The Signaling Value of Input Information: Performance Effects of Task Difficulty and Effort Sensitivity

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Abstract

We investigate how the reporting of input information to managers affects employee performance, and how the signaling value of inputs for impression management moderates this effect. We develop theory to predict that the information content of input information (incremental to output measures), and thus its potential for impression management, will depend separately on both the difficulty of the task and the sensitivity of performance to effort. Across three experiments, we predict and find the reporting of input information significantly increases employee effort and performance in difficult relative to easy tasks and in low relative to high effort sensitivity tasks. Our study contributes to the literature on input reporting as a management control system, highlighting contextual features managers should consider when navigating the tradeoffs between the costs and benefits of gathering information about employees' effort inputs.

1. Introduction

Management control systems typically rely on output information to measure and evaluate the performance of individuals, groups, and the firm as a whole (e.g., Kaplan and Norton 1996; Ittner and Larker 2003; Merchant 2007; Merchant and Van der Stede 2007). Advances in technology and measurement, however, have increased the availability of information about effort *inputs* (Arnold et al. 2020; Holderness et al. 2020; Hunter 2021; Thomas and Thornock 2021). While research in accounting and economics has explored the contracting benefits of input information (e.g., Milgrom and Roberts 1992; Prendergast 1999; Baker et al. 1994; Ittner and Larcker 2001), less is known about how the provision of input information to managers may affect employees' behavior. We examine how input reporting (specifically, time devoted to the task) affects employee effort and performance, and how this effect depends on the signaling value of input information for the purpose of impression management.

Performance monitoring by managers can act as a control to affect employees' behavior. This monitoring can take various forms, ranging from objective input reports to "loose monitoring" and "management-by-walking-around" (Chow et al. 1995; Simons 1995; Campbell et al. 2011; Holderness et al. 2022; Martin and Thomas 2022; Casas-Arce et al. 2025). Prior work finds that the mere presence of another can motivate individuals to show themselves in a positive light and manage the other's opinion. This motivation is referred to as impression management (Leary and Kowalski 1990; van Rompay et al. 2009). Relatedly, research in accounting has investigated the effects of input information on employees' behavior in teams. Arnold et al. (2020) find that input information available to team members (but not to the manager) about other team members' contributions increases team performance. Thomas and Thornock (2021) find that input information about a team member's contribution to team

production increases future team contributions for prosocial individuals but decreases future team contributions for proself individuals, relative to output information. Both of these studies investigate the effect of input information available to *employees* on *team* performance. In contrast, in this study we seek to examine how the reporting of input information to the *manager* influences *individual* performance. We argue that, holding all else constant, the provision of input information to managers increases employees' individual effort and performance relative to output reporting alone, and that this effect depends on the likelihood that input information will influence the manager's impression (that is, its signaling value). We specifically consider two related but distinct task features along which the signaling value of input information is likely to vary: task difficulty and effort sensitivity.

In easy tasks where success is likely, employees will perceive input information as having lower signaling value (relative to the signaling value in difficult tasks) because they expect managers will not look beyond the successful outcome when forming impressions of the employee (e.g., Brown and Solomon 1987; Libby and Luft 1993; Lipe 1993). However, in difficult tasks where success is unlikely, employees will perceive input information as having higher signaling value (relative to the signaling value in easy tasks) because input information can be used as evidence of hard work despite failure. Accordingly, we predict that reporting of input information will motivate greater effort in a high difficulty task compared to a low difficulty task, because input information is perceived to provide more instrumental information to managers about employees' effort inputs when task difficulty is high relative to when it is low.

We also expect the signaling value of input information to vary with effort sensitivity, or the relationship between effort inputs and performance outcomes (Bandura 1982; Liu and Li 2018). In high effort sensitivity tasks, employees will likely perceive input information as having

lower signaling value (relative to the signaling value in low effort sensitivity tasks) because output information already provides managers with a clear indicator of employee effort. However, in low effort sensitivity tasks, where there is uncertainty about whether greater effort will lead to greater performance (Bandura 1982; Liu and Li 2018), employees will likely perceive input information as having higher signaling value (relative to the signaling value in high effort sensitivity tasks), because input information can be used as evidence of hard work even if output information does not convey that signal (Frink and Ferris 1998; Bolino et al. 2008; Dubrin 2010). Accordingly, we predict the reporting of input information will motivate greater effort in a low effort sensitivity task compared to a high effort sensitivity task, because input information is perceived to provide more information to managers about employees' effort inputs (incremental to output information alone) when effort sensitivity is low relative to when it is high.

We test our predictions in three experiments, each employing a 2 × 2 design in which input reporting and the signaling value of input information for impression management are manipulated. In Experiment 1, participants complete an abstract effort-choice task in which they assume the role of an employee exerting effort toward a performance target important to the firm. We manipulate input reporting (with common knowledge) by varying whether or not the manager views participants' effort (input) choice. We manipulate the signaling value of input information, specifically task difficulty, by varying the initial likelihood of target achievement as either low or high. We inform all participants that the manager will observe output, and, for half of our participants, input information, but will not make any related decisions. For Experiment 1, we hold effort sensitivity constant and focus only on the task difficulty dimension of the signaling value of input information. We find that when their effort choice will be reported to the

manager, employees choose a higher effort level when task difficulty is high but not when it is low, in support of our hypothesis.

Experiment 2 follows the procedures of Experiment 1, but we hold constant task difficulty and manipulate the signaling value of input information by varying effort sensitivity. Effort sensitivity in Experiment 2 is either low or high, based on a random noise factor that distorts employees' reported performance. We find that when participants' input information is reported, participants choose a higher effort level when effort sensitivity is low compared to when it is high, consistent with our hypothesis.

As with Experiments 1 and 2, Experiment 3 manipulates input reporting as well as the signaling value of input information in a 2 × 2 design. However, in Experiment 3 we use a real-effort task and vary the signaling value of input information via a manipulation that adjusts both task difficulty and effort sensitivity. Specifically, participants work toward a target for a bonus, engaging in either an inherently easy and high effort sensitivity *letter search task* or in a more difficult and low effort sensitivity *remote associates test*. Results provide additional support for our hypotheses: performance increases for participants working on the difficult, low effort sensitivity task when they know their manager will view their effort. Interestingly, although this effect is not observed *on average* with the easy, high effort sensitivity task (consistent with our theory), we do find evidence that the reporting of input information increases performance for participants who *perceive* this task as relatively more difficult and less sensitive to effort, further supporting our hypotheses.

Our study contributes to the management control literature in accounting by providing insights into how the reporting of input information affects employees' behavior. Our experiments demonstrate that employees respond to changes in the reporting regime even in

settings without explicit, input-based incentives. Further, our results show that these effects depend on a key construct that heretofore has been largely overlooked: the signaling value of input information for impression management purposes. Specifically, employees increase their effort when input information has high signaling value (either due to the high difficulty or the low effort sensitivity of the task), but not when input information has low signaling value, suggesting important nuances in how input reporting may be used to motivate employees. Gathering data about employee efforts is costly. Thus, rather than assume effort information will add value beyond more easily observable performance outcomes, managers may benefit by understanding how the motivational value of effort information is correlated with its perceived signaling value. Specifically, our results suggest that a firm's investment in input measurement will be more worthwhile when tasks are more difficult and/or when they are less sensitive to effort because the motivational value of input information is higher in these settings. This finding is notable given that the uncertain relationship between effort and performance in complex tasks often makes motivating employees challenging. Our results suggest that for these tasks, employees can be motivated by knowing their managers see the extent to which they are trying to complete the task, even if success is unlikely or if the link from effort to performance is weak. In contrast, managers are less likely to observe an effort increase from the costly gathering of input information on easier or less complicated tasks.

Finally, our results suggest potential benefits of input reporting for those being monitored. For example, our results suggest that new external reporting standards relating to inputs recently adopted by the PCAOB (specifically, the allocation of audit hours, an input) could influence input allocation at both the firm and individual level (PCAOB 2024). Additionally, our results suggest that while employees tend to dislike being monitored (Kantor

and Sundaram 2022), monitoring mechanisms in some settings may benefit employees by providing a signaling opportunity when tasks are difficult or are insensitive to effort (Harmick et al. 2024).

2. Background and hypothesis development

2.1. Reporting input information

Performance reporting can include numerous types of information about employees' behavior. Measures of employees' performance *outcomes* are typically a key component, as they provide information about the firm's ultimate objectives and are relatively easy to gather (e.g., Kaplan and Norton 1996; Ittner and Larker 2003; Merchant 2007; Merchant and Van der Stede 2007). However, measurement of employee *inputs* (e.g., reporting of billable hours, time at the office, worklogs, time spent on training modules, call duration, ticket processing, keystroke tracking, inter-employee communication, etc.) is common in many settings, raising important empirical questions about how such measures affect employee behavior (Arnold et al. 2020; Hunter 2021; Harmick et al. 2024; Cai, Campbell, and Yu 2025). Recent research has examined how team production is affected when employees have information about the inputs of other team members (Arnold et al. 2020; Thomas and Thornock 2021). However, there is a paucity of research examining how individual performance is affected when input information is made available to the manager. We argue that input measures available to the manager are likely to affect employees' behavior by triggering consideration of what that information conveys about them and their actions.

