by Messick (1999), information concealment was not discovered until an investigation of industry reports revealed that research had been conducted determining that smoking had harmful consequences, but this information was never mentioned in the original report. Looking at a temporal sequence of information concealment, we observe a time lag in the act of justifying a decision versus the discovery of concealment, such that the real concealment is not apparent until the omitted information is discovered. Although research has suggested that sins of omission are often difficult to capture because of the difference between silence regarding information and simple ignorance (Barnes, 1996), sins of omission reinforce spirals of deceptive behavior (Fleming & Zyglidopoulos, 2008) and, as such, should be explored.

The underlying theoretical explanations for why project completion may lead to information concealment are goal setting (Barsky, 2008), goal substitution (Garland & Conlon, 1998), and impression management (Bozeman & Kacmar, 1997). Barsky proposed that elements of the goal-setting process, including the specificity and difficulty of goals, will relate to unethical behavior. Goals that are more difficult and challenging will impair the ability of decision makers to take the “ethical high road” when confronted with either acting ethically (and not completing the goal) or completing the goal (via unethical means). Similarly, Garland and Conlon posited that project-completion effects were the result of goal substitution, where as a project approaches completion, the goal of completing the project becomes more important, while other goals such as economic profit become less important.

This explanation was supported by Humphrey, Moon, Conlon, and Hoffmann (2004), who used a longitudinal simulation to examine the effects of level of project completion on perceived importance of several different goals, including economic profit and project completion. In their study, the importance of completing the project increased while the importance of turning a profit for the company decreased, as the project moved from low to high levels of completion. Of particular relevance to our current study—and perhaps the anecdotal story related to the Big Dig—is how decision-maker attitudes and behaviors regarding safety did not coincide. Humphrey et al.’s participants expressed consistently high ratings of the importance of safety as project completion increased, yet the financial allocations they made to safety

varied in a curvilinear (U-shaped) fashion over time, with the additional money not provided to safety being reallocated to facilitate production (i.e., project completion).

Moreover, decision makers may be motivated to put forth a positive impression of themselves by being defensive and concealing negative information about the decision context. Research has shown that decision makers tend to use impression-management tactics more often following poor organizational performance (Davidson, Jiraporn, Kim, & Nemec, 2004). In the current context, these tactics may take the form of hiding relevant negative information from upper management with decision oversight, to avoid the impression that the decision maker is pursuing a failing course of action. Thus, the use of defensive impression-management tactics may relate to unethical behavior.

In the present study, approaching project completion may also lead decision makers to focus their attention increasingly on actions that will facilitate goal completion, thereby making it more likely that they will fail to mention project characteristics that would be inconsistent with achieving the completion goal. In other words, omission will help achieve project completion and will occur in spite of negative feedback received about the project's likelihood of success.

Hypothesis 2. As the level of project completion increases, decision makers will be more likely to conceal negative information.

Finally, we examine whether the current level of commitment (i.e., incremental investment) influences information concealment. In other words, rather than focusing on past expenditures or commitments (i.e., sunk costs), it may be that current recommended expenditures are what motivate intentions to conceal. Cox and Walker's (1997) model of resource commitment provides one avenue for understanding how higher levels of commitment can result in negative outcomes, be it continued unwise investment in a failing project or justifying investments by concealing negative information. Their model is framed in the context of manufacturer-distributor relationships, which are built on a high degree of trust and shared norms in order to be successful. When the relationship starts to fail by turning unprofitable, the manufacturer must decide whether to continue working with the distributor or abandon the agreement. In the face of failure, manufacturers who continue the relationship must justify the decision to themselves and to others, which could be achieved in part through concealing negative information.

Hypothesis 3. As the level of recommended additional investment increases, decision makers will be more likely to conceal negative information.

Method

Participants, Design, and Decision Problem

A total of 82 three-person groups comprised of 246 undergraduate students enrolled in a capstone management course at a large midwestern university participated in this study. Each group contained 3 randomly assigned members. Participants received extra credit in their course for completing the scenario.

A 2×2 factorial design varied sunk-costs (low vs. high) and project-completion information (low vs. high). Students were asked to read carefully, evaluate, and answer questions related to a short scenario as if the scenario were actually true. The scenario (adapted from Tan & Yates, 1995) deals with the dilemma of whether to continue funding the development of cellular phone technology in light of the news that a competitor has produced a more advanced technology. Four different scenarios were created that included high or low sunk cost and high or low project completion (cf. Conlon & Garland, 1993; Garland & Conlon, 1998). The scenario(s) read as follows:

Assume you are several of the vice-presidents at “Innovation, Inc.” Innovation is a company in the telecommunications and electronics industry. Your group is the new product development committee at Innovation.

Your company is working on a new project that was recommended by your committee—a cell phone that allows communication to be made within 15 miles of a cell-phone tower. (As you know, current technology only allows cell phones to communicate within 3–5 miles of cell towers.) Based on the presentation by the developers, each member of your group recommended funding the project.

The engineering department has just informed you that the project is 10% (90%) complete.

Below is a summary of the financial data for the project:

Total funds budgeted for the project: \$10,000,000
Total costs incurred to date: \$1,000,000 (\$9,000,000)

However, you have just learned that one of your competitors has already come out with a cell phone that allows communication to be made within 30 miles of a cell-phone tower.

