

Considerations in Feedback Delivery: The Role of Accuracy and Type of Evaluation

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Performance feedback remains a commonly implemented and successful intervention within organizational behavior management, but a comprehensive understanding of the components that influence the effectiveness of feedback tends to be lacking. The present study sought to contribute by analyzing the variables of accuracy (contingent on or independent of performance) and evaluation type (supportive or critical judgments) on performance using a simulated work environment. A total of 75 undergraduate students were randomly assigned to 1 of 4 experimental conditions: (a) contingent and supportive feedback, (b) contingent and critical feedback, (c) independent and supportive feedback, or (d) independent and critical feedback. Outcomes suggested that contingent feedback improved performance relative to independent feedback, however, no differences were found between supportive and critical types of feedback. The need for additional research into the functional and formal elements of effective feedback is also discussed.

KEYWORDS *accurate feedback, contingency, evaluative feedback*

Performance feedback, both in isolation and in combination with other intervention components, has long remained one of the most commonly studied and implemented variables in both research and application for organizational behavior management and related disciplines (Alvero, Bucklin, & Austin, 2001; Daniels & Bailey, 2014; Kluger & DeNisi, 1996). A study by VanStelle et al. (2012) reported that 65% to 71% of articles published over a three-decade period in the *Journal of Organizational Behavior Management*

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used feedback as an independent variable. Feedback has also been applied successfully in a wide range of organizational settings to improve performance across an extensive variety of tasks. Among many recent examples, Rose and Ludwig (2009) applied feedback in combination with a larger treatment package to improve lifeguards' completion of job tasks at a swimming pool complex. Slowiak, Dickinson, and Huitema (2011) did work examining whether those paid individual monetary incentives would self-solicit feedback more or less often than those in an hourly wage condition. Palmer and Johnson (2013) examined the impact of task clarification and feedback on restaurant punch-in times. Durgin, Mahoney, Cox, Weetjens, and Poling (2014) implemented feedback as part of an intervention to enhance the performance of animal trainers for a nongovernmental organization. The breadth of settings and prolonged time period in which feedback has been repeatedly implemented suggests that this favored stimulus will continue to be one of the primary interventions in organizational behavior management.

Although the quantity of feedback interventions and research has continually expanded over the years, the range of research questions has remained relatively limited in scope. As illustrated here, much of the literature in this area has focused on how feedback impacts behavior or the seeking of feedback. However, research to determine the necessary elements for feedback to be effective has remained rare within the literature (D. A. Johnson, 2013). Such component analyses are critical for understanding the mechanism of action involved in this frequently utilized variable. As previous research has demonstrated, the effects of feedback are not uniform (Alvero et al., 2001). Some of this variability may be attributed to the many possible functions of feedback.

As authors such as Peterson (1982) and D. A. Johnson (2013) have highlighted, feedback can develop a variety of potential stimulus functions depending on the individual's learning history and current organizational contingencies. These functions could include feedback operating as a reinforcer, punisher, conditioned stimulus, discriminative stimulus, or conditioned motivating operation. Furthermore, it is quite possible that feedback could serve multiple functions simultaneously. *Feedback* is a general term that often incorporates many components. Performance evaluation and objective performance appraisal are just a few common examples. The various components of feedback may serve different behavioral functions as well. Depending on how the evocative and abative elements of individual components are summed together in relation to the individual's unique learning history, the behavioral effects of feedback may be quite variable. Thus, it is important that the individual elements of feedback be understood and detailed as precisely as possible.

The typical delay between the provision of feedback and desired performance is likely to prohibit it from functioning as a direct reinforcer

or punisher (Malott, 1992). However, feedback can still play a role as a consequence through the mediation of verbal processes that bridge the delay between performance and the subsequent feedback (Agnew & Redmon, 1992; Haas & Hayes, 2006; R. A. Johnson, Houmanfar, & Smith, 2010; Smith, Houmanfar, & Denny, 2012). For instance, the performer's self-generated verbal stimuli (e.g., hearing oneself think or speak "Hey, that was a good job I did!" or "That's awful, I'll be in trouble for sure") may serve as direct reinforcers or punishers because of the correlation of such response products with the subsequent feedback provided by others. Thus, the feedback may serve indirect reinforcement or punishment functions.