Performance monitoring by managers can act as an action control to influence employees' actions and has been shown to reduce adverse behavior (Jackson and Zedeck 1982, Shalley and Oldham 1985, Eisenhardt 1989, Simons 1995). Organizations use various forms of

formal monitoring to influence behavior (e.g., Chow et al. 1995, Campbell et al. 2011, Holderness et al. 2022, Martin and Thomas 2022, Casas-Arce et al. 2025). Examples of "loose" monitoring include reviewing performance information to gain insights about the actions employees have taken along with the resulting outcomes, as well as "management-by-walking-around," in which managers observe processes informally at varying times or stages (Tucker and Singer 2014, Casas-Arce et al. 2025). Importantly, even when inputs are verifiable, they are not typically contractible (otherwise firms could simply contract on inputs rather than outputs, reducing employee risk [Holmstrom and Milgrom 1991]). When inputs are contractible, firms may still opt to contract only on outputs to avoid unintended consequences, such as surrogation (Choi et al. 2012; 2013).

Input measures often provide information about employee effort that outcome measures do not. We argue that the provision of input information to managers affects employees' motivation to manage impressions so as to be viewed in the best light possible, regardless of performance outcomes. Social facilitation research shows that the presence of another, whether real or merely implied, can induce impression management tendencies that motivate individuals to display themselves in a positive light (Zajonc 1965; Leary and Kowalski 1990; Hannan, Rankin, and Towry 2006; van Rompay et al. 2009; Moon, Gan, and Critcher 2020), and that this form of impression management can be heightened with accountability and/or performance evaluation (Frink and Ferris 1998; Bolino et al. 2008). Thus, when employees are aware that input information will be reported to the manager, they are likely to be motivated to work hard to build a positive impression of them as a worker (Bolino et al. 2008; Dubrin 2010).[1] Importantly,

[1] A notable potential exception to this tendency is seen with respect to the *naturalness bias*, where managers reward employees even more for performing well while exerting lower effort (high outputs with low inputs) than they do for success via hard work (Tsay and Banaji 2011). This tendency to reward "natural" ability as opposed to "striving"

we expect this increased motivation to arise even when the manager's knowledge of employee effort has no implications for the employees' compensation or promotion opportunities.[2]

Moreover, prior research suggests that controls can influence employees differently depending on characteristics of the task they are performing (Abernethy and Brownell 1997; Stewart and Barrick 2000; Bonner and Sprinkle 2002; Bonner 2008). As such, we argue that the effect of input reporting on employees' effort motivation will depend on their perceptions of the signaling value of the input information for impression management, and that features of the work in which they are engaged influence those perceptions. Specifically, we develop theory to predict that employees' perceptions of the signaling value of input reporting, and thus its influence on their effort, will vary with both task difficulty and effort sensitivity.[3,4]

2.2 Task Difficulty

As we define the term here, low (high) difficulty tasks are associated with a higher (lower) initial likelihood of successful completion.[5] Theories of intrinsic motivation and the

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is seen in multiple domains (Tsay 2016), but the effect is highly context-dependent (Brown et al. 2018) (specifically, strivers—as opposed to naturals—are favored when evaluators have domain experience, when future cooperative endeavors are expected, or when being evaluated based on likely performance in novel tasks). Relatedly, managers may reward high output with low effort to reward employee efficiency. Though investigation of a potential impact of employees' response to managers' susceptibility to a naturalist bias or their preference for efficiency is beyond the scope of the current study, we discuss the implications of this possibility for future research in the Conclusion.

[2] Our focus is on "real" impression management, or attempts to influence manager impressions through costly actions that have expected benefits, rather than cheap talk, puffery, lying, or selectively disclosing information. Such alternative methods of impression management are beyond the scope of this paper.

[3] Task difficulty, as defined in prior research (Bonner 1994, 2008), is associated with the concept of task complexity, focusing on the resources required by an individual to engage in a task. In Experiment 3, our operationalization of task difficulty is in line this literature. However, difficulty and effort sensitivity represent conceptually distinct constructs relating to task experience—the former reflects perceived challenge, while the latter reflects the relation between effort and performance. We decouple these two constructs in Experiments 1 and 2.

[4] Effort is a multidimensional construct, incorporating duration, intensity, direction, and strategy development (Bonner and Sprinkle 2002). In this study, we only consider inputs that can, in some way (formally or informally) be reported. Examples of reportable behaviors include being present in the office, billable hours, keystrokes, and sales calls. Effort intensity is less observable, and as such, is less reportable. We make no prediction regarding effort/input changes that cannot be reported.

[5] We define task difficulty as the baseline likelihood of success, independent of workers' efforts, in order to isolate this construct from effort sensitivity. This allows us to test theory about the effects of these as separate task features. As we acknowledge and examine further in Experiment 3, task difficulty and effort sensitivity are often conflated in real-world settings.

challenge-skill balance suggest that employees will be more motivated to work hard on a difficult but achievable task than on a low difficulty task on which success is likely even without high effort (Deci and Ryan 2000; Fong et al. 2015). However, prior work has shown that when task difficulty is at a level that successful task completion seems unattainable, this can limit employees' motivation to exert effort toward the goal (Locke and Latham 1990, 2002). Prior work has not investigated whether differences in effort levels between low and high difficulty will manifest in the absence or presence of input reporting.

In the presence of input reporting, we expect employee effort to be influenced by the signaling value of the input information, which differs between low and high difficulty tasks. Specifically, employees working on a low difficulty task are not likely to perceive strong signaling value to the input information, given the high likelihood of success (which will be reported via output information). Research on outcome effects suggests managers are likely to draw inferences about employees' effort inputs by observing performance output (Brown and Solomon 1987; Libby and Luft 1993; Lipe 1993), and this effect is likely to be seen as working in employees' favor when task difficulty is low. As such, we do not expect employees working on a low difficulty task to significantly increase their effort in response to input reporting relative to output reporting alone.

In contrast, since success on a high difficulty task is inherently less likely, employees are likely to perceive the provision of input information as having higher potential signaling value for impression management, since input information can provide evidence of the employees' effort exertion on the task even if overall performance (as reported in the output information) falls short. The elevated signaling value of input information will in turn motivate employees to exert greater effort to at least demonstrate their hard work in the event of performance shortfalls.

Thus, contrary to our expectations in a low task difficulty setting, we predict that employees in a high task difficulty setting will perceive higher potential signaling value of input information and, accordingly, will increase their effort in the presence of input reporting.

H1*: The positive effect of the reporting of input information on employee effort and performance is greater under high task difficulty than under low task difficulty.*

2.3 Effort sensitivity

In addition to task difficulty, the sensitivity of performance to effort within the task can influence employees' perception of the signaling value of input information for impression management purposes. For some tasks, there is a strong relationship between effort exertion and reported output, such that it is clear to employees that as they increase effort, reported output will also increase (and vice versa). These tasks are high in *effort sensitivity*, or the perception that an individual's effort and/or capabilities will result in increased job performance (Bandura 1982; Liu and Li 2018). For example, if the reported output for an employee is "technical support calls answered", the number of "calls answered" (a primary input) mirrors output. Employees performing these types of tasks can be motivated by various controls, especially output-based incentives (Campbell et al. 2011; Kelly et al. 2015; Choi et al. 2018; Burt et al. 2020; Holderness et al. 2022). Conversely, some tasks are low in effort sensitivity: the connection between effort and output is tenuous (Stone 1994; Bonner et al. 2000; Holderness et al. 2024). For example, if the measure of output for an employee is "telemarketing *sales* made", the number of "*calls* made" (a primary input) is not necessarily well-reflected in output.

According to expectancy theory, in the absence of input reporting, employees are likely to provide greater effort on a high effort sensitivity task than a low effort sensitivity task, all else equal (Vroom 1964). When a high effort sensitivity task is performed, reported output is a relatively strong indicator of effort, providing an expectancy-based motivation for employees to

work hard. In contrast, when a low effort sensitivity task is performed, the relationship between effort and output is weak, reducing expectancy-based motivation since employees face greater uncertainty about the effort-output relationship. Thus, we expect that when input reporting is absent, employees will exert greater effort on a high effort sensitivity task than a low effort sensitivity task.

When input reporting is present, employees' perception of the signaling value of this information for impression management will also depend on the effort sensitivity of the task. With high effort sensitivity tasks, input measures provide little incremental information about employee effort: output information is already a strong signal of inputs. Thus, the signaling value of input information in high effort sensitivity tasks is low. In other words, input information does not provide significant incremental information beyond what is provided by output information. As such, employees are less likely to anticipate benefits from seeking to manage impressions through increased effort. Conversely, for low effort sensitivity tasks, input measures can provide significant incremental information to managers regarding employee effort. In low effort sensitivity tasks, output information is a weak signal of inputs (i.e., there is uncertainty for employees as to whether changes in effort will manifest in changes in performance [Bandura 1982; Liu and Li 2018]). Thus, the signaling value of input information in low effort sensitivity tasks is high. As such, employees are more likely to anticipate benefits from seeking to manage impressions through increased effort. Indeed, this input information may be the only way the manager will know that the employee engaged in high effort.[6] Accordingly, we argue that in a

[6] In a related study, Arnold et al. (2018) find evidence that, when recommending how to allocate a bonus pool, low ability workers prefer a focus on inputs while high ability workers prefer a focus on outputs. In their study, the manipulation of ability is a change in the productivity coefficient of effort, i.e., effort sensitivity. They find that employees who have lower ability (operationalized by performing a low effort sensitivity task) prefer an input-based allocation more than those with higher ability (operationalized by performing a high effort sensitivity task).

low effort sensitivity task, the reporting of input information will motivate greater effort than when input information is not reported, and that this increase in effort with input reporting is greater compared to that seen in a high effort sensitivity task.