Independent Variables

Sunk costs and completion. All scenarios indicated that the budget for the project was \$10 million. Groups in the low sunk-cost condition were informed that the amount of money already invested was \$1 million, whereas groups in the high sunk-cost condition were told that the amount of money invested was \$9 million. Groups in the low project-completion condition were told that “The engineering department has informed you that the project is 10% complete.” Groups in the high project-completion condition were told that “The engineering department has informed you that the project is 90% complete.”

Dependent Variables

After reading the scenario, groups collectively considered and then provided a single group answer to a series of questions. They first indicated the amount of money they would commit to the project. Specifically, groups were told “You can allocate anywhere between \$0 and \$750,000. Allocating \$0 means that you are terminating the project. Any allocation greater than \$0 will result in the project continuing, at some level, during the funding cycle.” The cap of \$750,000 was chosen to make it clear to groups that they could not yet spend all of the money budgeted for the project. After indicating the amount they wished to allocate, the groups were then asked to write down the three most important reasons for the decision they had reached. After providing the justifications for their allocation decisions, groups answered several Likert-type questions that included manipulation checks of the sunk-cost and project-completion factors.

The reasons that the groups provided to support the decision they made related to the project were then read by two authors who developed an initial coding categorization scheme to capture information concealment. Comparisons of the classifications made in this initial attempt to code the data resulted in numerous changes and additions to the categories, resulting in a revised coding scheme of 10 categories: 4 consisting of reasons to continue the project, and 6 consisting of reasons to terminate the project (see Table 1 for categories). With this new coding scheme, the two coders were able to classify independently 214 of the 246 group statements into the identical category, for an agreement rate of 87.0%. The remaining 32 responses were then classified after discussion between the two coders and a third author of the paper. Upon the completion of the coding, groups were assigned scores of 0 or 1 across each of the 10 categories, reflecting whether each of the 10 response categories was present or absent in the reasons the groups provided.

Table 1

Significant Differences in Group Justifications as a Result of Manipulation of Project Completion: Study 1

Category	Comments supporting continuing the project	Low PC	High PC	PC	$\chi^2(1, N = 82)$
High completion	Already 90% complete; we are close to being done	0/40	14/42	PC	16.08**
Persistence	We've already invested in the project; we would lose what we already invested	2/40	6/42	PC	2.00
Staying competitive	We want to keep up/keep involved with competition or keep up/keep involved with technology	8/40	18/42	PC	8.65**
Positive spin	Positive spin on situation; outright lies; making up statements that make status quo better than it is	11/40	26/42	PC	9.79**
Competition	Competition is better than we are; not a good enough product; obsolete technology	25/40	8/42	PC	16.09**
Budget constraints	We don't have enough money to finish; we will be over budget	5/40	0/42	PC	5.59*
Alternative investment	We could spend the money elsewhere; pursue other opportunities	14/40	5/42	PC	6.14*
Low completion	Low level of completion; project is not that far along	6/40	0/42	PC	6.80**
Financial loss	We are likely to lose money; we will not make a profit if we continue	6/40	0/42	PC	6.80**
Cost and completion	Mentions both high money or budget spent and low completion	5/40	0/42	PC	5.59*

Note. PC = project completion. Fractions in each column represent the number of groups in each condition that provided the reason listed in the left column.

* $p < .05$. ** $p < .01$.

Of interest in the present study was one particular category, which assessed whether or not the group mentioned the negative information from the scenario. Recall from the scenario that the only negative information that all participants were exposed to was “You have just learned that one of your competitors has already come out with a cell phone that allows communication to be made within 30 miles of a cell-phone tower.” Groups knew from the scenario that their developing technology would only allow for communication within 15 miles of a tower. We consider concealment of information to be any instance of groups *failing to mention this information* in justifying their funding decision. By omitting mention of the negative circumstances of the decision problem, groups would be concealing this key piece of information that would otherwise illuminate the reduced likelihood of their future success.

From the coding of group comments, a measure of information concealment was calculated using a dichotomous indicator of whether the groups exposed negative information (e.g., comments in Table 1 in the category labeled “Competition,” which include group statements such as “The competition has more advanced technology”; “Why would consumers buy a cell with a 15-mile range when there is a cell with a 30-mile range?”; and “Our product would be obsolete, compared to the other company’s product”) or failed to mention the negative information. In the Competition category, groups who exposed the negative information were coded as 1, while groups who concealed the information were coded as 0.

Results

Manipulation Checks and Initial Analyses

We checked our manipulation of level of completion by asking group agreement with the statement “This project is close to being finished.” Those in the high level of completion condition more strongly endorsed this statement than did those in the low level of completion condition ($M_s = 5.31$ and 1.68 for high and low completion, respectively), $F(1, 80) = 144.90$, $p < .001$, $\eta_p^2 = .65$. We checked our sunk-cost manipulation by asking group agreement with the statement “A lot of money has already been invested before we had to make this decision today.” Those in the high sunk-cost condition reported much higher agreement with the statement ($M_s = 6.13$ and 3.12 for high and low sunk costs, respectively), $F(1, 80) = 100.67$, $p < .001$, $\eta_p^2 = .56$. In addition, there was a significant interaction between the manipulations of sunk costs and completion on the sunk-cost manipulation check, $F(1, 80) = 5.09$, $p < .05$, $\eta_p^2 = .06$. Post hoc comparisons reveal no difference

between the low and high completion conditions in terms of their belief that a lot of money had already been invested when sunk costs were high ($M_s = 6.21$ and 6.05 for low and high completion, respectively). However, when sunk costs were low, those in the low completion condition perceived that less money had been invested than did those in the high completion condition ($M_s = 2.52$ and 3.71 , respectively).