As stated previously, feedback can also function as an antecedent for evoking subsequent performance (Agnew, 1998; Fellner & Sulzer-Azaroff, 1984; Squires & Wilder, 2010). For example, feedback could function as a reflexive conditioned motivating operation (CMO-R). A CMO-R involves a stimulus that is reliably correlated with some form of worsening in conditions, and therefore the removal of this stimulus will also function as reinforcement for any behaviors that result in such removal (Michael, 2004). For instance, a manager may provide evaluative feedback such as "Your performance has been horrible lately and you'll be in serious trouble if I don't see improvements soon!" Such a statement may function as a CMO-R, much like a warning stimulus for a forthcoming shock, which would evoke performance improvements in order to remove the managerial threat. In this case, the proverbial shock would be, as stated by Michael (2004), "a steadily worsening continuum of social interactions, the termination of which at any point functions as social negative reinforcement for the problem behavior" (p. 157).

Alternatively, feedback could also function as a transitive conditioned motivating operation (CMO-T). A CMO-T involves the presentation of one stimulus (S1), which changes the value of another stimulus (S2) while also evoking behaviors to produce that second stimulus (Michael, 2004). For example, a salesclerk may encounter a hostile customer, which evokes the behavior of calling his or her manager over to help deal with that customer. The stimulus of a hostile customer (CMO-T; S1) makes the sight of the manager (S2) more reinforcing (to avoid possible confusion with S^Ds, note that the managerial presence is more valuable, not more available in this example). To give an example relevant to feedback, evaluative feedback (S1) may function as a CMO-T to increase the reinforcing value of objective feedback (S2). After receiving a positive or negative evaluation, an employee may begin to regularly solicit objective feedback on his or her performance (e.g., "I want to know details on my performance now that I know my manager is paying attention to those numbers").

Besides the conditioned motivating operations that were mentioned, other antecedent relations such as surrogate conditioned motivating operation and discriminative stimulus function remain as possible functions for

feedback. The broader point is that these diverse functions of feedback may produce different effects on behavior, which may help explain the considerable variation in the effects of feedback implementations across the literature. For instance, CMO-Rs evoke behaviors to terminate the motivating stimulus. Once such termination is successfully achieved, there is no motivation for additional behavior. In organizational terms, the employee may do just enough to remove the managerial threat and no more. Other types of antecedents may not carry such a self-terminating feature and may therefore generate additional discretionary effort on the part of the employee. As an aside, these differences in performance patterns have sometimes been attributed to differences in the use of positive and negative reinforcement (for an example, see the discussion of J curve performance in Daniels, 2000), but given the conceptual problems in maintaining such a distinction (see Michael, 2004, for a detailed elaboration) it may be more profitable to analyze these as differences in terms of antecedent stimuli instead.

Such variations in feedback functions may be problematic and can lead to confusion on why feedback sometimes appears to be effective on an inconsistent basis. For example, previous research has demonstrated that objective feedback by itself does not necessarily improve performance (Anseel & Lievens, 2009; D. A. Johnson, Dickinson, & Huitema, 2008). D. A. Johnson et al. (2008) conducted a study designed to examine whether objective feedback would enhance the effectiveness of monetary and non-monetary rewards. Their results indicated that although an incentive pay system significantly increased performance in comparison to fixed pay, the objective feedback did not affect performance in either the incentive pay or the fixed pay conditions. Similarly, Anseel and Lievens (2009) also suggested that the simple provision of information about performance may not be sufficient to change performance.

Rather than merely providing information, feedback requires certain characteristics to be effective (Balcazar, Hopkins, & Suarez, 1985-1986). For example, it has been shown that performance feedback needs to incorporate some aspect of evaluation (supportive or critical statements) to achieve maximal performance (D. A. Johnson, 2013). It has also been suggested that another characteristic for delivering effective feedback is to make it individualized whenever feasible (Daniels & Bailey, 2014). One could presumably deliver evaluative feedback on an individual basis while still remaining ignorant of the recipient's true accomplishments (e.g., approaching all employees and blindly praising each one with a unique compliment regarding performance). However, in order for feedback to truly be tailored to the individual, it should be based on the employee's actual performance, not presumed performance. Past research has demonstrated that one of the most important distinctions between effective and ineffective managers is how often they monitor the actual performance of employees (Komaki, 1986). In an observational study, Komaki (1986) examined differences in manager behavior as

it related to manager effectiveness ratings and found that effective managers monitored performance about 50% more often than marginal managers. Whether managers used a certain type of consequence was irrelevant to their effectiveness rating. Thus, effective managers do not necessarily deliver more feedback; rather, they deliver feedback that reliably follows performance. Although it was not demonstrated experimentally, such research suggested that the delivery of *contingent* consequences was more critical than whether the consequences were positive or negative.

