

RESEARCH ARTICLES

Self-Solicited Feedback: Effects of Hourly Pay and Individual Monetary Incentive Pay

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The frequency of feedback solicitation under hourly pay and individual monetary incentive pay conditions was examined. A between-subjects design was used with 30 college students in the two groups. Participants attended three experimental sessions and entered the cash value of simulated bank checks presented on a computer screen. Performance was higher for individuals who were paid incentives; however, participants who were paid incentives did not self-solicit feedback more than those who were paid hourly. Rather, participants in both groups solicited feedback quite frequently. Additionally, performance was not related to feedback solicitation. These results suggest that the incentives did not make feedback more reinforcing even though the incentives were functional rewards and the feedback was correlated with the amount of pay earned: the better the feedback, the more pay participants earned. The results also support the position that it may be necessary to pair objective feedback with an evaluative component to enhance performance.

KEYWORDS *self-solicited feedback, hourly pay, incentive pay*

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Electronic Performance Monitoring (EPM) has become a common method for monitoring employee performance as new computer technology is introduced in the workplace (Mallo, Nordstrom, Bartels, & Traxler, 2007). The United States Office of Technology Assessment has defined EPM as “the continuous, computerized collection, storage, analysis and reporting of employee production activities” (Mallo et al., p. 50). Familiar examples of work activities observed through the use of EPM include monitoring and reviewing telephone conversations and recording time spent, content reviewed, and keystrokes entered on individual computer workstations (Smith, Carayon, Sanders, Lim, & LeGrande, 1992). Schleifer and Shell (1992) contend that EPM has advantages for employees, including the ability to provide timely feedback on individual performance; however, few EPM systems are being used to provide such feedback to employees.

In their comprehensive reviews of feedback applications, Balcazar, Hopkins, and Suarez (1985/86) identified 11 different sources of feedback and Alvero, Bucklin, and Austin (2001) identified 9. Although EPM system feedback was not used in any of the reviewed articles, self-generated feedback was. Both sets of authors defined self-generated feedback as when an individual uses a self-recording procedure to record performance. Self-generated feedback is similar to feedback that could be provided by EPM systems in that individuals have access to timely feedback and can choose whether and when they view the feedback.

Balcazar et al. (1985/86) found that self-generated feedback had consistently positive effects on performance in 21% of the articles reviewed and mixed effects in 79%. Alvero et al. (2001) found that self-generated feedback had consistent and mixed effects in 50% of the articles reviewed. Only four studies in the Alvero et al. review used self-generated feedback; nonetheless, this type of feedback appears to have promise.

Three studies published in journals that were not included in the above reviews have compared the effects of feedback generated from a computer with feedback provided by other sources. In 1988, Earley assessed the delivery of computer-generated feedback via a computer-tracking mechanism that automatically monitored the performance of individuals. Earley found increases in performance when individuals generated feedback on their performance using the computer-tracking system versus when the individual's supervisor delivered feedback.

In 1989, Northcraft and Earley evaluated the impact of different feedback sources on the credibility of feedback, strategy acquisition, and performance in a stock market simulation. Four feedback sources were compared: (a) organization—feedback was delivered impersonally, (b) supervisor—feedback was delivered in oral and written form by a professor, (c) computer-generated—self-generated by the individual with the use of a computer, and (d) self-generated—without the use of a computer. In their

study, performance, along with credibility of feedback and strategy acquisition, was higher under both the computer-generated and self-generated feedback conditions. In addition, Northcraft and Earley found that self-generated feedback (with and without the use of a computer) was perceived as more trustworthy and useful than feedback provided by a supervisor or by the organization.

In a subsequent study, Kluger and Adler (1993) found that participants in their laboratory study were more likely to seek feedback from a computer than from a person. The results from these three studies support the use of technology (i.e., computers) as a feedback source and the involvement of individuals in feedback generation.

Both Earley (1988) and Northcraft and Earley (1989) described their feedback procedure as self-generated or computer-generated, indicating that the “feedback was self-generated by the worker using the computer system” (Earley, p. 50). Unfortunately, they did not describe the feedback generation procedure in detail. In their discussion, Northcraft and Earley suggested that future research should examine feedback received passively from the computer (e.g., allowing a performer to use a computer to simply display or retrieve—rather than generate—feedback).