Tests of Hypotheses

Descriptive statistics and correlations among our manipulations and the dependent measures are presented in Table 2. Consistent with prior research and Hypothesis 1, we note that groups invested significantly more money when project completion was high than when project completion was low ($M_s = \$501,667$ and $\$207,707$, respectively), $F(1, 80) = 20.02$, $p < .001$, $\eta_p^2 = .20$; whereas commitment levels as a function of sunk costs were not significantly different ($M_s = \$405,802$ and $\$303,571$, respectively), $F(1, 80) = 2.31$, *ns*. Similar patterns exist for decisions to terminate or continue projects (operationalized as allocating \$0 vs. any nonzero amount). Contingency analyses reveal that decisions to terminate were influenced by the completion manipulation, $\chi^2(1, N = 82) = 18.09$, $p < .001$, with 25 of 40 groups (62.5%) in the low completion condition terminating the project, compared to 7 of 42 groups (16.7%) in the high completion condition. Decisions to terminate the project were not influenced by the sunk-costs manipulation, $\chi^2(1, N = 82) = 0.08$, *ns*. All of these patterns support Hypothesis 1.

To test Hypothesis 2, we used a chi-square analysis to examine the relationship between the project-completion manipulation and information

Table 2

Means and Correlations: Study 1

Variable	<i>M</i>	<i>SD</i>	1	2	3
1. Sunk costs	0.49	0.50	—		
2. Project completion	0.51	0.50	.03	—	
3. Group commitment (\$)	\$357,560	\$332,117	.17	.45**	—
4. Information concealment	0.40	0.49	-.10	-.44**	-.75**

Note. $N = 82$. Sunk cost and project completion: 0 = low, 1 = high. Information concealment: 0 = conceal, 1 = reveal.

** $p < .01$.

concealment (0 = conceal, 1 = reveal). Analyses reveal that 34 of 42 groups (81.0%) in the high completion condition failed to mention anything negative about the decision problem, $\chi^2(1, N = 82) = 16.09, p < .001$; as compared to 15 of 40 groups (37.5%) in the low completion condition (see Table 1, category labeled "Competition"). Information concealment was not influenced by the sunk-costs manipulation, $\chi^2(1, N = 82) = 0.89, ns$. Therefore, Hypothesis 2 was supported.

For Hypothesis 3, we used a hierarchical logistic regression to examine the relationship between group investment and information concealment. In Step 1, we entered both the sunk-cost and project-completion manipulations. Consistent with the findings of Hypothesis 2, project completion was significantly related to information concealment: $B = 1.97, p < .001$; $\text{Exp}(B) = 7.17$. In Step 2, we entered the dollar amount of the current level of group investment. This step reveals that as group investment increased, group concealment of information also increased (reflected through a negative relationship): $B = -0.00, p < .001, \text{Exp}(B) = 1.00$. Therefore, Hypothesis 3 was supported.

Discussion

Proximity to project completion can be a powerful motivating factor and can help to direct and sustain effort as people work to complete tasks (Conlon & Garland, 1993). However, when the context is one in which negative outcomes loom as a strong possibility, the potential exists for project completion to interfere with rational decision making and behavior. The outcomes of Study 1 provide preliminary support for the relationship between project completion and information concealment. Because most studies of project completion have focused almost exclusively on incremental investment behavior, it is an important extension to show that project completion may also lead decision makers to engage in sins of omission and conceal negative information.

Consistent with previous research, we found evidence that escalation is driven by project completion, but not by sunk costs. Study 1 was an attempt to use qualitative data as an indicator of a group's inclination to conceal negative information by focusing on what the groups did not say, as opposed to what they did say. Given that groups had up to three reasons to justify their funding decision, it is reasonable to expect that if they wished to reveal any information about the position of their competitor, they had ample opportunity to do so. Staw and Ross (1987) noted that one way to get decision makers to de-escalate commitment is to provide them with unambiguous negative feedback about the failing project. The failure of these

groups to articulate the negative feedback faced by their projects is evidence of how difficult it can be to get decision makers to engage in the behavior necessary to facilitate terminating a project.

When judging the usefulness of measuring a sin of omission as information concealment, our results are bound by the fact that decision makers were asked to provide the three most important reasons for the decision they had reached. Thus, one conclusion may be that groups were following directions when providing positive comments that did not acknowledge the negative attributes of the situation. As Barnes (1996) noted, the challenge in capturing sins of omission is distinguishing silence from ignorance. If all groups merely followed directions, we would not expect any groups to mention negative facts about the situation, thereby supporting the notion that groups were ignorant or unaware. However, because some groups did mention negative information, we have greater support for the silence component of information concealment in that groups closer to completion were more likely to be silent and to conceal information. The results of this initial study, therefore, provide some support of the effects of project completion on concealment of information.

The results of the content coding also reveal that groups in the high project-completion condition were less likely to mention the opportunity and financial cost associated with terminating the project when justifying their decision (see Table 1, categories labeled "Alternative Investment" and "Financial Loss"). As Garland and Conlon (1998) noted, as completion goals become more important, profit goals become less important. By failing to note either the economic loss (i.e., the chance that money could be lost) or gain (i.e., other opportunities that could be explored) associated with terminating the project, it suggests that completion goals may overwhelm thoughts associated with making money or cutting off current losses.