Frequent monitoring of performance may also be effective because performance feedback becomes more accurate (and more contingent) when managers actually sample workplace behavior. It has also been suggested that employees will develop greater job satisfaction and preferences for managers who are viewed as more credible (Anseel & Lievens, 2007). Furthermore, the accuracy of feedback appears to be related to the acceptance of such feedback (Christian & Bringmann, 1982). Taken together, this evidence suggests that feedback should be evaluative in nature and that these evaluations should be accurate representations of the employee's performance.

In practice, the provision of accurate feedback may often be violated by uninformed supervisors. One possibility is that well-meaning managers could be delivering positive feedback evaluations that may result in detrimental organizational effects when such praise is undeserved. For example, Bill Abernathy described a manager who was asked to engage in performance management but did not want to criticize his employees. Thus, the manager "never looked at the teams' performance records—he simply said 'well done' to everyone regardless of their performance!" (Abernathy, 1996, p. 58). Similarly, it is possible that unwarranted criticism would also undermine performance. Feedback that has a history of being biased is also feedback that may come to be ignored by the recipient of such evaluations (Carter & Dunning, 2008). In addition, the harmful long-term effects of inaccurate but praising feedback have been documented outside of business settings (Bradfield, Wells, & Olson, 2002). For example, Hirst, DiGennaro Reed, and Reed (2013) used a between-groups design to examine the effects of accurate and inaccurate feedback on the acquisition of a new task that was similar to the type of tasks used in educational settings. Their research found not only that acquisition was inhibited for the group that initially received inaccurate feedback but that learning continued to be impaired even after feedback was subsequently made accurate for all groups.

Conversely, it is also possible that inaccurate feedback may have beneficial effects. It has been demonstrated that people tend to react favorably toward inaccurate, but positive, assessments (Dunning, 2006). Research has also shown that global (i.e., nonindividualized) and positive feedback tends to also be favored (Davies, 1997). Furthermore, individuals low in competence are likely to overestimate their abilities and thus may be easily inclined

to accept positive assessments to the point of actively preferring positive and inaccurate feedback over negative but accurate feedback (Kruger & Dunning, 1999). Thus, it may be important to consider how performers of different skill levels react to accurate and inaccurate feedback. It is worth noting that many of these studies were assessing feedback accuracy on preference, not necessarily the impact of feedback accuracy on performance.

Although research on the necessity of accurate or contingent elements for feedback delivery is relatively rare, similar research regarding accuracy in the workplace has been conducted. Research by Rubin, Bommer, and Bachrach (2010) examined the differential effects of contingent and noncontingent consequences on organizational citizenship behaviors using a survey method. Organizational citizenship behaviors were operationalized as supervisor ratings of altruism, civic virtue, courtesy, and sportsmanship. Contingent reward had a strong positive relationship with such behaviors and noncontingent punishment had a strong negative relationship, but the effects of noncontingent reinforcement and contingent punishment were less clear. Noncontingent reinforcement had a positive, yet weak, relationship with organizational citizenship, and contingent punishment had a neutral relationship. Smith et al. (2012) also looked at the impact of accuracy for workplace settings, although they examined rules that accurately or inaccurately described organizational contingencies. They found that inaccurate rules may have a negative effect on performance and may also generate undesirable rumor, but it is not known whether this detrimental effect could also extend to inaccurate feedback.

As the previous literature suggests, it is possible that undeserved outcomes, including feedback, could potentially help or hinder employee performance. Further investigations in this area could enhance the field's understanding of the essential components of feedback and ultimately increase the precision with which feedback interventions are implemented. The present study proposes to make such a contribution through an examination of the effect of (a) delivering contingent or noncontingent feedback that is (b) supportive or critical on the number of checks completed correctly by college students during a work simulation task.

METHOD

Participants and Setting

A total of 118 undergraduate students were recruited by posted recruitment flyers and from courses at a midwestern university in the United States. Although participants were not offered any direct compensation from the researchers, the university courses they were enrolled in may have offered extra credit based on the number of hours spent participating in research.