For purposes of the present study, the form of feedback to which Northcraft and Earley (1989) alluded will be described as *self-solicited feedback*, which occurs when an individual is able to obtain immediate feedback on his or her performance at any moment in time. Self-generated feedback appears to be related to self-solicited feedback with regard to the individual's ability to obtain feedback on his or her own performance. The distinction, as suggested by the literature reviewed, is that self-generated feedback requires a higher response effort, whereas self-solicited feedback requires a lower response effort because individuals are not required to engage in a series of behaviors in order to produce the feedback; rather, self-solicited feedback is produced by a single response.

The increasing prevalence of EPM systems in the workplace, coupled with the results of Earley (1988), Northcraft and Earley (1989), and Kluger and Adler (1993), support the use of computer-based tracking systems as a source of performance feedback. The present review of the literature, however, failed to uncover any studies that evaluated factors that might influence an individual to self-generate or self-solicit performance feedback. The current study examined self-solicited feedback for two reasons. First, self-solicited feedback requires less response effort than self-generated feedback, and EPM systems make self-solicited feedback possible. Second, just as observing responses can be used to assess the reinforcing value of the environmental condition or stimuli produced by those responses (Dinsmoor, Browne, & Lawrence, 1972; Wyckoff, 1952, 1969), it is plausible that solicitation responses can be used to assess the value of feedback under varying conditions.

Monetary Incentives and Feedback Value

Authors generally agree that the effectiveness of feedback depends upon the extent to which the feedback is correlated with functional differential consequences (Balcazar et al., 1985/86; Duncan & Bruwelheide, 1985/86; Ilgen, Fisher, & Taylor, 1979; Peterson, 1982; Prue & Fairbank, 1981). For example, Balcazar et al. argued, "If no system of functional, differential consequence exists, there is probably no point in establishing a feedback system" (p. 84). Various behavioral mechanisms have been proposed for why feedback might become more effective when paired with differential consequences (i.e., acquisition of discriminative or reinforcing properties); nonetheless, all rely on the relationship between feedback and differential consequences.

Because monetary incentives provide differential consequences for performance, whereas hourly pay does not, feedback might become more valuable when individuals receive monetary incentives. Balcazar et al. (1985/86), Bucklin, McGee, and Dickinson (2003), and Johnson, Dickinson, and Huitema (2008), for example, all reasoned that feedback might become a conditioned reinforcer when delivered with incentives. Extending that logic, they further suggested that if feedback does, in fact, become a conditioned reinforcer, then it might actually enhance the effects of the incentives, particularly when feedback is provided more frequently than the incentives.

To examine that possibility, Bucklin et al. (2003) evaluated the effects of individual monetary incentives with and without feedback. They also compared the effects of individual incentives versus hourly pay when feedback was provided with both. For all participants, performance increased when feedback was added to the incentive condition and was higher than performance during the hourly pay with feedback condition. The results of their study suggest that feedback enhanced incented performance. These results should be considered with caution, however. When feedback was removed from the incentive condition, performance for six of the seven participants either stabilized or continued to increase (i.e., did not reverse). Bucklin and colleagues suggested that the higher levels of performance might have been maintained by the additional incentives earned and recommended that future researchers use a between-subjects design rather than within-subject reversal design to prevent sequence effects.

Johnson et al. (2008) obtained different results than Bucklin et al. (2003) using a between-subjects design. In their study, Johnson and colleagues assessed the effects of feedback on the performance of individuals who received either hourly pay or individual monetary incentive pay. Although participants who received incentives performed significantly better than those who received hourly pay only, the receipt of feedback did affect performance. These results do not support the suggestion that feedback becomes more reinforcing when correlated with incentives. Rather,

Johnson et al. proposed that feedback might remain a neutral stimulus unless combined with some type of evaluation that indicates how well or poorly the individual is performing.