Study 2

To extend the findings of Study 1, we conducted a second study in which the goal was to document the information-concealment effect in individuals, as Study 1 documented the effect in groups. Documenting a similar pattern at the individual level would allow us to rule out alternative possible explanations for why the information-concealment effect occurred. For example, one might argue that group members fell prey to a social loafing or diffusion-of-responsibility effect (e.g., Latané, Williams, & Harkins, 1979) and, as a result, no one bothered to mention the negative information. Such group processes clearly would not exist in an individual-level study. Thus, the goal of Study 2 is to find additional support for a slightly modified version of Hypothesis 2,

which in this case argues that individuals (rather than groups) at high levels of project completion will be inclined to conceal information.

In addition, we seek to consider information concealment in a slightly different way. In Study 1, we operationalized information concealment as a sin of omission in that the most important reasons provided by decision-making groups hid problems or withheld important information. These justifications may have been affected by groups feeling as though they should present only affirmative information if they decided to continue investing. Thus, in Study 2, we consider information concealment as a sin of commission whereby individuals report how likely they would be to conceal negative information, put a positive spin on negative information, downplay the risk associated with continued funding, embellish the probability of project success, or mention a competitor's superior product when discussing their funding decision with upper management. This operationalization of information concealment is conceptually consistent with a sin of commission and directly asks decision makers their propensity to engage in these behaviors. Therefore, it is not subject to the same presentation biases as the information presented in Study 1.

Method

Participants and Design

Study participants were 144 individuals who were enrolled in a business course at a mid-Atlantic university. Participants received extra course credit for their participation. The same decision scenario used in Study 1 was used in Study 2.

Independent Variables

Sunk costs and completion. The measures of sunk cost and project completion were identical to those in Study 1.

Dependent Variables

As in Study 1, individuals were asked to indicate the amount of money they would commit to the project, ranging from \$0 to \$750,000. After indicating the amount they wished to allocate, individuals responded to several questions including five items that were combined into a scale of information

concealment ($\alpha = .64$). These items are “There is a high probability that this project will be successful” (included to assess individual propensity to exaggerate or embellish the situation); “It is risky to continue funding this project” (reverse-coded); “I will conceal negative information about the project, rather than report that information to upper management”; “I will put a positive spin on any negative information about the project when reporting that information to upper management”; and “One of our competitors has already come out with a cell phone that allows communication to be made within 30 miles of a cell phone tower” (reverse-coded). Individuals rated the items on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Results

Manipulation Check

Using the same items as in Study 1, we checked the effects of our manipulations. Those in the high project-completion condition were more sensitive to the statement “This project is close to being finished” than were those in the low completion condition ($M_s = 5.62$ and 2.07 for high and low groups, respectively), $F(1, 143) = 453.92, p < .001, \eta_p^2 = .58$. Those in the high sunk-cost condition were more sensitive to the statement “A lot of money has already been invested before we had to make this decision today” than were those in the low sunk-cost condition ($M_s = 5.79$ and 3.78 for high and low groups, respectively), $F(1, 143) = 46.70, p < .001, \eta_p^2 = .26$.

Tests of Hypotheses

Table 3 contains the study means, standard deviations, and correlations. Consistent with Study 1, individuals invested more money when project completion was high ($M = \$364,070$) than when project completion was low ($M = \$245,589$), $F(1, 143) = 5.41, p < .05, \eta_p^2 = .04$. A similar pattern emerged for decisions to terminate or continue projects, such that decisions to terminate were influenced by the completion manipulation, $\chi^2(1, N = 144) = 15.76, p < .001$. Of the 73 individuals in the low project-completion condition, 40 terminated the project, as compared to 16 of 71 individuals in the high project-completion condition. These patterns provide support for Hypothesis 1.

We used a one-way ANOVA to examine Hypothesis 2, which predicted that individuals in the high project-completion condition would be more

Table 3

Means and Correlations: Study 2

Variable	<i>M</i>	<i>SD</i>	1	2	3
1. Sunk costs	0.49	0.50	—		
2. Project completion	0.49	0.50	-.01	—	
3. Individual commitment (\$)	\$304,500	\$312,925	.08	.19*	—
4. Information concealment	3.29	1.14	-.03	.26**	.58**

Note. $N = 144$. Sunk cost and project completion: 0 = *low*, 1 = *high*.
* $p < .05$. ** $p < .01$.

likely to conceal information than would individuals in the low project-completion condition. The results reveal a significant relationship between project completion and information concealment, $F(1, 143) = 11.05, p < .001, \eta_p^2 = .07$. Individuals in the high completion condition were more likely to conceal information ($M = 3.60$) than were individuals in the low completion condition ($M = 2.99$).

We tested Hypothesis 3 using hierarchical linear regression. In Step 1, we entered the sunk-cost and project-completion manipulations. In Step 2, we entered the dollar amount of the current investment. This step reveals support for Hypothesis 3. As the amount of individual investment increased, information concealment also increased ($B = 0.56, p < .001, \Delta R^2 = .30$).

Discussion

Our findings provide support for the results observed in Study 1, which related high levels of project completion to high levels of information concealment. First, we found additional evidence that project completion impacts information concealment at the individual level, thereby ruling out explanations that the effect would only occur in groups. Second, whereas we captured information concealment in Study 1 by qualitatively examining declarative comments made by decision-making groups, Study 2 demonstrated that it is possible to capture intention to conceal information with simple Likert-type questions. While the internal consistency of our information-concealment scale was somewhat low, the effects on information concealment were small to moderate for both project completion ($\eta_p^2 = .07$) and individual investment ($\Delta R^2 = .30$) and explain incremental variance.