Sessions were conducted in a small university room with cubicle workstations. Each workstation contained a desktop computer and was arranged so that each individual screen could not be seen by other participants. A cubicle wall separated the experimenter from participants, and the experimenter remained out of view of the participants while they completed the experimental task.

Experimental Task and Alternative Activities

The experimental task was a computerized application involving a data entry task in which participants entered dollar amounts that appeared on simulated bank checks ranging from \$10.00 to \$999.99. The computer automatically recorded the number of check values that were accurately typed. The task was modeled after the job of a check processor at a bank and was intended to represent any work function involving a high quantity of repetitions. At the end of every session, the experimental task would display an on-screen summary of the individual's number of checks correctly entered. This was the same experimental task as used in D. A. Johnson et al. (2008) and D. A. Johnson (2013). At any time during the experimental sessions participants could play one of six computer games (FreeCell, Solitaire, Spider Solitaire, Hearts, Minesweeper, and Pinball) instead of working on the experimental task and return to the experimental task whenever they wished. These computer games were intended to serve as alternative activities to prevent participants from working at a high rate simply because of a lack of competing options.

Dependent Variable

The number of checks completed correctly during the final two experimental sessions served as the primary dependent variable. The rationale for using the final two sessions was that it would likely take multiple experimental sessions for participants to detect any consistent accuracy or inaccuracy in feedback delivery, and therefore any effects would likely take some time to emerge. Postexperimental survey responses regarding feedback accuracy were also collected for each participant.

Independent Variables

The independent variables were the mode of feedback delivery (contingent delivery or independent delivery) and category of evaluative feedback (supportive or critical feedback). The evaluative nature of the feedback statements was validated using a sample of undergraduate students ($n = 20$) who did not participate in the current study (see the Appendix). This separate

sample read each of the evaluative statements in random order on an anonymous survey and rated them on a 1–7 Likert-type scale (1 = very critical, 4 = neutral, 7 = very supportive). The supportive statements received an overall average rating of 6.0 (individual statements ranging from 5.2 to 6.6). The critical statements received an overall average rating of 2.7 (individual statements ranging from 2.2 to 3.3). It is important to note that these ratings were based on a textual reading of the statements and therefore did not carry the tone or inflection of voice that the actual participants experienced (see “Researcher Training”).

A 2×2 factorial design was used and consisted of participants being randomly assigned to one of four experimental conditions: (a) contingent and supportive feedback, (b) contingent and critical feedback, (c) independent and supportive feedback, or (d) independent and critical feedback. Each participant was exposed to only one of the experimental conditions. The details for each of the experimental conditions are described next.

CONTINGENT AND SUPPORTIVE FEEDBACK

If the participant’s performance during the previous session was an improvement over his or her previous best performance (defined as 5% or better than his or her previous best performance), then the participant was read one of seven supportive statements at the beginning of the experimental session (e.g., “Regarding your performance during last session, that was an impressive improvement. Keep up the great work!”). To prevent evaluations from appearing rote, feedback statements were never repeated for an individual participant (this variation procedure was used for all four experimental conditions). If performance worsened or did not change during the previous session (defined as less than a 5% improvement over previous best performance), then the experimenter did not make any evaluative statements at the beginning of the experimental session.

CONTINGENT AND CRITICAL FEEDBACK

If the participant’s performance during the previous session was worse than his or her previous best performance (defined as 5% or worse than his or her previous best performance), then the participant was read one of seven critical statements at the beginning of the experimental session (e.g., “Regarding your performance during last session, you didn’t do great during that session and we’d love to see you do better than that”). If performance improved or did not change during the previous session (defined as less than a 5% worsening compared with previous best performance), then the experimenter did not make any evaluative statements at the beginning of the experimental session.

INDEPENDENT AND SUPPORTIVE FEEDBACK

Regardless of the participant's previous performance, the participant was read one of seven supportive statements at the beginning of the experimental session.

INDEPENDENT AND CRITICAL FEEDBACK

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Researcher Training

Prior to beginning the study, the researchers and research assistants involved in the direct implementation of the independent variables (graduate and advanced undergraduate students) were trained extensively in the delivery of feedback using multiple sessions of role-playing. This training continued until there was a subjective consensus among all members of the research team that each individual researcher's delivery sounded unrehearsed, realistic, and sincere without reading directly from a script. The researchers were also trained to speak firmly and without hesitation. Although this delivery was primarily neutral in tone, part of sounding natural did require that supportive statements be delivered with a mildly friendly tone and critical statements be delivered with a mildly disapproving tone. Although this is clearly a subjective quality, it was believed that this was important to ensure that the feedback was received as intended because the words alone could possibly be interpreted in multiple ways by the recipient.