Differences in the feedback and pay procedures might account for the different results found by Bucklin et al. (2003) and Johnson et al. (2008). Bucklin and colleagues provided end-of-session feedback in which the number of points earned by an individual was displayed on the computer screen at the end of each session. At the end of each week, researchers gave participants a receipt indicating both the number of points and the amount of pay they had earned during each session. Thus, participants were paid multiple times during the incentive with feedback condition. In addition, researchers may have commented on or praised the performance of the participants when paying them. Although researchers were not instructed to praise the performance of participants, neither were they told not to comment on the participants' performance (Bucklin, 2000). Thus, in the absence of those instructions, researchers might have provided verbal consequences when delivering the feedback and paying participants.

In contrast to Bucklin et al. (2003), Johnson et al. (2008) provided continuous, on-screen feedback during the session, and participants were not paid until after they had completed all three sessions of the study. In order to examine the effects of feedback alone, Johnson and colleagues set up their study such that evaluative statements were not paired with the feedback. Furthermore, although Johnson et al. provided continuous feedback during the session, there was no measure of whether participants actually attended to it. Anecdotal data from a subsequent study suggest that participants only occasionally view feedback that is constantly available during experimental sessions (Hwang & Dickinson, 2007).

Self-solicitation provides a way to determine when and how often an individual looks at the feedback and thus to directly assess the reinforcing value of the feedback. Similar to the Johnson et al. (2008) study, in the current study, participants were not paid until after the study was over so that the effects of self-solicited feedback could be isolated from the feedback provided by the monetary incentives themselves and potential praise from researchers.

Purpose of the Current Study

The primary purpose of the current study was to compare the frequency of feedback solicitation under hourly pay and monetary incentive pay conditions. Task performance was also assessed to identify (a) overall differences in performance between participants receiving incentive pay versus those receiving hourly pay, and (b) the extent to which self-solicitation of feedback was related to task performance.

This study, like other similar laboratory studies (Bucklin et al., 2003; Johnson et al., 2008; Matthews & Dickinson, 2000), controlled for two potential confounds that could inflate the performance of the experimental task: (a) lack of attractive alternative activities (T. C. Mawhinney, 1975; T. C. Mawhinney & R. R. Mawhinney, 1982), and (b) social demands due to the presence of the experimenter (Orne, 1962).

METHOD

Participants

Participants were 60 male and female undergraduate students. Participants met three criteria: they (a) self-reported that they played computer games for at least one hour each week and reported interest in at least one of seven computer games listed on a questionnaire, (b) passed a quiz that tested their understanding of the pay systems, and (c) attended all sessions within a two-week period of time (to increase the saliency of the independent variable).

Setting

The experimental setting consisted of a small laboratory room (approximately 9' × 10') containing a worktable (approximately 48"W × 30"D × 30"H), adjustable office chair, Dell desktop computer, keyboard, mouse, and gel palm rest. Each participant worked alone.

Experimental Task and Alternative Activities

EXPERIMENTAL TASK

The experimental task was a data-entry task that simulated the job of a bank proof operator. A simulated bank check was displayed on the computer screen with a randomly generated dollar amount, ranging in value from \$10.00 to \$999.99. Participants entered the amount of the check using the computer's numeric keypad and pressed the "Enter" key or clicked on the "Next Check" button to advance to a new check. The software program was a noncommercial program developed for research purposes and can be obtained from the second author.

Participants were able to obtain information about their current level of performance at any time during the experimental session by either (a) holding down the "Alt+F" keys on the keyboard or (b) clicking on the "Feedback" button. Feedback was presented in a pop-up dialogue box on the computer screen and indicated (a) the current number of checks completed during the session, (b) the current number of checks completed

correctly during the session, and (c) the current rate of check completion (i.e., average number of checks completed per minute).

ALTERNATIVE ACTIVITIES

Seven computer games were available on each computer, and participants had access to these games at all times during the experimental sessions. Instructions on how to play these games were available in the experimental room near the computer. Participants could play these computer games by clicking on the “Minimize Program” button on the check program menu and then clicking on the game icon.

Dependent Variables

The primary dependent variable was the total number of times performance feedback was solicited during each experimental session. The exact clock times (e.g., 2:05:47 p.m.) during the experimental session when participants solicited feedback were also collected. Secondary dependent variables included the total number of checks correctly completed per session and the time spent performing the experimental task.