H2: *The positive effect of the reporting of input information on employee effort and performance is greater on a low effort sensitivity task relative to a high effort sensitivity task.*

Table 1 provides a mapping of how task difficulty and effort sensitivity relate to the signaling value of input reporting per our theoretical development.

[Insert Table 1 here]

3. Experimental design

3.1. Overview – Experiment 1

Experiment 1 employs an abstract effort-choice task setting in which participants choose an effort level to achieve a performance target, with performance information being reported to a hypothetical manager. In a randomized 2 × 2 between-participants design we manipulate two factors: 1) *Task Difficulty* (whether the likelihood of target achievement is relatively high or low); and 2) *Input Reporting* (whether the effort choice [i.e., input information] is absent or present in the report provided to the manager).

3.1.1. Detailed Procedures

Participants are instructed to assume the role of an employee charged with choosing a level of effort in order to meet a performance target that is important to the company. Greater levels of effort increase the likelihood the target will be achieved, but effort is costly.[7] Effort choice options range from 1 to 10, with the cost increasing in effort level from 0 Lira (for effort

[7] In order to focus on the theoretical mechanism of interest, we do not tie compensation to target achievement.

levels 1 and 2) up to 170 Lira (for effort level 10).[8] The cost of the selected effort level is subtracted from participants' base pay in calculating final compensation.

For participants assigned to the *high task difficulty* condition, the likelihood of achieving the target starts at 1% at the lowest level of effort and increases 1% for each incremental level of effort up to 10% at the maximum. For those assigned to the *low task difficulty* condition, the lowest likelihood of achieving the target is 90% with minimum effort and 99% with maximum effort.

Participants are informed that the manager will receive a performance report showing whether they achieved the target. Those assigned to the *input reporting present* condition are told that the manager will also see the effort level they selected. Participants are informed that in addition to this information, the manager will see the average level of these measures for the other employees. We include this design feature to increase the realism of the setting and to make participants aware that the manager will have baseline information for comparison.[9]

Participants answer a number of comprehension check questions and make their effort choice selection. They then answer post-experimental questions regarding how concerned they are about the manager's opinion of them, as well as the factors that affected their effort selection.[10] Finally, they provide demographic information to complete their participation.

[8] Lira, our experimental currency, is exchanged for US$ at the end of the study at a rate of $1 per 500 Lira.
[9]This feature of the experiment could be seen as representing a weak form of relative performance information (RPI), potentially introducing effects relating to social comparison (Festinger 1954; Suls and Wheeler 2000; Tafkov 2013). Because our predictions do not rely on social comparison theory, we conduct a supplemental Experiment 1B in which no mention of other employees is made (discussed in Section 3.1.4).
[10] To maintain experiment control, participants do not interact with the manager. This design choice biases against our finding support for our hypotheses, because the more participants interact with their manager the more they are likely to care about managing impressions (Hannan, Rankin, and Towry 2008).

3.1.2. Participants

We administer Experiment 1 using the Amazon Mechanical Turk platform.[11] Using the MTurk Toolkit at the CloudResearch service (Litman, Robinson, and Abberbock 2018), we constrain our sample to US-based participants with a minimum 95% approval rating and at least 500 successfully completed tasks. To help ensure the reliability of our data, CloudResearch blocks responses from suspicious geolocations, duplicate geolocations, and duplicate IP addresses (Dennis et al. 2020, Kennedy et al. 2020, Ahler et al. 2021).[12] Consistent with research on the reliability of MTurk data (Thomas and Clifford 2017), we proceed only with participants who correctly acknowledge that their assigned task is at least relatively difficult (*high task difficulty*) or easy (*low task difficulty*), respectively. Our sample consists of 158 participants, 51 percent of whom are female. Participants, on average, are 40 years old and have 17 years of work experience. Participants are paid a fixed amount of $0.50 for completing the task and an average bonus of $0.25, based on their remaining salary after their effort choice (i.e., converting Lira to US$). The study took 3 minutes to complete.

3.1.3 Results

H1 predicts that input reporting will lead to a greater effort increase in a high difficulty task than in a low difficulty task. Effort choice means and statistical analyses are presented in Table 2, with means presented visually in Figure 1. Since H1 predicts an interaction of a specific form, we first use a planned contrast to provide a general test (Guggenmos, Piercey, and Agoglia 2018). We use contrast weights of −1, −1, −1, +3, representing (respectively) the following conditions: *input reporting absent*/*low task difficulty*, *input reporting absent*/*high task difficulty*,

[11] All experiments reported here were approved by the appropriate Institutional Review Boards.
[12] Hauser et al. (2023) provide evidence that the vetting process of the CloudResearch service overcomes the deficiencies of MTurk's own approval rating system, providing additional assurance as to the reliability of our data.

input reporting present/*low task difficulty*, *input reporting present*/*high task difficulty*.[13] As shown in Table 2, Panel B, the contrast is significant (F = 6.84, p = 0.01), with insignificant residual between-cells variance (F = 0.46, p = 0.63) and a q^2 statistic of 0.12.[14, 15] This result supports H1.

[Insert Table 2 here]

[Insert Figure 1 here]

Simple effect tests (Table 2, Panel D) provide further detail. We find a significant effect of input reporting under high task difficulty (p = 0.05),[16] with participants selecting higher effort when input information is reported. In contrast, we find no effect of input reporting under low task difficulty (p = 0.75). These results provide further support for H1.

In addition to eliciting their effort choices, we ask participants in the *input reporting present* condition to rate their agreement with the statement, "Knowing the manager would see my effort choice affected my choice of effort level." Results show participants in the *high task difficulty* condition agree more with this statement than those in the *low task difficulty* condition (untabulated; p = 0.07). Additionally, we ask participants, "How much do you care about what

[13] Prior research suggests employees may be more motivated to work hard on a difficult but achievable task than on a low difficulty task on which success is likely even without high effort (Deci and Ryan 2000; Fong et al. 2015). However, this difference disappears at the boundary conditions where task difficulty is high enough that successful task completion seems unlikely (Locke and Latham 1990, 2002). Because this result is tied closely to the parameterization of task difficulty, we make no prediction regarding effort differences under high versus low task difficulty settings when input information is not reported.

[14] For robustness, we also test an alternative ordinal interaction using contrast weights of −2, −2, +1, +3, to test for a positive, though smaller, effect of input reporting in the *low task difficulty* setting relative to a *high task difficulty* setting (Table 2, Panel C). This contrast is also significant (F = 4.20, p = 0.04), with insignificant residual between-cells variance (F = 1.78, p = 0.17) and a q^2 statistic of 0.46.

[15] We also test a General Linear Model with *Input Reporting* and *Task Difficulty* as independent variables and *Effort* as the dependent variable (Table 2, Panel D). Though we do not find a significant ordinal interaction between *Input Reporting* and *Task Difficulty* (p = 0.18), as noted above, the simple effects are consistent with an ordinal interaction as predicted by our theory.

[16] Reported p-values are one-tailed for tests analyzing directional predictions.

the manager thinks of you?" using a 10-point response scale with endpoints labeled "Not at all" and "A great deal." As shown in Table 2, Panel E, with a General Linear Model we find a significant interaction between *Input Reporting* and *Task Difficulty* on this measure (*Care Manager*) ($p = 0.05$). Simple effect tests reveal this interaction is driven by the effect of *Task Difficulty* among participants in the *input reporting present* condition ($p = 0.02$); participants indicated caring significantly more about what the manager thought under *high task difficulty* than *low task difficulty*. The effect of *Task Difficulty* among participants in the *input reporting absent* conditions is not significant (untabulated; $p = 0.77$). This result provides further support for H1: participants in the *input reporting present*/*high task difficulty* condition report caring more what the manager thinks of them, likely because they believe their chosen effort level in this setting will influence management perceptions. In other words, employees tend to care more about what they can influence more, and they believe they can influence management perceptions more when inputs are reported and task difficulty is high.

3.1.4 Supplemental Experiment 1B

Participants in all three of our primary experiments are informed that the manager will receive aggregate (average) information about other employees, providing managers with a baseline for evaluation purposes. We include this design feature to increase the external validity of the experiment and generalizability of our findings (in many real-world settings, managers have a general expectation of employee performance based on historical trends or peers). However, this feature could be seen as introducing a weak form of relative performance information (RPI) into the setting, potentially inducing social comparison effects (Festinger 1954; Suls and Wheeler 2000; Tafkov 2013). Because our predictions do not rely on social

comparison theory, and to remove any potential confounds, we conduct a supplemental Experiment 1B in which no mention of other employees is made.

We administer Experiment 1B using the same Amazon MTurk participation criteria as Experiment 1. Our sample consists of 430 participants, 39 percent of whom are female. Participants, on average, are 44 years old and have 19 years of work experience. Participants are paid a fixed amount of $0.50 for completing the task and an average bonus of $0.25 based on their remaining salary after their effort choice (i.e., converting Lira to US$). The study took an average of three minutes to complete.