Experimental Procedures

All participants attended an introductory session during which informed consent was obtained. Following the introductory session, participants were randomly assigned to one of four experimental conditions and scheduled for two 45-min pre-experimental sessions as well as seven 45-min experimental sessions.

At the beginning of the first pre-experimental session, the experimenter demonstrated the experimental task and alternative activities to the participant. If the participant verbally indicated that he or she understood the tasks and was ready to begin, the experimenter then stated the initial session instructions:

If you have a cell phone, please silence it during this session and for all remaining sessions. You may take a break whenever you like for as long as you like. You may play one of the computer games as a break, or

you may also just stretch and relax. After I start the check task, I will be available on the other side of the wall. If you need anything during the session, just come get me. Do you have any questions?

The experimenter would start the experimental task and leave the view of the participant. When 45 min had elapsed, the experimenter stopped the experimental task, which then displayed the number of checks completed correctly on the computer screen. At this point the experimenter stated (filling in the blank with the on-screen data): "As you can see, you correctly completed ____ checks during today's session. Your job is to continually improve your performance across these sessions." The experimenter then thanked the participant for attending and concluded that day's session.

The second pre-experimental session was similar to the first pre-experimental session, except that the initial session instructions were not read. Also, when the number of checks correctly completed was displayed on the screen at the session's end, the experimenter said, "Once again, you can see your performance on the screen. Remember that your job is to continually improve your performance across these sessions." This second session concluded the pre-experimental sessions. It was important that these pre-experimental sessions (a) draw the participants' attention to the on-screen performance data and (b) emphasize the necessity of improving performance in order for later evaluations to be perceived as inaccurate in the independent conditions. For example, without this emphasis, a participant may have believed that stable performance was desirable and therefore may have viewed supportive statements regarding unimproved performance as appropriate. Introducing such goal-oriented statements to all participants equally and prior to the implementation of the independent variables also ensured that any goal setting on behalf of participants would not be confounded with a particular type of feedback. These pre-experimental procedures also provided an opportunity to collect data on average performance in the absence of the evaluative feedback and to use these data as a covariate in the subsequent analysis, thus controlling for any preexisting group differences.

At the beginning of each of the experimental sessions, the experimenter implemented the procedures as detailed in the "Dependent Variable" and "Independent Variables" sections. As was the case with the pre-experimental sessions, participants continued to receive on-screen summaries of their performance at the end of every experimental session. Unlike the pre-experimental sessions, the experimenter did not comment on, react to, or otherwise draw attention to these data as they appeared. At the end of the experimental sessions, the experimenter simply ended the task, allowed the participant to refer to the screen with his or her data, and then dismissed the participant for the day.

Following the conclusion of the final experimental session, participants were administered a survey containing the items "At least for most of the

sessions, you looked at the on-screen information about your performance that appeared at the end of sessions” and “The feedback you received from the experimenter at the beginning of your sessions appeared to be based on your actual performance.” For both items participants were asked to circle one of five possible options: strongly disagree, disagree, neutral, agree, or strongly agree.

RESULTS

A total of 43 of the 118 recruited participants withdrew before the completion of the study. These withdrawals were evenly distributed across conditions (9–12 from each group), and their data were not included in any of the analyses here. The remaining 75 participants were distributed as follows: (a) contingent and supportive feedback ($n = 20$), (b) contingent and critical feedback ($n = 16$), (c) independent and supportive feedback ($n = 18$), and (d) independent and critical feedback ($n = 21$). Table 1 displays the average percentage of performance improvement from the two baseline sessions compared with the final two experimental sessions. The results demonstrate a greater gain in performance for the two contingent feedback conditions compared with the two independent feedback conditions. A two-factor analysis of covariance was conducted using the average performance during the two baseline sessions as the covariate and the average performance during the final two experimental sessions as the dependent measure. The adjusted means resulting from this analysis can be seen in Table 2. Overall, there was a statistically significant difference for the variable of feedback accuracy ($p = .025$; contingent or independent) but no difference for the variable of evaluation type ($p = .889$; supportive or critical). Tukey pairwise comparisons indicated no individual group differences.