The computer automatically recorded (a) the number of times the “Alt+F” keys were pressed and the “Feedback” button was clicked per session, (b) the points in time during the experimental session that participants self-solicited feedback, (c) the total number of checks completed per session, (d) the number of checks correctly completed per session, and (e) the number of seconds the participant was not engaged in the experimental task.

Independent Variable

The independent variable was the type of pay system (hourly pay vs. individual monetary incentive pay). In the hourly pay condition, participants were paid \$5.75 for each 45-minute session regardless of their performance on the experimental task. A minimum performance criterion was not set. In the incentive pay condition, participants earned incentives based on their performance. For every correctly processed check, participants earned \$0.007. Thus, to earn the amount equivalent to those in the hourly pay condition, participants needed to correctly process 821 checks (i.e., $821 \times \$0.007 = \5.75). These figures were based on the average performance of participants who were paid individual incentives in the Johnson et al. (2008) study. If participants in the incentive condition processed more than 821 checks correctly, they earned more money than those in the hourly pay condition due to the incentive pay.

Experimental Design and Procedures

DESIGN AND RANDOM ASSIGNMENT

A randomized between-subjects design was used, with participants randomly assigned to either the hourly pay or incentive pay condition.

PAYMENT

All participants were paid in cash at the end of the study. This procedure was used to control for any potential confounding effects of payment and researcher praise as other sources of feedback, in addition to self-solicited feedback.

INTRODUCTORY SESSION

After informed consent was obtained, each participant's eligibility was determined. Participants were then given the opportunity to try the experimental task and the available computer games. Participants were paid \$5.75 for attending this session.

PRETEST SESSION

Participants attended a 45-minute pretest session during which their rate of correct check completion per minute was assessed. This measure was used as a covariate in the statistical data analysis to control for differences in initial keyboard proficiency. Participants were paid \$5.75 for attending this session.

EXPERIMENTAL SESSIONS

Participants attended three 45-minute experimental sessions, each scheduled on different days. Data from a previous study (Johnson et al., 2008) indicated that most participants stabilized their performance on the task within three sessions. Before each session, participants were reminded about how they would be paid and that they could take breaks to play the computer games or just relax at any time during the session. To end the sessions, the researcher knocked on the door and entered the experimental room.

DEBRIEFING SESSION

Immediately after their last experimental session, participants were told (a) how many checks they completed correctly each session, (b) how many total checks they completed correctly during the study, and (c) how many times they solicited feedback on their performance during each session. Participants also completed a short poststudy questionnaire to determine

their satisfaction with the option to solicit performance feedback and their self-reported goal-setting behavior. After completing the questionnaire, participants were paid.

RESULTS

Primary Analyses

The main purpose of the study was to determine whether participants would self-solicit feedback more when they were paid individual incentives than when they were paid hourly. The average frequency of feedback solicitation during experimental sessions was 6.89 ($SD = 5.44$) for the hourly group and 5.33 ($SD = 4.76$) for the incentive group. The obtained difference in frequency of feedback solicitation between the incentive pay and hourly pay groups of 1.56 was evaluated using a one-way ANOVA; no statistically significant difference was found, $F(1, 58) = 1.39, p = .243$. Thus, participants did not self-solicit feedback more when they were paid individual monetary incentives. Figure 1 displays the distribution of the average frequency of feedback solicitation by individuals in each pay group across the three experimental sessions.