Results from this supplemental experiment (untabulated) are inferentially identical to those of Experiment 1. Specifically, we use the same planned contrast as in Experiment 1, with contrast weights of −1, −1, −1, +3, representing (respectively) the following conditions: input reporting absent/low task difficulty, input reporting absent/high task difficulty, input reporting present/low task difficulty, input reporting present/high task difficulty. The contrast is significant ($F = 7.51$, $p < 0.001$), with insignificant residual between-cells variance ($F = 0.97$, $p = 0.38$) and a q^2 statistic of 0.21.[17] Simple effect patterns are also identical to those seen in Experiment 1. We find a significant effect of input reporting under high task difficulty ($p = 0.03$), with participants selecting higher effort when input information is reported. In contrast, we find no effect of input reporting under low task difficulty ($p = 0.46$). These results provide further support for H1 and suggest that social comparison effects arising from RPI do not explain the results we observe in our primary experiments.

[17] As in experiment 1, using a General Linear Model we find a significant interaction between Input Reporting and Task Difficulty on *Effort* ($p = 0.05$).

3.2. Overview – Experiment 2

Experiment 2 employs the same abstract effort-choice task setting as in Experiment 1, except that we manipulate the sensitivity of performance to effort and hold task difficulty constant. In a randomized 2 × 2 between-participants design we manipulate two factors: 1) *Effort Sensitivity* (whether the sensitivity of production to effort is relatively high or low); and 2) *Input Reporting* (whether the effort choice [i.e., input information] is absent or present in the report provided to the manager).

3.2.1. Detailed Procedures

As in Experiment 1, participants make a costly effort choice selection to achieve a production target. An expected production output for each effort level is provided, but participants are informed that their production will include a random noise factor that can either increase or decrease (with equal likelihood) the total reported output. For participants assigned to the *low* (*high*) *effort sensitivity* task, the random noise factor ranges from -30 to +30 (-3 to +3).

3.2.2. Participants

We administer this study on the MTurk platform using the same sampling method as in Experiment 1. Our sample consists of 201 participants, 45 percent of whom are female. On average, participants are 41 years old and have 17 years of work experience. We pay participants a fixed amount of $0.50 for completing the task and an average bonus of $0.25 based on the remaining salary after their effort choice (using the same Lira to US$ conversion rate as Experiment 1). The study took slightly more than 3 minutes to complete.

3.2.3 Results

H2 predicts input reporting will lead to a greater increase in effort in a *low* versus *high effort sensitivity* task. Effort choice means and statistical analyses are presented in Table 3, with

means presented visually in Figure 2. We again use a planned contrast to conduct a general test of H2 and the specific form of the interaction it predicts. The planned contrast also captures our expectation, as discussed in the development of H2, that employees will be more motivated under a *high effort sensitivity* task than a *low effort sensitivity* task when input reporting is absent, as there is less uncertainty that efforts will be reflected in performance. We use contrast weights of +1, −3, +1, +1, representing the following conditions, respectively: *input reporting absent*/*high effort sensitivity, input reporting absent*/*low effort sensitivity, input reporting present*/*high effort sensitivity, and input reporting present*/*low effort sensitivity*. As shown in Table 3, Panel B, the contrast is significant (F = 3.40, p = 0.07), with insignificant residual between-cells variance (F = 0.69, p = 0.50) and a q^2 statistic of 0.30.[18] This result supports H2.[19]

[Insert Table 3 here]

[Insert Figure 2 here]

Simple effect tests are presented in Table 3, Panel D. We find a significant effect of *Input Reporting* in the *low effort sensitivity* task (p = 0.03), with participants selecting higher effort when input information is reported. In contrast, we find no effect of *Input Reporting* in the *high effort sensitivity* task (p = 0.36). We also find an effect of *Effort Sensitivity* in the *input reporting absent* conditions, with participants selecting higher effort under *high* versus *low effort sensitivity* (p = 0.04). This is consistent with our expectancy-based prediction that, in the absence

[18] Again, for robustness, we test an alternative ordinal interaction using contrast weights of +2, −3, −1, +2, to test for a smaller positive effect of input reporting in the *high effort sensitivity* setting relative to a *low effort sensitivity* setting (Table 3, Panel C). This contrast is also significant (F = 4.71, p = 0.03), with insignificant residual between-cells variance (F = 0.04, p = 0.96) and a q^2 statistic of 0.02.

[19] We also analyze a General Linear Model with *Input Reporting* and *Effort Sensitivity* as independent variables and *Effort* as the dependent variable (Table 3, Panel D). We find a significant interaction between *Input Reporting* and *Effort Sensitivity* (p = 0.02) and as noted above, the simple effects support our prediction of an ordinal interaction.

of input reporting (and its differential impression management motivations), employees will exert greater effort when task performance is more sensitive to their effort (Vroom 1964).

As in Experiment 1, we ask participants in the *input reporting present* conditions to rate their agreement with the statement, "Knowing the manager would see my effort choice affected my choice of effort level." Results show participants in the *low effort sensitivity* condition agree more with this statement than those in the *high effort sensitivity* condition (untabulated; $p = 0.05$). Additionally, using a General Linear Model with participant responses to the question "How much do you care about what the manager thinks of you?" as the dependent measure, we find a significant interaction between *Input Reporting* and *Effort Sensitivity* (Table 3, Panel E; $p = 0.05$). Simple effects show a directional effect of *Input Reporting* among participants in the *low effort sensitivity* condition that approaches significance ($p = 0.12$), consistent with those completing a *low effort sensitivity* task caring more about what their manager thinks with input reporting than without. In contrast, the effect of *Input Reporting* among participants in the *high effort sensitivity* condition is not significant ($p = 0.26$). These results provide further (albeit moderate) support for the impression management theory underlying H2: participants in the *input reporting present*/*low effort sensitivity* condition report caring more what the manager thinks about them, likely because they believe their chosen effort level in this setting will influence managers' perceptions.

3.3. Overview – Experiment 3

As an additional test of our theory, we conduct a third experiment in which participants complete a real-effort task. This approach allows us to examine the effects of input reporting and the signaling value of input information on actual work performance (rather than performance as a mechanical function of effort), as well as to measure participants' perceptions of effort

sensitivity as a complementary and corroborating variable. Experiment 3 employs a 2 × 2 between-participants design in which we manipulate whether input information is provided to the manager (*input reporting absent* and *input reporting present*) and the real-effort task (with attendant variation in *Signaling Value*) to be performed. Specifically, participants complete either a relatively easy task with inherently high effort sensitivity (*low signaling value*) or a more difficult task with inherently low effort sensitivity (*high signaling value*).

Participants are informed that an individual in the role of manager will receive a report of their individual performance.[20] We manipulate input reporting by informing participants that the manager will be able to see either outcome performance results (*input reporting absent*) or both the performance results *and* the amount of time devoted to the task (*input reporting present*). We manipulate signaling value by having participants complete either a simple and effort-sensitive "letter search" task (*low signaling value*) or a more complex and difficult "remote associates" task with a weaker relationship between effort and performance (*high signaling value*). As with Experiments 1 and 2, we inform all participants that the manager will also see the average performance information of other participants in the study.

3.3.1 Detailed Procedures

Participants in the *low signaling value* condition work on a letter search task, similar to that used in prior studies (Kachelmeier, Thornock, and Williamson 2016; Thomas and Thornock 2021), in which they count the number of times a target letter appears within a matrix of random letters. This task has been shown to be simple, effort-sensitive, and relatively low in difficulty. Participants in the *high signaling value* condition engage in a complex remote associates test in which they must provide a word that links a group of three other, seemingly unrelated words. For

[20] Rather than specify who the manger is, we use the general term "manager" to refer to an individual who will review participants' performance.

example, for the three-word combination "Loser-Throat-Spot," the answer would be "Sore". The remote associates test is a convergent thinking task requiring individuals to narrow the number of possible solutions to a problem by applying logic and knowledge.[21] While this task is effort-sensitive in that more time spent on the task leads to greater production, the relationship between effort and performance is noisy relative to the letter search task, and the task is relatively more difficult. Importantly, performance outcomes in both the letter search task and remote associates test can be objectively determined (Mednick 1962; Bowden and Jung-Beeman 2003).

In all conditions, participants read instructions and are given a practice round in which to familiarize themselves with the task and how the interface works. After completing the practice round, participants are told they will perform a series of production rounds, one of which will be randomly selected to determine their actual cash payout. They are informed of the amount of time they will have each period, as well as the payment structure, which consists of a fixed payment of $10 plus a bonus of $17.50 contingent on meeting an assigned target. The target was determined through pilot testing to approximate a moderately difficult target, achievable approximately one third of the time (Shalley and Oldham 1985, Locke and Latham 1990, Webb, Williamson, and Zhang 2013).

Participants are informed that the manager values the number of correct responses they provide, regardless of whether they achieve the target. They are also given the opportunity to sell up to half of the allotted production time before each round (a proxy for slacking) and to end each production round at any point, cashing in any remaining time (a proxy for giving-up behavior) (Kachelmeier, Williamson, and Zhang 2023). Whether sold before or redeemed by exiting the production round, participants are paid $0.01 per second of relinquished time.

[21] This is unique from creativity tasks which typically require divergent thinking (McCrae 1987; Runco 1993).