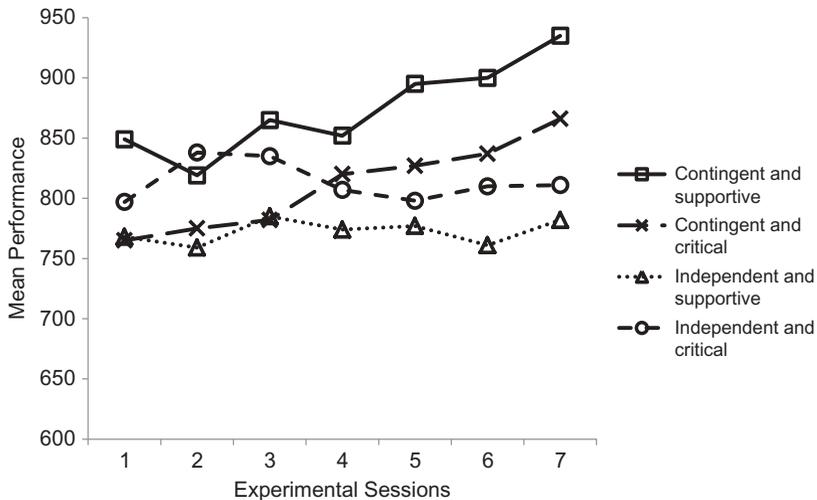
A one-factor analysis of variance was conducted to analyze the questionnaire results. For the question “At least for most of the sessions, you looked at the on-screen information about your performance that appeared at the end of sessions,” no statistically significant differences were found among the groups ($p = .632$). For the question “The feedback you received from the experimenter at the beginning of your sessions appeared to be based on your actual performance,” a statistically significant difference among groups

TABLE 1 Average Percentage of Performance Improvement From the Two Baseline Sessions to the Final Two Experimental Sessions

Condition	Improvement
Contingent and supportive	21%
Contingent and critical	21%
Independent and supportive	13%
Independent and critical	9%

TABLE 2 Adjusted Means for Correctly Completed Checks

Category of Evaluative Feedback	Contingent feedback	Independent feedback	Overall
Supportive feedback	884.8	801.6	843.2
Critical feedback	886.3	789.1	837.7
Overall	885.5	795.3	

**FIGURE 1** Average number of checks completed correctly over time.

was found ($p < .001$). Tukey pairwise comparisons indicated that each of the two contingent groups were rated higher than both of the independent feedback groups at the $p < .001$ level. No other significant differences were obtained.

All participants received feedback at least once during the study, with the two independent conditions receiving feedback for every experimental session. For both contingent conditions, the number of feedback deliveries ranged from 1 to 4 instances (out of seven possible sessions). Feedback was delivered on average 2.3 times ($SD = 1.03$) for the contingent and supportive condition and delivered on average 2.1 times ($SD = 1.08$) for the contingent and critical condition.

Figure 1 shows the average dependent variable performance across all seven experimental sessions for the four experimental groups.

DISCUSSION

Across both the supportive and critical conditions, independent (i.e., inaccurate) feedback proved to be less effective at producing gains in performance

than contingent (i.e., accurate) feedback. A prior study by D. A. Johnson (2013) demonstrated that adding evaluative elements to feedback can enhance the effectiveness of objective feedback (and vice versa). The present study extends that previous research by showing that although evaluative feedback may be important, ensuring that it coincides with actual performance may be just as critical. Results of the present study are also consistent with the implications of the Komaki (1986) study, which suggested that the type of consequence was irrelevant, although the accuracy of those consequences was critical for improving managerial effectiveness.

As Figure 1 suggests, not only were contingent conditions superior overall, but gains continued to occur across sessions. This has important implications for organizations in which employees are likely to have extended histories with supervisors whose provision of feedback may tend to be contingent on or independent of actual performance. The primary message for supervisors is that they need to take the required steps to ensure that feedback is closely tied to actual performance, as this strategy is likely to reap even greater improvements in performance than what could be expected when evaluations of performance are blindly delivered.

Although it is very well established that feedback is an effective intervention for the improvement of employee performance (Alvero et al., 2001), the parameters under which feedback will be most effective are not as well documented. This study contributes another needed component analysis to the complex subject of feedback. However, more component analyses are still needed along with a continued array of future research into the variable of feedback. Given the importance of this topic for the field, several possible ideas for future studies, beyond simple demonstrations of feedback effectiveness in general, are offered here. One potential line of research would be to identify the most common functions of feedback within business and industry. Although feedback can potentially take any number of stimulus functions (S^D , CMO, etc.), some functions are likely to be more commonplace than others in organizational settings.