While low reliability of a measure might make it more difficult to observe effects, our findings still show significant results.

In further exploring the cause for low reliability, one possible explanation stems from the nature of the concealment items. That is, Items 1, 2, and 5 reference information concealment to the researchers about the current status of the project. These three items also ask about actual behavior (vs. future intentions). Items 3 and 4 ask decision makers about their intention to conceal information from upper management. Thus, the items differ in regard to the target of deception (acknowledging negative information to the researchers vs. upper management), as well as referencing actual behavior versus behavioral intentions.²

Unfortunately, splitting the information-concealment scale into these two facets did not improve reliability (α s = .59 and .60, respectively), but a reanalysis of the data reveals a similar pattern of results to our aforementioned findings. Individuals in the high completion condition were more likely to conceal information about the current status of the project ($M = 3.56$) than were individuals in the low completion condition ($M = 2.89$), $F(1, 143) = 9.38$, $p < .01$, $\eta_p^2 = .06$. Similarly, individuals in the high completion condition indicated that they would be more likely to conceal information to upper management ($M = 3.65$) than did individuals in the low completion condition ($M = 3.14$), $F(1, 143) = 4.79$, $p < .05$, $\eta_p^2 = .03$.

Finally, similar to the results for Hypothesis 3, as the amount of individual investment increased, information concealment about the status of the project ($B = 0.60$, $p < .001$, $\Delta R^2 = .34$) increased. Likewise, as the amount of individual investment increased, information concealment to upper management ($B = 0.26$, $p < .01$, $\Delta R^2 = .06$), also increased. However, the percentage of variance explained when only looking at behavioral intentions was lower. Thus, while respondents are more likely to intend to conceal information to upper management, the effect is not as strong as their actual concealment of information.

While this pattern of findings supports our initial results, there are also indications that the target of deception—as well as intentions versus actual behaviors—impacts the strength of the relationships between project completion, investment behavior, and information concealment. As future research continues to explore the relationship between incremental investment and information concealment, it will be important to tease apart the target of deception from actual versus intended behaviors.

²The authors thank a reviewer for this insight.

Study 3

To extend the findings of Studies 1 and 2, we report the results from a third study. In Study 3, we collected data on decision makers' responses using a longitudinal design.

Method

Participants and Design

The data for Study 3 come from an existing data set collected as part of a larger study designed to examine goal priorities (Humphrey et al., 2004). The already published study focused on the relationship between project completion and changes in goal priorities over time. Although the manipulation of project completion is discussed in both manuscripts, the dependent variable of interest in the present manuscript (i.e., information concealment) was neither analyzed nor discussed in the previously published manuscript. Thus, there is no duplication in the causal relationships between the two manuscripts.

Study participants were 96 full-time MBA students at a large midwestern university, who participated in a month-long decision-making exercise. Participants read and completed the study materials at the beginning of a class period over 4 consecutive weeks. Participants, on average, were 27 years old and possessed an average of 4.5 years of full-time work experience. Approximately 75% of participants were male, 50% were Caucasian American, 8% were Asian American, 5% were African American, and 37% were international students.

The participants completed a management simulation (developed in consultation with subject-matter experts) in which they were managing the construction of a highway in Canada.³ In the scenario, participants served as the supervisor of a highway construction company: Horizon Highway Construction. During the first class period, they were presented with an overview of the scenario, including the specific details of the construction project and the rewards they could receive as supervisor. During the subsequent time periods, participants received updates about the status of the project, including information that would be relevant to a construction project (e.g., "Severe cold weather during parts of the winter season have caused a phenomenon called 'frost heaving' (lifting of the pavement) to affect part of the roadway already completed. Frost heaving occurs in extremely cold locations where the soil is frost-susceptible and freezing temperatures penetrate the subgrade and cause ingress of water").

³For a complete description of the scenario, see Humphrey et al. (2004).

Independent Variable

Level of completion was manipulated by telling participants that the project was 10%, 50%, or 90% complete. This manipulation was aligned with the week the participant was completing the project, such that in Week 2, all participants' projects were 10% complete; in Week 3, all participants' projects were 50% complete; and in Week 4, all participants' projects were 90% complete. For two reasons, we only present the analyses of the 10% and 90% conditions here. First, we wanted to present a design that paralleled the structure of Study 1, which only contained 10% and 90% completion levels. Second, because we expected a linear relationship between project completion and information concealment (Hypothesis 2), only analyzing the 10% and 90% completion levels creates a more optimized research test (McClelland, 1997).

Dependent Variable

Each week, information concealment was measured with the following item: "I would be tempted to conceal negative information about the project, rather than report that information to upper management." Individuals responded on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Results

We tested Hypothesis 2 by running a repeated-measures ANOVA in which level of completion served as the within-subjects factor, and information concealment served as the dependent variable. The results of the analysis show that decision-maker willingness to conceal information significantly increased from the 10% completion level ($M = 2.70$) to the 90% completion level ($M = 2.98$), $F(1, 95) = 3.12$, $p < .05$, $\eta_p^2 = .03$, thereby supporting Hypothesis 2.

Discussion

The results of Study 3 replicate the primary findings of Studies 1 and 2, in that project completion related to level of information concealment. In addition, the results of this study extend generalizability of this finding in an important way. By conducting a within-subjects manipulation of project

completion, we were able to demonstrate that the tendency to conceal information actually increases within decision makers across time, as opposed to resulting solely from cross-sectional manipulations. However, we note that the observed effect is somewhat small, and we were unable to measure actual information presented. Yet, in combination with Studies 1 and 2, we have observed a similar pattern of results that provides additional confidence in our findings.