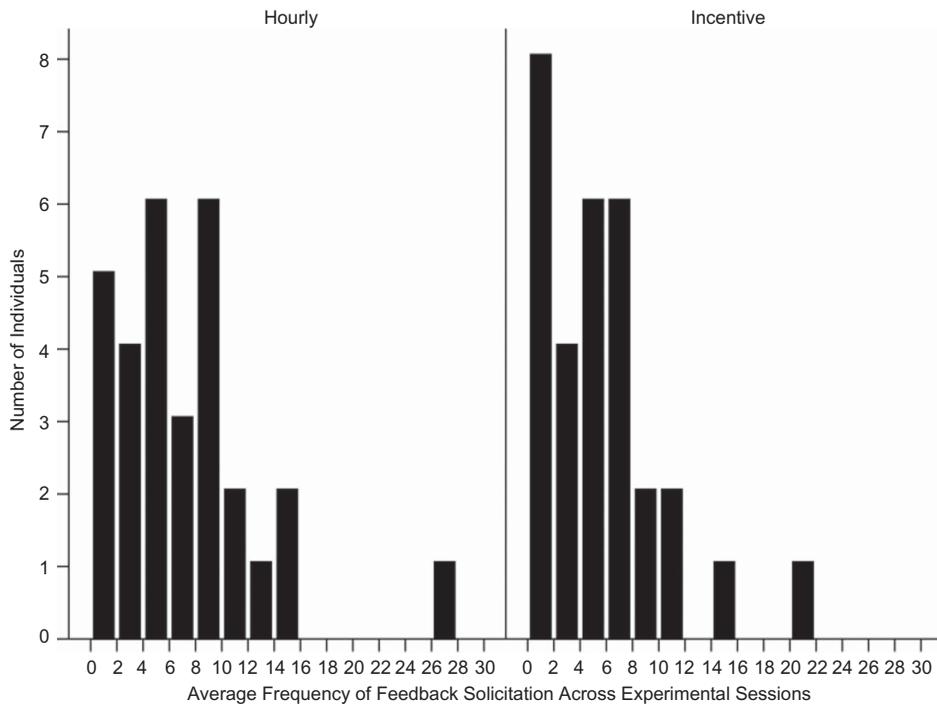


FIGURE 1 Average frequency of feedback solicitation for each pay group across the three experimental sessions (data are grouped in two-bin intervals).

Figure 2 displays the average frequency of feedback solicitation for each pay group during 5-min intervals across all three experimental sessions. This figure shows an increasing trend across time for participants in the incentive group; that is, feedback solicitation increased as time to the end of the session approached. Frequency of feedback solicitation was variable across session intervals with no apparent trends for participants in the hourly group.

Secondary Analyses

To determine whether the average number of correctly completed checks differed for the two pay groups, an ANCOVA was conducted using keyboard proficiency as the covariate. The rate of correct check completion per minute during the pretest session was used as the measure of keyboard proficiency.

The average number of correctly completed checks during experimental sessions was 632.40 ($SD = 258.10$) for the hourly group and 885.70 ($SD = 200.00$) for the incentive group. The adjusted means for task performance, using keyboard proficiency as a covariate, were 635.94 for the hourly group and 882.14 for the incentive group. The obtained difference of 246.20 checks for the pay system variable was evaluated using a one-way between subjects ANCOVA; a statistically significant difference was found, $F(1, 57) = 32.10$, $p = .000$. Thus, participants completed more checks correctly when they were paid individual monetary incentives.

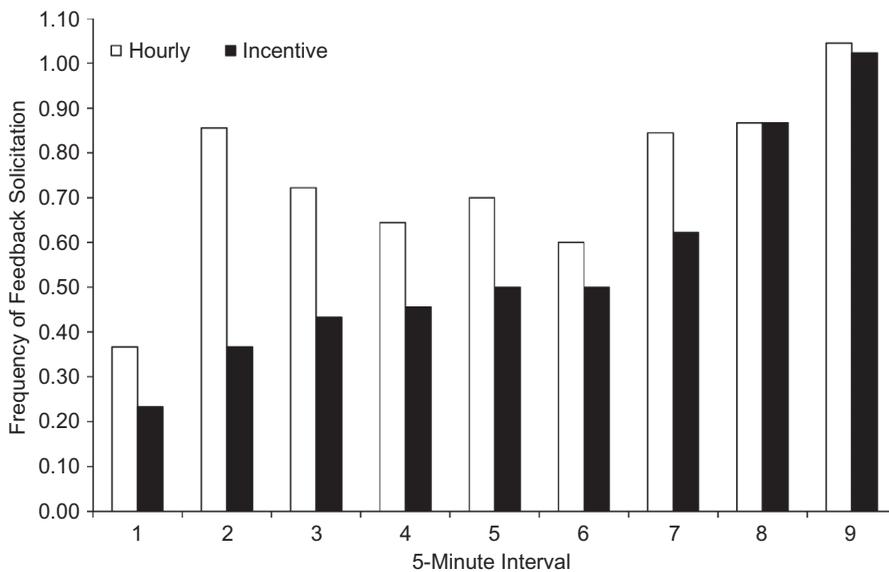


FIGURE 2 Average frequency of feedback solicitation for each pay group during 5-minute intervals.