Participants learn that the manager will review their performance within a week of the experiment and then complete a quiz to ensure comprehension of how compensation will be determined, the role of the manager, and the nature of the information the manager will receive.

Participants then work for five 8-minute production rounds. During each round they can view the amount of time they have left to work and the number of correct responses to that point. After each round, participants view the total amount of time they spent on the task and the total number of correct responses provided. Between rounds, participants are given a reminder of the role of the manager, including the type of performance information available to the manager. Upon completion of the production rounds, participants answer post-experimental questions and then click on a computerized die that determines which round will be used to determine their cash payment.[22] Participants are then paid in cash and excused from the study.

Within one week of the experiment, a research assistant, blind to the purpose of the study and the experimental conditions, assumed the role of the manager reviewing performance information for each participant. In line with the role of the hypothetical manager in Experiments 1 and 2, the manager reviewed information without making any corresponding decision.

3.3.2 Dependent Measures

Our primary dependent variable is *Scaled Performance*, which is the average number of correct letter searches (*low signaling value* task) or correct identifications of the linking word (*high signaling value* task) per round, scaled by the target level for the respective task. In supplemental analyses, we also examine the components of performance – average time worked, labeled *Time Worked*, and the effectiveness of time worked, labeled *Productivity*, which is calculated as *Scaled Performance* divided by *Time Worked*.

[22] The die was programmed to roll and generate a random number between one and six. If a six was rolled, participants had to click again until the die resulted in a one, two, three, four, or five.

3.3.3. Participants

149 students from two US universities participated in the study. Mean overall compensation was about $17.55 per participant. Participants, on average, were 21 years old, and 59 percent were female.

3.3.4. Results

In Experiment 3, effort sensitivity (investigated in isolation in Experiment 2) is conflated with task difficulty (investigated in isolation in Experiment 1), as the task with lower effort sensitivity in Experiment 3 is potentially viewed as more difficult as well. Thus, we refer to the general construct of *Signaling Value*. Recall that the effect of *Task Difficulty* on effort in the absence of input reporting is uncertain (as described in the development of H1), while the effect of *Effort Sensitivity* is more theoretically well defined (as described in the development of H2). As such, the pattern of results in Experiment 3 is expected to follow that of Experiment 2, and our analyses parallel those relating to *Effort Sensitivity* in Experiment 2.

Scaled Performance means and statistical analyses are presented in Table 4, with means presented visually in Figure 3. We first test our ordinal interaction prediction using the same contrast weights used in Experiment 2 (+1, −3, +1, +1), representing (respectively) the *input reporting absent*/*low signaling value, input reporting absent*/*high signaling value, input reporting present*/*low signaling value, and input reporting present*/*high signaling value* conditions. As shown in Table 4, Panel B, the contrast is significant ($F = 2.98$, $p = 0.09$), with an

insignificant residual between-cells variance (F = 0.09, p = 0.92) and a q^2 statistic of 0.06.[23, 24] Simple effects tests, reported in Table 4, Panel D, show a significant effect of *Input Reporting* in the *low signaling value* task (p = 0.06), but no effect of *Input Reporting* in the *high signaling value* task (p = 0.73). These results provide broad support for the theoretical development underlying both H1 and H2.

[Insert Table 4 here]

[Insert Figure 3 here]

4.3. Supplemental Analysis: Perceived Signaling Value

We operationalize *Signaling Value* by using two separate tasks that vary in terms of effort sensitivity and task difficulty. However, key to our argument is that participants will actually perceive effort sensitivity and task difficulty to be different between these two tasks (i.e., that participants will differentially believe their effort will lead to greater productivity between these two tasks, and the tasks vary in terms of the likelihood of achieving targets). *Perceived Signaling Value* should be higher in a *high signaling value* (*low effort sensitivity/high task difficulty*) task compared to a *low signaling value* (*high effort sensitivity/low task difficulty*) task. To examine these perceptions, we first ask participants in both tasks to rate their agreement with the statement, "If I put more time into the task, I feel my output would increase correspondingly." Next, we elicited participants' perceptions of task difficulty using four difficulty measures,

[23] As a robustness test, we modify the contrast weights to account for a possible main effect of signaling value due to the real-effort tasks being substantially different even using the scaled performance measure. Specifically, we increase the weights of the high signaling value conditions (that is, the remote associates test) and adjust the other weights to reflect our hypothesis while summing to zero, resulting in a custom weighting of {+2, −5, +1, +2}. We present results in Table 4, Panel C. The contrast is significant (F = 3.13, p = 0.08), outlining a positive effect of input reporting along with an ordinal moderating effect of input reporting under the low effort sensitivity, high difficulty task, while the residual between-cells variance test is not significant (F = 0.01, p = 0.99), with a q^2 statistic of 0.01, indicating that other potential factors explain relatively little of the total variance that could have been explained.
[24] A General Linear Model analysis with *Input Reporting* and *Signaling Value* as the independent variables and *Scaled Performance* as the dependent variable, presented in Table 4, Panel D, also provides evidence of a significant interaction (p = 0.09).

which ask participants to attribute their performance to luck vs. skill, task difficulty vs. effort, luck vs. effort, and task difficulty vs. skill. We combine these five metrics into a single metric: *Perceived Signaling Value*.[25] We find a significant difference in *Perceived Signaling Value* between tasks: participants in the *high signaling value* task see the task as being less sensitive to their effort and more difficult than those in the *low signaling value* task (untabulated; $p < 0.01$).

Though we did not expect input information in the letter search task to be perceived as having high signaling value, we split *Perceived Signaling Value* in this task into terciles and examine the highest and lowest sentiments of signaling value.[26] We present these results in Figure 4 and Table 5. We find a significant interaction between *Input Reporting* and *Perceived Signaling Value* on *Performance* (Panel B; $p = 0.07$). Further, the simple effects reveal that this interactive effect is driven by the influence of input reporting for those who perceive low signaling value (i.e., high difficulty, low effort sensitivity), but not for those who perceive high signaling value (i.e., low difficulty, high effort sensitivity). This is consistent with our hypotheses and theoretical reasoning.

[Insert Table 5 here]

[Insert Figure 4 here]

5. Conclusion

In this study, we examine how input reporting to the manager affects employee effort and performance dependent on a key construct that heretofore has been largely overlooked: the signaling value of the input information for impression management purposes. We argue that task characteristics, specifically task difficulty and effort sensitivity, influence employees' perceptions of the value of input reporting for impression management, and in turn, their

[25] These five measures are highly correlated and have a Cronbach's alpha of 0.74.
[26] All of our analyses are inferentially similar using a median split or a continuous variable.

motivation. We find that input reporting leads to greater performance with a high difficulty task as compared to a low difficulty task. Further, input reporting can motivate greater performance with a low effort sensitivity task relative to a high effort sensitivity task. These findings support our theory that input reporting can motivate employees to exert greater effort when the input information is perceived to have value for impression management. With a difficult or a low effort sensitivity task, employees perceive that input information has value to demonstrate to the manager their hard work on the task, even if these efforts do not translate to successful outcomes. This perceived value is minimized for low difficulty or high effort sensitivity tasks, as output information provides a strong signal of employees' inputs, reducing the incremental signal of input information.

Our study contributes to the accounting literature on management control by demonstrating how input reporting influences employee behavior. Our results provide evidence that employees respond to differences in performance reporting even without explicit incentives, such that they are sensitive to the information content of performance provided to the manager, and to the potential impression management value that information can contain. Our findings that employees increase their effort when input information has higher signaling value for impression management purposes support our hypotheses and provide important insights into employee motivation.

Our study also provides insight into the gathering and provision of information about employee efforts and when this process can be most beneficial. Managers will benefit from considering that the motivational value of effort information is related to its perceived signaling value rather than simply assuming the added value of effort information beyond observable performance outcomes, especially because gathering input information can be very costly. Our

findings suggest that the perceived value of input information varies with task characteristics, specifically the difficulty of the task and the sensitivity of performance to effort in the task, such that as tasks become more difficult or less sensitive to effort, the motivational value of input information increases. This finding is important given that the uncertain relationship between effort and performance in more complex tasks can make motivating employees especially challenging. Our results suggest that for these types of tasks, employees can be motivated by knowing their manager sees their efforts and the extent to which they are working to complete the task, even if success is unlikely or if the link from effort to performance is weak. Conversely, the gathering and provision of input information to the manager is less likely to motivate employees to exert greater effort for easier tasks or those in which performance is highly sensitive to effort.

Our study is subject to a number of limitations. First, participants in our study who played the role of employees knew that the manager would not actually be evaluating or rewarding them in any way. While this design choice limits the external validity of our experiments, it removes many potential confounds related to financial incentives, strengthening internal validity. Further, given our theory, including financial incentives should only strengthen our findings. Thus, our design provides a conservative test of our theory. Second, we do not investigate the degree to which participants believe managers may succumb to a naturalness bias, where managers reward natural ability over effortful success, or, relatedly, the degree to which participants wish to appear more efficient by achieving high outcomes with low effort. Future research should investigate (a) how employees respond to the potential for this bias (are they sensitive to this tendency in managers?), and (b) how this tendency may interact with our results. Third, and relatedly, we do not manipulate whether employees have a *choice* to report input

information. Instead, in settings with input reporting, the provision of the information was automatic (mandatory). The perceived signaling benefit of input information will certainly affect the choice to report in interesting ways, including (and perhaps especially) in settings where managers may be more likely to reward employees who do not have to work hard to achieve success (naturals). An investigation of the choice to report input information on employee behavior presents multiple interesting avenues for future research.