General Discussion

Recent scandals at organizations such as Enron and Worldcom and reports of behaviors related to expense reporting and stock-option execution have all included an element of concealment. Our present studies make two contributions to the literature on project completion and escalation of commitment. First, we expand consideration of the consequences of completion beyond commitment and into the realm of ethically questionable behavior by examining how completion influences concealment of information by decision makers. Second, we add to a small body of literature that has looked at completion and subsequent escalation of commitment behavior beyond the individual level of analysis (Bazerman, 1984; Leatherwood & Conlon, 1987; Whyte, 1993). Moon et al. (2003) noted that most of the anecdotal examples of escalation of commitment depict group decision-making activities, yet few experimental studies have actually been conducted at the group level of analysis.

Escalation and Information Concealment

Classic research has characterized decision makers as boundedly rational; recent research has similarly characterized decision makers as boundedly ethical. As Bazerman (2006) stated, "When we are motivated to interpret or alter data in a direction that will benefit us, we are not capable of providing others with an objective assessment" (p. 128). In our experiments, decision makers were not simply misinterpreting information that they were given in the scenario; they varied on the degree to which they acknowledged intentions to conceal the negative information. Schweitzer, Ordóñez, and Douma (2004) found similar results in that individuals who overstated their progress to a goal did so by outright lying (and concealing the truth), rather than by miscalculating their progress. They concluded that giving reward-oriented goals to individuals may inadvertently encourage unethical behavior, especially when people are close to completing their goals.

Our study of information concealment provides insight into what might lead groups to be tempted to engage in unethical behavior. Our results suggest that proximity to task completion creates conditions that not only lead groups and individuals to commit more resources to finishing the task, but also lead decision makers to engage in unethical behavior. Our focus on information concealment complements other work that has investigated how being close to a goal can lead to deleterious outcomes. For instance, Schweitzer and Hsee (2002) found that people who were close to goal completion sometimes “stretched the truth” to claim they met a goal, even when they did not in fact do so. Schweitzer and Hsee also mentioned the role that self-justification processes play as an antecedent to deception, which is very relevant in this context.

We recognize that groups and individuals may be motivated to deceive their supervisors and present a less-than-honest representation of the project’s status, not only to make themselves look good, but also to justify to themselves the need to continue funding the project. When a project is nearing its end, pressure to promote a good image to supervisors or customers can be a strong motivation to conceal negative information. In fact, research on realistic job previews has shown that organizations will sometimes omit negative information from a job preview when it is in their self-interest to get a recruit to accept a job; that is, when the recruitment process is near completion (Buckley, Fedor, Carraher, Frink, & Marvin, 1997).

Moreover, the practical implications of our results suggest that the common practice of decision oversight may be complicated by the degree to which decision makers are forthcoming with all of the relevant information related to the decision. It is routine in organizations that decisions are reviewed, approved, or ratified by supervisors, organizational auditors, or senior management (e.g., McNamara et al., 2002). In research on escalation of commitment, there has been less focus on the role of the monitor and the degree to which those with oversight actually receive all of the information relevant to the decision. Thus, the effectiveness of these monitors is altered if the decision makers provide an incomplete or biased presentation of the facts. By exploring the information context surrounding the decision maker’s continued commitment, we open important avenues for managers and those with oversight to question the veracity and completeness of all information disclosures.

Whither Sunk Costs?

A final contribution made by this paper is our consideration of the influence of both sunk costs and completion (independently and interactively) at

the group level of analysis (Study 1). We found that completion had a significant effect, whereas sunk costs had no measurable effect on group escalation of commitment, measured by the group's level of incremental investment in a losing course of action. These findings are consistent with those of Conlon and Garland (1993) and many subsequent studies of individual decision making (e.g., Boehne & Paese, 2000; Garland & Conlon, 1998), as well as a prior study of groups and escalation (Moon et al., 2003). This leads to the question of whether sunk costs play any role in incremental commitment decision contexts.

Despite the preponderance of studies failing to find a sunk-cost effect when sunk costs and completion are independently manipulated in progress decisions, we still refrain from classifying sunk costs as irrelevant in such contexts. A primary reason stems from how sunk costs and completion have been manipulated in prior studies. Moon (2001) noted that it is unclear whether sunk costs have been manipulated as clearly as has project completion in previous research. Typically, respondents in these studies are provided with information stating that the level of completion is 10% or 90%. Such a manipulation is unequivocal in its meaning and influence: Respondents understand that they are close to or far from project completion when such a manipulation is received. In contrast, sunk costs have normally been manipulated by informing respondents that the amount invested thus far equals either \$1 million or \$9 million of a budgeted \$10 million. As pointed out by Moon, it is quite possible that a respondent will view a \$1 million investment as a large sunk cost, without having a \$9 million investment as a referent. Our manipulation check in Study 1 suggests support for this ambiguity argument. Although both the project-completion and sunk-cost manipulations were significant, we note that the sunk-cost manipulation check in the low sunk-cost condition (3.12) was higher than the project-completion manipulation check in the low project-completion condition (1.68).