To determine whether participants who self-solicited feedback also performed better, a Pearson product-moment correlation was conducted to determine the relationship between feedback solicitation and task performance. The relationship between these variables was not statistically significant, $r = -0.100$, $p = .447$.

The number of correctly completed checks could have been affected by the time spent performing the task. The average time on-task (in minutes) during experimental sessions was 42.82 ($SD = 4.54$) for the incentive group and 31.99 ($SD = 10.28$) for the hourly group. The obtained difference in time on-task between the incentive pay and hourly pay groups of 10.83 was evaluated using a one-way ANOVA; a statistically significant difference was found, $F(1, 118) = 55.72$, $p = .000$. Thus, participants spent more time on-task when they were paid individual monetary incentives. Additionally, a Pearson product-moment correlation was conducted to examine the relationship between the number of correctly completed checks and time on-task. The relationship between these variables was statistically significant, $r = 0.835$, $p = .000$, suggesting that the number of correctly completed checks was influenced by the amount of time participants spent performing the task.

Amount of Money Earned

Participants in the hourly pay group earned \$5.75 per session regardless of performance, and thus earned a total of \$17.25 ($SD = 0.00$) across the three sessions. Participants in the incentive pay group earned \$0.007 per correctly completed check and completed an average of 2,657.10 checks correctly across the three sessions (885.70 per session), thus earning an average of \$18.60 ($SD = 4.22$) across the three sessions. The obtained difference between the amount earned by participants in the two pay groups, 1.35, was evaluated using a one-way ANOVA; no statistically significant difference was found, $F(1, 58) = 3.081$, $p = .084$. Thus, our attempt to equate the amount of money earned across the two groups was successful.

Self-Report Data

Table 1 displays the frequency and percentage of participant responses obtained from items on the poststudy questionnaire with regard to self-solicited feedback. Across the two groups, 85% ($n = 51$) of the participants reported that they liked having the option to solicit feedback; 92% ($n = 55$) actually did solicit feedback during the study.

Eighty percent ($n = 48$) of participants self-reported that they set performance-related goals. Table 2 displays a summary of participant responses obtained from items on the poststudy questionnaire with regard to the types of performance goals set; responses are organized by experimental condition.

TABLE 1 Participant Comments: Self-Solicited Feedback

Experimental condition & item	Response <i>n</i> (%)		
	Yes	No	N/A or No response
Hourly (<i>n</i> = 30)			
Liked option to solicit feedback	26 (87%)	2 (7%)	2 (7%)
Would prefer another type of feedback	6 (20%)	24 (80%)	0 (0%)
Felt feedback improved performance	23 (77%)	6 (20%)	1 (3%)
Felt feedback caused goal-setting	22 (73%)	2 (7%)	6 (20%)
Incentive (<i>n</i> = 30)			
Liked option to solicit feedback	25 (83%)	1 (3%)	4 (13%)
Would prefer another type of feedback	8 (27%)	21 (70%)	1 (3%)
Felt feedback improved performance	22 (73%)	4 (14%)	4 (14%)
Felt feedback caused goal-setting	21 (70%)	2 (7%)	7 (23%)

TABLE 2 Participant Comments: Performance Goals

Experimental condition & type of goal set	<i>n</i>	Percent
Hourly (<i>n</i> = 22)		
Overall quantity	14	64%
Improved performance (quantity and/or accuracy) over previous session	3	14%
Accuracy	3	14%
Remain on task for a predetermined amount of time	2	9%
Incentive (<i>n</i> = 26)		
Overall quantity	15	58%
Improved performance (quantity and/or accuracy) over previous session	6	23%
Rate	1	4%
Remain on task for a predetermined amount of time	2	8%
Not specified	2	8%

DISCUSSION

The results of the present study suggest two main conclusions regarding feedback solicitation. First, participants who were paid individual monetary incentives did not self-solicit feedback more often than those who were paid an hourly wage. Both groups, however, solicited feedback quite often during the session. Second, the frequency of feedback solicitation increased as time to the end of the session approached for individuals paid monetary incentives; no clear trend was observed for those paid hourly.