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Figure 1
Experiment 1: Effects of Input Reporting and Task Difficulty on Effort

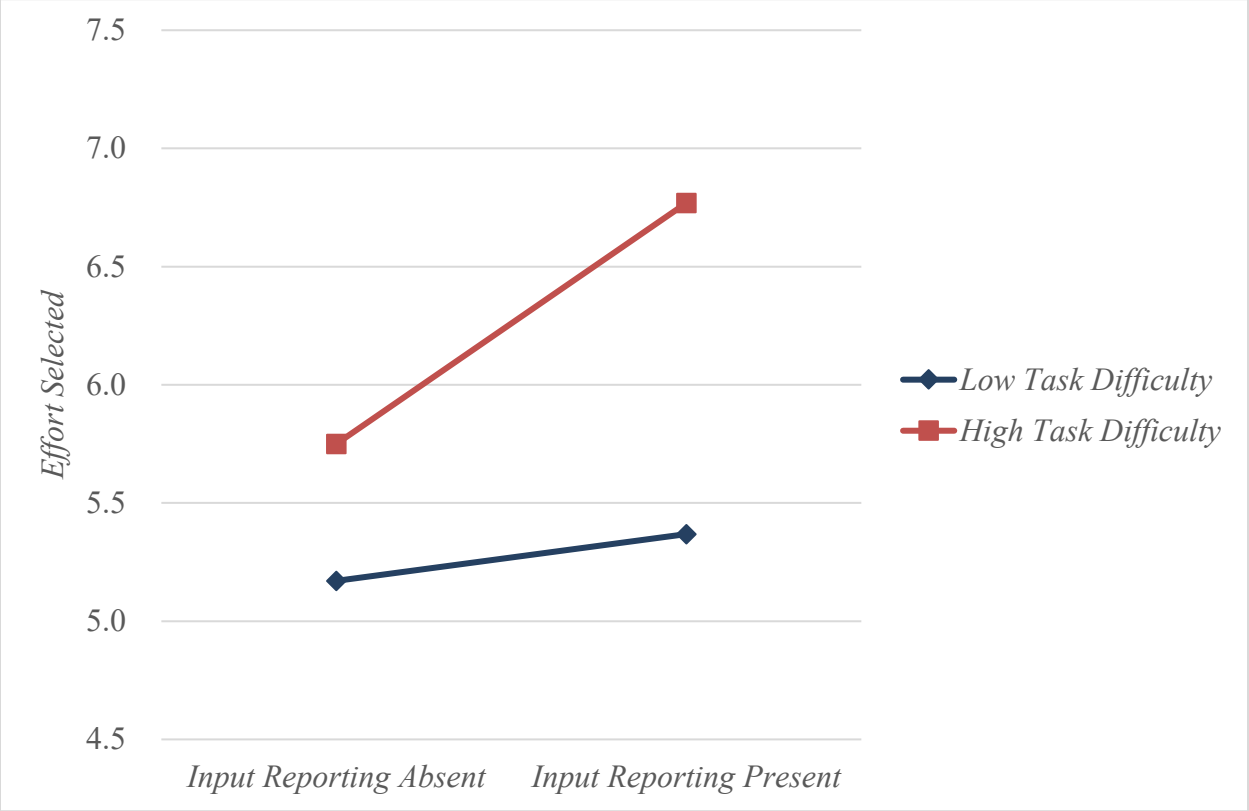

Figure 2
Experiment 2: Effects of Input Reporting and Effort Sensitivity on Effort

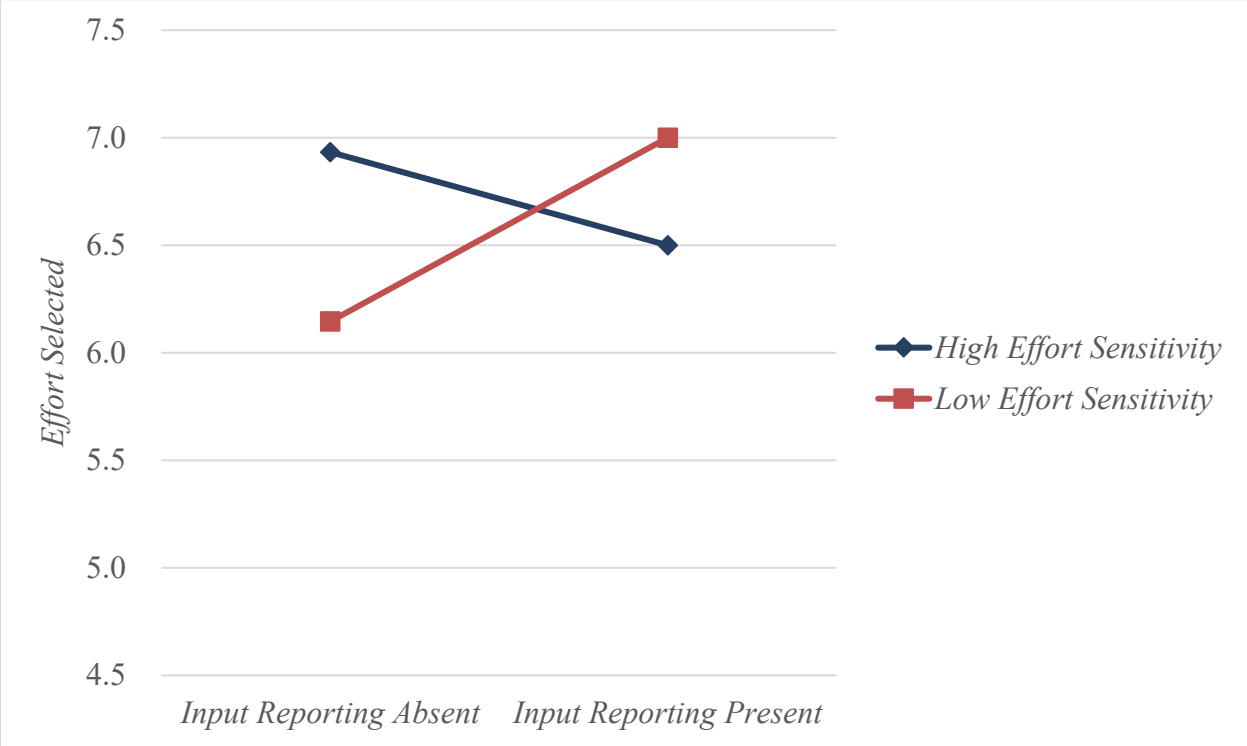

Figure 3
Experiment 3: Effects of Input Reporting and Signaling Value on Scaled Performance

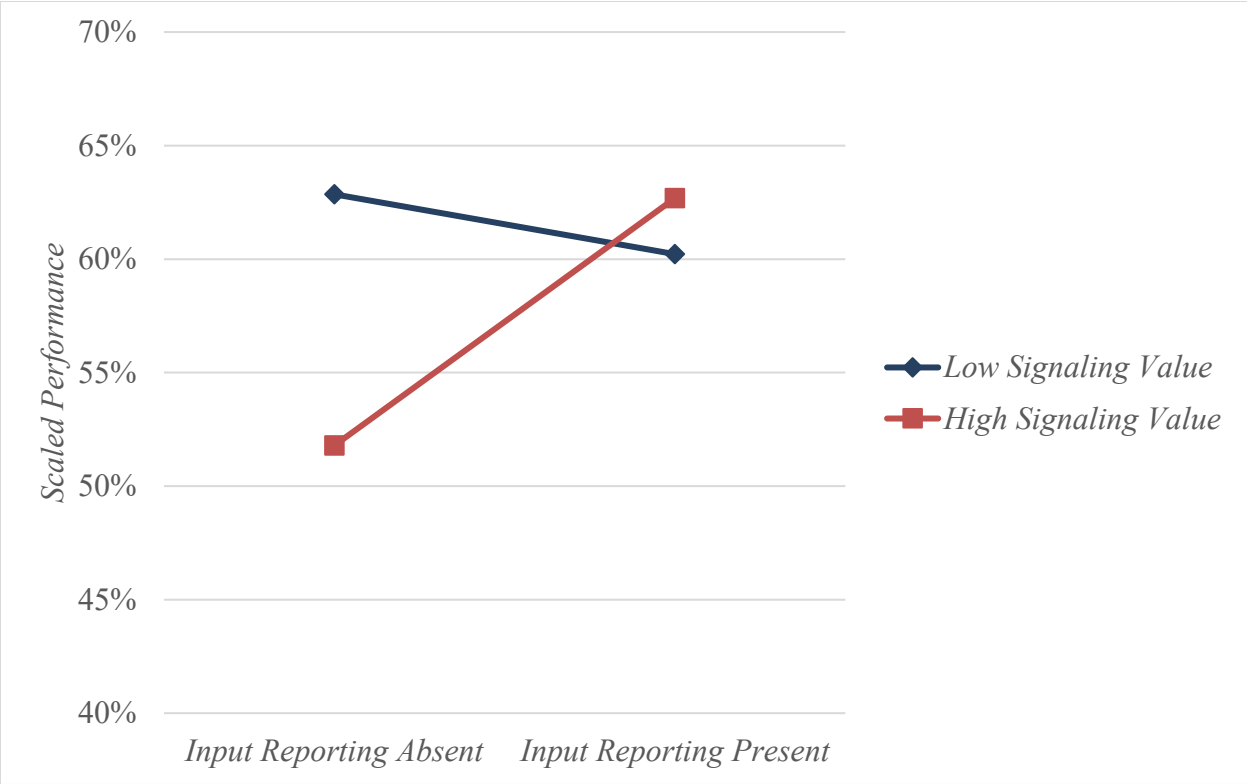

Figure 4
Experiment 3: Effects of Input Reporting and Perceived Signaling Value on Scaled Performance