As noted by Cooper and Richardson (1986), the procedural nonequivalence of experimental manipulations can have strong effects on results. Future research can advance our understanding of sunk costs and completion effects within progress decisions by providing a more balanced, enriched manipulation of both independent variables. In addition, future research should examine the effects of presenting sunk cost and project completion in a consistent fashion (e.g., in terms of percentage of budget and percentage complete vs. dollars spent) to ensure that all decision makers interpret a \$1 million investment as a small percentage of the budget (and \$9 million as a large percentage of the budget), as opposed to a small or large dollar amount in the abstract. More importantly, we encourage researchers to begin to integrate theory regarding the potential interplay between these two anteced-

ents to commitment, the nature of the goal-setting process leading up to an investment decision, and the different types of unethical behaviors (sins of commission vs. sins of omission) with which organizations are most frequently confronted. As suggested by Barsky (2008), the nature of goals and the process by which goals are set may moderate the relationship between commitment and unethical behavior.

Study Limitations

We can take comfort in the fact that our patterns were robust to variations in respondent level (groups vs. individuals), scenario (communication technology vs. highway construction), and type of dependent variable (qualitative statements vs. Likert-type scale). However, we also recognize several limitations in our study. Study 1 used small groups of students who met for a brief time to make a commitment decision. Groups of all sizes in organizations will likely have a history with the organization and greater stakes to consider when making important investment decisions. However, we did find support for information concealment in this context without the influence of group history or future stakes. While Study 3 was longitudinal in nature, it also relied on a student sample (in this case, MBAs rather than undergraduates). Although some would argue that field samples would allow for greater generalizability, it is important to note that we are finding relationships between our variables of interest and are able to make a contribution to the literature by extending typical findings beyond dollars of continued investment and into the realm of information concealment. Manipulating project completion and sunk cost in an organizational setting, and examining the link to information concealment and other unethical acts would certainly call our own experimental ethics into question, yet we recognize the value in conducting future observational studies that would allow for greater exploration into this set of relationships.

We believe, on some level, that no one wants to look bad—either to themselves, their peers, or their supervisors—and, as a result, people will always be motivated to put forward a positive impression. We believe that this pressure can be even greater in the context of the organization, and the likelihood that individuals and groups would engage in information concealment—whether a sin of commission or omission—is something the organization should be monitoring. Because the consequences of information concealment can be quite substantial (e.g., wasteful spending; blatant lies; severe damage to individuals, groups, and an organization's reputation), this is indeed a topic of timely study.

References

- Arkes, H. R., & Blumer, C. (1985). The psychology of sunk cost. *Organizational Behavior and Human Decision Processes*, 35, 124–140.
- Barnes, J. A. (1996). *A pack of lies: Towards a sociology of lying*. Cambridge, UK: Cambridge University Press.
- Barsky, A. (2008). Understanding the ethical cost of organizational goal-setting: A review and theory development. *Journal of Business Ethics*, 81, 63–81.
- Bazerman, M. H. (1984). The relevance of Kahneman and Tversky's concept of framing to organizational behavior. *Journal of Management*, 10, 333–343.
- Bazerman, M. H. (2006). *Judgment in managerial decision making* (6th ed.). Hoboken, NJ: Wiley.
- Boehne, D. M., & Paese, P. W. (2000). Deciding whether to complete or terminate an unfinished project: A strong test of the project completion hypothesis. *Organizational Behavior and Human Decision Processes*, 81, 178–194.
- Bok, S. (1999). *Lying: Moral choice in public and private life* (2nd ed.). New York: Vintage.
- Bozeman, D. P., & Kacmar, K. M. (1997). A cybernetic model of impression management processes in organizations. *Organizational Behavior and Human Decision Processes*, 69, 9–30.
- Brockner, J. (1992). The escalation of commitment to a failing course of action: Toward theoretical progress. *Academy of Management Review*, 17, 39–61.
- Brockner, J., Rubin, J. Z., & Lang, E. (1981). Face-saving and entrapment. *Journal of Experimental Social Psychology*, 17, 68–79.
- Broder, A. (1998). Deception can be acceptable. *American Psychologist*, 53, 805–806.
- Buckley, M. R., Fedor, D. B., Carraher, S. M., Frink, D. D., & Marvin, D. (1997). The ethical imperative to provide recruits realistic job previews. *Journal of Managerial Issues*, 9, 468–484.
- Conlon, D. E., & Garland, H. (1993). The role of project completion information in resource allocation decisions. *Academy of Management Journal*, 36, 402–413.
- Cooper, W. H., & Richardson, A. J. (1986). Unfair comparisons. *Journal of Applied Psychology*, 71, 179–184.
- Cox, A. E., & Walker, O. C. (1997). Reactions to disappointing performance in manufacturer–distributor relationships: The role of escalation and resource commitments. *Psychology and Marketing*, 14, 791–821.