Regarding task performance, two main conclusions can be made. First, task performance differed significantly between the two pay groups: participants completed more checks correctly when they were paid individual

monetary incentives. Second, task performance was not associated with feedback solicitation. That is, individuals who self-solicited performance feedback more did not complete more correct checks than those who did not solicit feedback as often.

The above results imply that monetary incentives did not increase the reinforcing value of self-solicited feedback in comparison to hourly pay. This was true even though participants performed significantly better when paid incentives, indicating that the individual monetary incentives were functional rewards. On the other hand, participants could not work while viewing the feedback, which could well have suppressed or punished feedback solicitation by participants in the incentive condition even though feedback solicitation required only a few seconds.

It is possible that feedback solicitation did not differ across the groups because the task was a relatively simple data-entry task. External, formalized feedback may have a more pronounced effect when provided for complex tasks, where success or progress is not so obvious. One of the reasons this task was selected, however, was because individuals cannot easily keep track of the number of checks they complete. For example, in the current study, participants in the hourly pay group completed an average of approximately 632 checks correctly per session, and those in the incentive group completed an average of approximately 886 checks correctly. Thus, it would have been very difficult for participants to keep a tally while working. In addition, participants in both groups self-solicited feedback quite often. The relatively high rates of feedback solicitation across both pay groups suggest that the performance feedback was reinforcing regardless of whether it was correlated with differential rewards.

Self-solicitation of feedback was not related to improved task performance. This result contradicts those of two previous studies (Earley, 1988; Northcraft & Earley, 1989). Both found a positive association between self-generated computer feedback and performance. One reason for the discrepancy might be that feedback was combined with goals in those studies.

Assigned performance goals were absent in this study; however, 80% ($n = 48$) of the participants reported that they engaged in self-generated goal setting. The distinction between assigned and self-generated goals is important with regard to the interpretation of the results of the present study. Assigned performance goals imply some element of evaluation from an outside source. In addition, assigned goals imply, based on the behavioral histories of most individuals, that goal attainment will be followed by a positive consequence and that failure to meet the goal will be followed by a negative consequence. In contrast, there is no contingency between self-generated goals, performance, and programmed reinforcers and punishers. For example, an individual could self-generate a goal that is much lower than normative performance. Thus, although most participants in this study

generated personal goals, those goals were not assigned goals and therefore did not imply evaluation by an external source (e.g., the researchers).

The function of self-generated goal setting, as it relates to the results of the current study, is unknown. The self-generated goals could have influenced performance and may account for the undifferentiated performance between the two pay groups with regard to feedback solicitation. For example, the self-generated goals may have functioned as motivating operations (Michael, 2007), making the feedback reinforcing (or more reinforcing) because participants could compare their performance to their self-generated goal. Given that the majority of participants engaged in self-generated goal setting, the extent to which self-solicitation of feedback is related to self-generated goal setting should be examined. Furthermore, studies should investigate whether self-solicitation of feedback engenders more goal setting than feedback provided by other sources, such as a supervisor. Self-solicitation of feedback may increase the frequency of self-generated goal setting because individuals have the option to solicit performance feedback more often and more immediately from a computer source than may be possible from a supervisor or alternative source.

The results of the present study are similar to those found by Johnson et al. (2008), providing additional evidence that objective feedback does not enhance performance regardless of whether the feedback is paired with hourly pay or individual monetary incentive pay. Rather, as suggested by Johnson et al., an evaluative component may be necessary to enhance performance even when feedback is provided along with incentives or other forms of differential consequences. Researchers have not yet compared the effects of evaluative versus objective feedback delivered by a computer. Future research should examine self-solicited feedback when combined with some type of evaluative component that informs performers how well they are doing in comparison to an objective standard or in comparison to others. Future research should also compare the frequency of self-solicited feedback when the feedback is evaluative (i.e., you did *X*, and the standard is *Y*) and some reinforcement contingency is in effect versus when feedback is evaluative and there is no reinforcement contingency in effect.