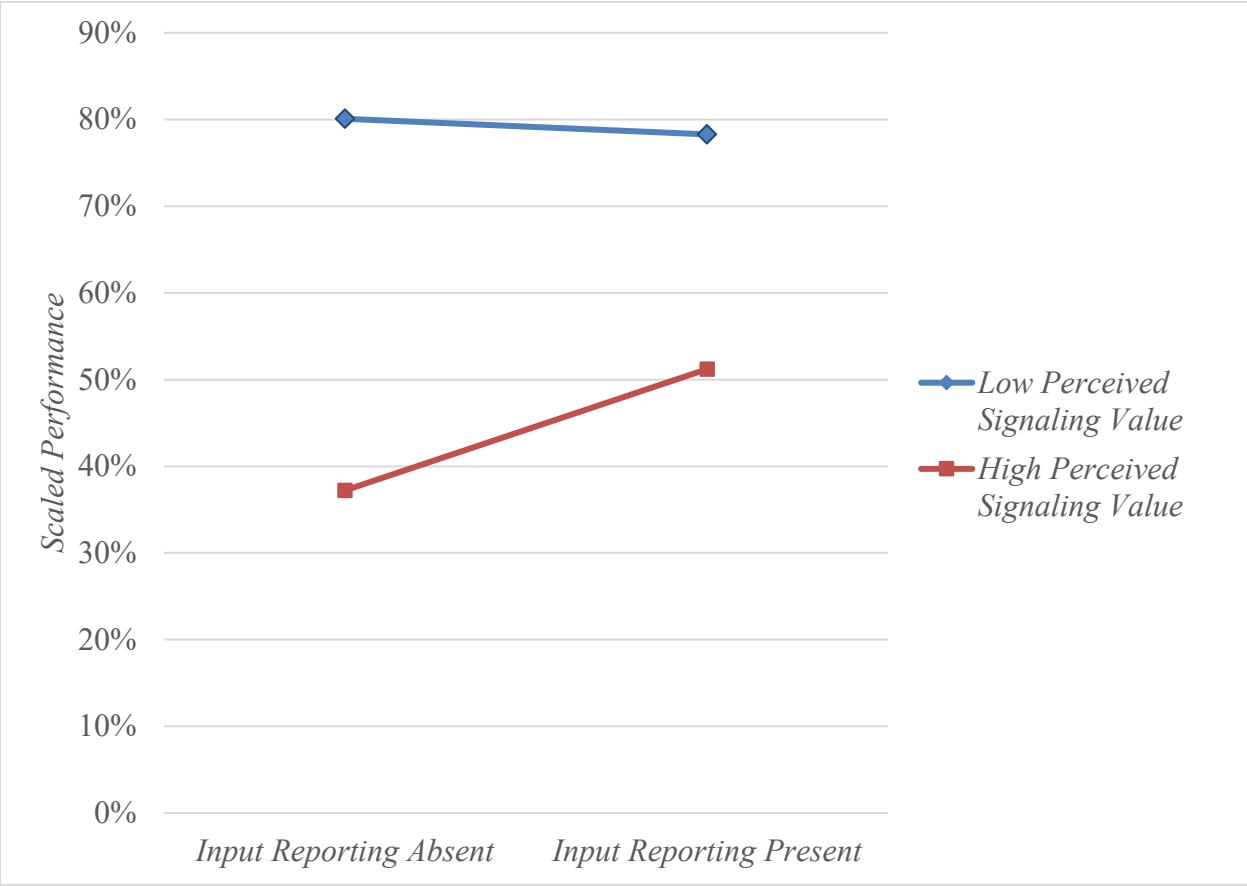

Table 1
Mapping of Task Features to the Signaling Value of Input Reporting

Task Difficulty		**Effort Sensitivity**	
Low Task Difficulty	**High Task Difficulty**	**Low Effort Sensitivity**	**High Effort Sensitivity**
Low Signaling Value of Input Reporting	High Signaling Value of Input Reporting	High Signaling Value of Input Reporting	Low Signaling Value of Input Reporting
Experiment 1		**Experiment 2**	
Experiment 3			

This table maps the levels of task features (task difficulty and effort sensitivity) to the construct of signaling value of input reporting and to the corresponding experiments.

Table 2
Experiment 1: Effects of Input Reporting and Task Difficulty

Panel A: Mean (Standard Deviation) of Dependent Variables

	Low Task Difficulty				***High Task Difficulty***			
	Input Reporting				**Input Reporting**			
Dependent Measures	*Input Reporting Absent*	n	*Input Reporting Present*	n	*Input Reporting Absent*	n	*Input Reporting Present*	n
Effort	5.17 (2.84)	41	5.37 (3.01)	38	5.75 (2.75)	40	6.77 (2.49)	39
Care Manager	6.61 (2.64)	41	5.89 (3.20)	38	6.43 (2.85)	40	7.26 (2.86)	39

Panel B: Planned Contrasts (−1, −1, −1, +3)
input reporting absent/*low task difficulty* v. *input reporting absent*/*high task difficulty* v. *input reporting present*/*low task difficulty* v. *input reporting present*/*high task difficulty*

Source	**SS**	**df**	**MS**	**F-stat**	**p-value**
Contrast	52.69	1	52.69	6.84	0.01
Residual between-cells variance	7.10	2	3.55	0.46	0.63
Total between-cells variance	59.79	3	19.93	2.59	0.06
Error	1187.07	154	7.71		
Total	1246.86	157			

Panel C: Planned Contrasts (−2, −2, +1, +3)
input reporting absent/*low task difficulty* v. *input reporting absent*/*high task difficulty* v. *input reporting present*/*low task difficulty* v. *input reporting present*/*high task difficulty*

Source	**SS**	**df**	**MS**	**F-stat**	**p-value**
Contrast	32.34	1	32.34	4.20	0.04
Residual between-cells variance	27.45	2	13.72	1.78	0.17
Total between-cells variance	59.79	3	19.93	2.59	0.06
Error	1187.07	154	7.71		
Total	1246.86	157			

Table 2 (Continued)

Panel D: GLM on *Effort*[a]

Factor	df	MS	F	*p*-value[*]
Input Reporting[b] (Absent or Present)	1	14.612	1.896	0.17
Task Difficulty[c] (Low or High)	1	38.686	5.019	0.03
Input Reporting × *Task Difficulty*	1	6.660	0.864	**0.18**
Error	154	7.708		
Simple Effects:				
Input Reporting with *Low Task Difficulty*	1	0.771	0.100	0.75
Input Reporting with *High Task Difficulty*	1	20.514	2.661	**0.05**
Task Difficulty with *Input Reporting Absent*	1	6.794	0.881	0.36
Task Difficulty with *Input Reporting Present*	1	37.767	4.900	**0.01**

[*] P-values denoted in **bold** represent one-tailed predictions.
[a] This variable represents the average effort chosen by participants (from 1 to 10).
[b] We manipulated this variable by either including input information regarding the effort choice in the report that would be seen by the manager (*input reporting present*) or excluding this information (*input reporting absent*).
[c] We manipulated this variable through the likelihood of achieving the performance target with either low levels of success (*high task difficulty*) or high levels of success (*low task difficulty*).

Panel E: GLM on *Care Manager*[d]

Factor	df	MS	F	*p*-value[*]
Input Reporting[b] (Absent or Present)	1	0.134	0.016	0.90
Task Difficulty[c] (Low or High)	1	13.667	1.639	0.20
Input Reporting × *Task Difficulty*	1	23.597	2.829	**0.05**
Error	154	8.341		
Simple Effects:				
Input Reporting with *Low Task Difficulty*	1	10.083	1.209	0.27
Input Reporting with *High Task Difficulty*	1	13.650	1.636	**0.10**
Task Difficulty with *Input Reporting Absent*	1	0.691	0.083	0.77
Task Difficulty with *Input Reporting Present*	1	35.686	4.278	**0.02**

[d] This variable represents the average response to the question "How much do you care about what the manager thinks of you?"