- Davidson, W. N., Jiraporn, P., Kim, Y. S., & Nemecek, C. (2004). Earnings management following duality-creating successions: Ethnostatistics, impression management, and agency theory. *Academy of Management Journal*, *47*, 267–275.
- Drummond, H. (1996). *Escalation in decision-making*. Oxford, UK: Oxford University Press.
- Eisenhardt, K. (1989). Agency theory: An assessment and review. *Academy of Management Review*, *14*, 57–74.
- Fleming, P., & Zyglidopoulos, S. C. (2008). The escalation of deception in organizations. *Journal of Business Ethics*, *81*, 837–850.
- Garland, H., & Conlon, D. E. (1998). Too close to quit: The role of project completion in maintaining commitment. *Journal of Applied Social Psychology*, *28*, 2025–2048.
- Ginzel, L. E., Kramer, R. M., & Sutton, R. I. (1992). Organizational impression management as a reciprocal influence process: The neglected role of the organizational audience. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior* (Vol. 12, pp. 227–266). Greenwich, CT: JAI Press.
- Humphrey, S. E., Moon, H., Conlon, D. E., & Hoffmann, D. A. (2004). Decision-making and behavior fluidity: How focus on completion and emphasis on safety changes over the course of projects. *Organizational Behavior and Human Decision Processes*, *93*, 14–27.
- Keil, M., Mann, J., & Rai, A. (2000). Why software projects escalate: An empirical analysis and test of four theoretical models. *MIS Quarterly*, *24*, 631–664.
- Kirby, S. L., & Davis, M. A. (1998). A study of escalating commitment in principal–agent relationships: Effects of monitoring and personal responsibility. *Journal of Applied Psychology*, *83*, 206–217.
- Latané, B., Williams, K., & Harkins, S. (1979). Many hands make light the work: The causes and consequences of social loafing. *Journal of Personality and Social Psychology*, *37*, 822–832.
- Leatherwood, M. L., & Conlon, E. J. (1987). Diffusibility of blame: Effects of persistence in a project. *Academy of Management Journal*, *30*, 836–847.
- LeGresley, E. M., Muggli, M. E., & Hurt, R. D. (2005). Playing hide-and-seek with the tobacco industry. *Nicotine and Tobacco Research*, *7*, 27–40.
- Lewis, P. V. (1985). Defining business ethics: Like nailing Jell-O to the wall. *Journal of Business Ethics*, *4*, 377–383.
- McClelland, G. H. (1997). Optimal design in psychological research. *Psychological Methods*, *2*, 3–19.
- McNamara, G., Moon, H., & Bromiley, P. (2002). Banking on commitment: Intended and unintended consequences of an organization's attempt to

- attenuate escalation of commitment. *Academy of Management Journal*, 45, 443–452.
- Messick, D. M. (1999). Dirty secrets: Strategic uses of ignorance and uncertainty. In L. L. Thompson, J. M. Levine, & D. M. Messick (Eds.), *Shared cognition in organizations: The management of knowledge* (pp. 71–88). Mahwah, NJ: Lawrence Erlbaum.
- Moon, H. (2001). Looking forward and looking back: Integrating completion and sunk-cost effects within an escalation of commitment progress decision. *Journal of Applied Psychology*, 86, 104–113.
- Moon, H., Conlon D. E., Humphrey S. E., Quigley, N., Devers, C. E., & Nowakowski, J. M. (2003). Group decision process and incrementalism in decision-making. *Organizational Behavior and Human Decision Processes*, 92, 67–79.
- Murphy, S. P. (2005). Big Dig chooses repair for leak. *Boston Globe*. Retrieved July 13, 2005, from http://www.boston.com/news/traffic/bigdig/articles/2005/06/22/big_dig_chooses_repair_for/
- O'Connor, K. M., & Carnevale, P. J. (1997). A nasty but effective negotiation strategy: Misrepresentation of a common-value issue. *Personality and Social Psychology Bulletin*, 23, 504–515.
- Ortmann, A., & Hertwig, R. (1997). Is deception acceptable? *American Psychologist*, 52, 746–747.
- Palmbloom, G. G., Willems, D. L., Janssen, N. B. A. T., & de Haes, J. C. J. M. (2007). Doctor's views on disclosing or withholding information on low risks of complication. *Journal of Medical Ethics*, 33, 67–70.
- Schweitzer, M. E., & Croson, R. (1999). Curtailing deception: The impact of direct question on lies and omissions. *International Journal of Conflict Management*, 10, 225–248.
- Schweitzer, M. E., & Hsee, C. K. (2002). Stretching the truth: Elastic justification and motivated communication of uncertain information. *Journal of Risk and Uncertainty*, 25, 185–201.
- Schweitzer, M. E., Ordóñez, L., & Douma, B. (2004). Goal setting as a motivator of unethical behavior. *Academy of Management Journal*, 47, 422–432.
- Staw, B. M. (1976). Knee deep in the big muddy: A study of escalating commitment to a chosen course of action. *Organizational Behavior and Human Performance*, 16, 27–44.
- Staw, B. M. (1997). The escalation of commitment: An update and appraisal. In Z. Shapira (Ed.), *Organizational decision making* (pp. 191–215). New York: Cambridge University Press.
- Staw, B. M., & Ross, J. (1987). Behavior in escalation situations: Antecedents, prototypes, and solutions. In L. L. Cummings & B. M. Staw (Eds.),

- Research in organizational behavior* (Vol. 9, pp. 39–78). Greenwich, CT: JAI Press.
- Staw, B. M., Sandelands, L. E., & Dutton, J. E. (1981). Threat-rigidity effects in organizational behavior: A multilevel analysis. *Administrative Science Quarterly*, 26, 501–524.
- Street, M., Robertson, C., & Geiger, S. (1997). Ethical decision making: The effects of escalating commitment. *Journal of Business Ethics*, 16, 1153–1161.
- Tan, H. T., & Yates, J. F. (1995). Sunk cost effects: The influence of instruction and future return estimates. *Organizational Behavior and Human Decision Processes*, 63, 311–319.
- Unlearned lessons from Barings*. (n.d.). Retrieved November 14, 2003, from <http://www.karvy.com/articles/baringsdebacle.htm>
- Whyte, G. (1993). Escalating commitment in individual and group decision making: A prospect theory approach. *Organizational Behavior and Human Decision Processes*, 54, 430–455.