Although the frequency of feedback solicitation was not significantly different between the two pay groups, a difference in the patterns of self-solicitation across time was observed. Feedback solicitation increased as time to the end of the session approached for individuals paid monetary incentives, while the frequency of feedback solicitation was variable across session intervals for participants paid hourly. One possible explanation for this difference is that the reinforcing effectiveness of self-solicited feedback might have changed over time for individuals paid incentives. Since the number of correctly completed checks was directly related to the amount of money earned, the effect of solicited feedback (indicating high or low numbers) could have varied depending on the amount of time left in the session.

For example, self-solicited feedback may have been a weak reinforcer (or possibly even a punisher) at the start of the experimental sessions because the feedback would have indicated low levels of performance associated with a small amount of money earned. However, toward the end of the session (e.g., during the last 15 minutes), the solicited feedback was more likely to indicate a higher number of correctly completed checks. Thus, in this case, the feedback was associated with a larger amount of money earned and may have been a stronger conditioned reinforcer for the solicitation response, yet still not sufficiently strong to influence the total number of correctly completed checks.

A strong relationship was found between the number of correctly completed checks and the time spent on-task. Additionally, participants who received incentives spent significantly more time performing the task than those paid hourly. These results are similar to those of other incentive studies using the same experimental task (Johnson et al., 2008; McGee, Dickinson, Huitema, & Culig, 2007). Thus, these results provide additional support for the contention that one of the reasons individual monetary incentives improve performance on this type of rate-oriented task is because individuals spend more time performing it.

There are limitations to the generality of the results of this study. The most obvious is the fact that this was a laboratory simulation; thus, generality to actual work settings is limited. Additionally, although the use of EPM systems is increasing (Mallo et al., 2007), computer-delivered feedback is not currently representative of how feedback is typically provided in the work place. Typically, feedback is delivered by another individual (e.g., supervisor) and is paired with some degree of evaluation. Moreover, delivering feedback via an EPM system would not be possible for all job tasks, since many do not permit measurement by a computer-tracking mechanism.

Another limitation concerns the fact that participants in the monetary incentive condition were unable to engage in the experimental task while looking at performance feedback. Even though it took only seconds to solicit the feedback, it is possible that this procedural deficit both suppressed and punished feedback solicitation for participants in the incentive group. Future studies should examine self-solicited feedback when participants can continue working. On the other hand, from a practical perspective, it is likely that in a work setting self-solicitation will also result in lost work time.

Despite its limitations, this study is important because it was the first to attempt to identify variables that might influence feedback solicitation other than feedback source (Kluger & Adler, 1989), and is in that sense foundational. Hopefully, it will generate additional studies. Identifying conditions under which feedback solicitation occurs and influences performance would allow researchers to identify the function of this form of feedback (theoretical advantage), as well as allow organizations to set up effective EPM feedback systems (applied advantage).

In addition, the current study included a direct measure to detect when individuals came into contact with performance feedback. Previous studies (e.g., Bucklin et al., 2003; Johnson et al., 2008) did not assess whether individuals actually attended to the feedback that was available.

Given the current results and associated implications, several possibilities for future research exist. An extension of the present study, currently underway, is focused on the frequency of feedback solicitation and performance, with and without an evaluative component, under hourly pay and individual monetary pay conditions. If a difference is found, it would be appropriate to assess whether the frequency of feedback solicitation and performance differs under hourly versus incentive pay conditions when evaluative feedback is delivered by a supervisor/experimenter or self-solicited from a computer. An additional phase could be added to the second study to determine worker preference; once individuals have been exposed to both sources of evaluative feedback, they could be given the choice to work under either condition.

As indicated earlier, this study was one of the first to use a direct measure of whether individuals came into contact with computer-provided feedback by requiring participants to make a response to obtain that feedback. In addition, it was the first to examine conditions under which feedback solicitation will occur and conditions that may increase the frequency of feedback solicitation. Although the current results demonstrated no difference in the frequency of self-solicited feedback between individuals paid hourly versus those paid incentives, these results do provide support for the contention that feedback might not be effective unless paired with an evaluative component, such as praise, criticism, or assigned goals. Thus, this study provides a foundation for future research to examine other factors that may influence self-solicited feedback, as well as factors that may enhance the effectiveness of this type of feedback.

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