Table 3
Experiment 2: Effects of Input Reporting and Effort Sensitivity

Panel A: Mean (Standard Deviation) of Dependent Variables

	High Effort Sensitivity				***Low Effort Sensitivity***			
	Input Reporting				**Input Reporting**			
Dependent Measures	*Input Reporting Absent*	n	*Input Reporting Present*	n	*Input Reporting Absent*	n	*Input Reporting Present*	n
Effort	6.93 (2.05)	45	6.50 (2.56)	50	6.15 (2.30)	55	7.00 (2.16)	51
Care Manager	7.31 (2.00)	45	6.74 (2.81)	50	6.67 (2.39)	55	7.24 (2.45)	51

Panel B: Planned Contrasts {+1, −3, +1, +1}
input reporting absent/*high effort sensitivity* v. *input reporting absent*/*low effort sensitivity* v. *input reporting present*/*high effort sensitivity* v. *and input reporting present*/*low effort sensitivity*

Source	**SS**	**df**	**MS**	**F-stat**	**p-value**
Contrast	17.69	1	17.69	3.40	0.07
Residual between-cells variance	7.19	2	3.60	0.69	0.50
Total between-cells variance	24.88	3	8.29	1.60	0.19
Error	1024.14	197	5.20		
Total	1049.02	157			

Panel C: Planned Contrasts {+2, −3, −1, +2}
input reporting absent/*high effort sensitivity* v. *input reporting absent*/*low effort sensitivity* v. *input reporting present*/*high effort sensitivity* v. *and input reporting present*/*low effort sensitivity*

Source	**SS**	**df**	**MS**	**F-stat**	**p-value**
Contrast	24.47	1	24.47	4.71	0.03
Residual between-cells variance	0.41	2	0.21	0.04	0.96
Total between-cells variance	24.88	3	8.29	1.60	0.19
Error	1024.14	197	5.20		
Total	1049.02	200			

Table 3 (Continued)

Panel D: GLM on *Effort*[a]

Factor	df	MS	F	*p*-value[*]
Input Reporting[b] (*Input Reporting Present* or *Absent*)	1	2.217	0.427	0.51
Effort Sensitivity[c] (*High* or *Low*)	1	1.036	0.199	0.66
Information Reporting × Effort Sensitivity	1	20.730	3.988	**0.02**
Error	197	5.199		
Simple Effects:				
Input Reporting with *High Effort Sensitivity*	1	4.447	0.855	0.36
Input Reporting with *Low Effort Sensitivity*	1	19.324	3.717	**0.03**
Effort Sensitivity with *Input Reporting Absent*	1	15.364	2.955	**0.04**
Effort Sensitivity with *Input Reporting Present*	1	6.312	1.214	0.27

[*] P-values denoted in **bold** represent one-tailed predictions.
[a] This variable represents the average effort chosen by participants (from 1 to 10).
[b] We manipulated this variable by either including input information regarding the effort choice in the report that would be seen by the manager (*input reporting present*) or excluding this information (*input reporting absent*).
[c] We manipulated this variable through the noise between effort selected and actual production with either low levels of noise (*high effort sensitivity*) or high levels of noise (*low effort sensitivity*).

Panel E: GLM on *Care Manager*[d]

Factor	df	MS	F	*p*-value[*]
Input Reporting[b] (*Input Reporting Present* or *Absent*)	1	0.001	<0.001	0.99
Effort Sensitivity[c] (*High* or *Low*)	1	0.256	0.043	0.84
Information Type × Effort Sensitivity	1	16.063	2.703	**0.05**
Error	197	5.942		
Simple Effects:				
Input Reporting with *High Effort Sensitivity*	1	7.725	1.300	0.26
Input Reporting with *Low Effort Sensitivity*	1	8.375	1.409	**0.12**
Effort Sensitivity with *Input Reporting Absent*	1	10.086	1.700	0.20
Effort Sensitivity with *Input Reporting Present*	1	6.194	1.042	**0.15**

[d] This variable represents the average response to the question "How much do you care about what the manager thinks of you?"

Table 4
Experiment 3: Effects of Input Reporting and Signaling Value

Panel A: Mean (Standard Deviation) of Dependent Variables

	Low Signaling Value (High Effort Sensitivity/Low Task Difficulty)				***High Signaling Value (Low Effort Sensitivity/High Task Difficulty)***			
	Input Reporting				**Input Reporting**			
Dependent Measures	*Input Reporting Absent*	n	*Input Reporting Present*	n	*Input Reporting Absent*	n	*Input Reporting Present*	n
Scaled Performance	62.9% (0.335)	37	60.2% (0.317)	36	51.8% (0.288)	38	62.7% (0.306)	38
Time Worked	325.28 (111.81)	37	334.88 (108.40)	36	270.71 (125.25)	38	311.96 (111.68)	38
Productivity	0.110 (0.040)	37	0.103 (0.035)	36	0.111 (0.043)	38	0.120 (0.048)	38

Panel B: Planned Contrasts (+1, −3, +1, +1)
input reporting absent/*high signaling value* v. *input reporting absent*/*low signaling value* v. *input reporting present*/*high signaling value* v. *and input reporting present*/*low signaling value*

Source	**SS**	**df**	**MS**	**F-stat**	**p-value**
Contrast	0.29	1	0.29	2.98	0.09
Residual between-cells variance	0.02	2	0.01	0.09	0.92
Total between-cells variance	0.31	3	0.10	1.05	0.37
Error	14.08	145	0.09		
Total	14.39	145			

Panel C: Planned Contrasts (+2, −5, +1, +2)
input reporting absent/*high signaling value* v. *input reporting absent*/*low signaling value* v. *input reporting present*/*high signaling value* v. *and input reporting present*/*low signaling value*

Source	**SS**	**df**	**MS**	**F-stat**	**p-value**
Contrast	0.30	1	0.30	3.13	0.08
Residual between-cells variance	0.01	2	<0.01	0.01	0.99
Total between-cells variance	0.31	3	0.10	1.05	0.37
Error	14.08	145	0.09		
Total	14.39	148			

Table 4 (Continued)

Panel D: GLM on *Scaled Performance*[a]

Factor	df	MS	F	*p*-value[*]
School[b]	1	0.337	3.527	0.06
Input Reporting[c] (Absent or Present)	1	0.066	0.687	0.41
Signaling Value[d] (High or Low)	1	0.067	0.702	0.40
Input Reporting × *Signaling Value*	1	0.167	1.749	**0.09**
Error	144	0.095		
Simple Effects:				
Input Reporting with *High Signaling Value*	1	0.226	2.362	**0.06**
Input Reporting with *Low Signaling Value*	1	0.012	0.124	0.73
Signaling Value with *Input Reporting Absent*	1	0.226	2.372	**0.06**
Signaling Value with *Input Reporting Present*	1	0.011	0.116	0.73

[*] P-values denoted in **bold** represent one-tailed predictions.
[a] This variable represents the average number of correct letter searches/identifications of the linking fourth word completed per period scaled by the target level for the respective task.
[b] This variable controls for the location of the participants at one of the two schools at which the experiment was administered.
[c] We manipulated this variable by either including input information regarding the time devoted to the task in the report that would be seen by the manager (*input reporting present*) or excluding this information (*input reporting absent*).
[d] We manipulated this variable by using tasks where input information had higher (letter search) or lower (remote associates) signaling value (i.e., providing additive information beyond that provided by output information).

Table 5
Cross Section of Perceived Signaling Value within the Low Signaling Value Task

Panel A: Mean (Standard Deviation) of Dependent Variables

	Low Perceived Signaling Value				***High Perceived Signaling Value***			
	Input Reporting				**Input Reporting**			
Dependent Measures	*Input Reporting Absent*	n	*Input Reporting Present*	n	*Input Reporting Absent*	n	*Input Reporting Present*	n
Scaled Performance	14.42 (5.35)	13	14.09 (6.06)	11	6.70 (3.86)	12	9.22 (4.29)	12
Time Worked	359.98 (94.08)	13	367.16 (93.04)	11	258.60 (100.49)	12	333.62 (125.54)	12
Productivity	2.39 (0.86)	13	2.25 (0.78)	11	1.53 (0.42)	12	1.64 (0.33)	12

Panel B: GLM on *Performance*[a]

Factor	df	MS	F	*p*-value[*]
School[b]	1	111.58	4.967	0.03
Input Reporting[c] (Absent or Present)	1	26.05	1.160	0.29
Perceived Signaling Value[d] (High or Low)	1	472.18	21.017	<0.01
Input Reporting × *Perceived Signaling Value*	1	49.29	2.194	**0.07**
Error	43	22.47		
Simple Effects:				
Input Reporting with *High Perceived Signaling Value*	1	55.47	2.469	**0.06**
Input Reporting with *Low Perceived Signaling Value*	1	2.62	0.116	0.74
Perceived Signaling Value with *Input Reporting Absent*	1	398.89	17.754	**<0.01**
Perceived Signaling Value with *Input Reporting Present*	1	87.36	3.888	0.06

[*] P-values denoted in **bold** represent one-tailed predictions.
[a] This variable represents the average number of correct letter searches completed per period.
[b] This variable controls for the location of the participants at one of the two schools at which the experiment was administered.
[c] We manipulated this variable by either including input information regarding the time devoted to the task in the report that would be seen by the manager (*input reporting present*) or excluding this information (*input reporting absent*).
[d] We measured this variable by taking the top and bottom tercile of a combined measure of *Perceived Signaling Value* for those in the *low signaling value* task. Participants reported the extent to which they agreed with the statement "If I put more time into the task, I feel my output would increase correspondingly." They also rated the extent to which they felt their performance in the task was due to 1) luck vs. skill, 2) task difficulty vs. effort, 3) luck vs. effort, and 4) task difficulty vs. skill. Our variable is the sum of these measures, each based on a 0 to 100 scale.