The current study found no differences in regard to evaluation category (supportive or critical feedback) on the dependent measure of productivity. However, it is possible that different evaluation types may produce side effects even if productivity is not negatively affected. For example, an overreliance on contingent (or noncontingent) critical feedback may contribute to a work environment that is more aversive overall, which may decrease job satisfaction as well as increase sabotage, theft, turnover, or other undesirable organizational outcomes. Although productivity itself may be unaffected in the short term, the overall organization may be harmed as employees engage in destructive acts or simply terminate their employment. Such potential side effects are worth investigating in future research endeavors. In support of this notion, research done by Rubin et al. (2010) indicated that

contingent supportive conditions had the strongest correlation with organizational citizenship behaviors, noncontingent supportive conditions were weakly correlated, contingent critical conditions exhibited a neutral relationship, and noncontingent critical conditions showed a negative relationship. The supportive aspect of feedback clearly plays a role in the promotion of variables besides performance, such as organizational citizenship behaviors, that are valued by organizations. Therefore, future research should investigate different evaluative types of feedback on measures beyond the primary job task.

The method of delivering feedback may also be a key consideration. For example, D. A. Johnson et al. (2008) found that objective feedback was ineffective in improving performance, whereas D. A. Johnson (2013) discovered a significant benefit from implementing objective feedback, despite very similar experimental arrangements. It was suggested in the 2013 study that the reason for the discrepancy was that the earlier study used computer-delivered objective feedback whereas the later study used person-delivered objective feedback. Person-delivered objective feedback presumably had an effect due to the correlation between person-delivered objective feedback and other relevant social stimuli. This assertion should be experimentally tested by future researchers, as there may be many advantages and disadvantages associated with these delivery methods. Computer-delivered feedback has the potential to be immediate and automatic but also impersonal and weakly correlated with other potent social stimuli. In addition, the choice between either computer-delivered or face-to-face feedback is not so simple in this current age of social media technology. A plethora of computer-mediated methods for delivering feedback exist, including, but not limited to, asynchronous and synchronous online discussions, video/voice messaging, and live streaming video.

In regard to social delivery considerations, it appears that evaluative feedback is better than no feedback, and it also improves on objective feedback alone (D. A. Johnson, 2013). However, there is a wide range of possibilities and combinations when using supportive or critical evaluative statements. For example, does evaluative feedback work well when using the sandwich method, in which critical feedback is delivered in between two instances of supportive feedback? Although some authors caution against this approach (Daniels & Bailey, 2014), an empirical basis for or against this technique has not been firmly established. Alternatively, one could use a value-added feedback delivery approach (Laipple, 2006) in which positive feedback is delivered within the context of asking performers to summarize their own performance and contributions. Naturally, many other possibilities exist beyond the two suggested here.

Another social consideration relates to the varying degrees of competence that employees possess. It is possible that performers of different competencies are impacted differently by the variable of feedback accuracy.

For example, it has been suggested that those who are low in competence may benefit from inaccurate positive feedback because of their tendency to overestimate their abilities and thus demonstrate a preference for this type of feedback (Kruger & Dunning, 1999). Further manipulations of this line of inquiry should examine the effect of feedback accuracy on performers of different competencies.

Finally, as more and more guidelines for empirically supported feedback delivery are developed, it will be of critical importance to train managers to reliably implement these guidelines. Research into models to promote managerial compliance with guidelines, possibly in the form of checklists or other treatment integrity aids, could be worthwhile.

Like all studies, the present experiment has some limitations, and these limitations may also stimulate future research. One limitation is the unequal quantity of feedback statements between conditions. That is, the independent conditions received feedback during every experimental session, whereas the contingent conditions did not receive feedback for some of the sessions. Presuming that feedback is more likely to have an enhancing effect than a suppressive effect, this experimental manipulation favors performance improvements for the independent conditions. This concern is mitigated by the fact that the independent conditions actually had lower performance compared to the contingent conditions, but future researchers may wish to take this factor into account. For example, contingent conditions could use neutral feedback for instances when supportive/critical statements are not appropriate or use feedback consisting of both supportive and critical statements (as appropriate) in order to equalize the number of feedback deliveries. In regard to the issue of feedback frequency, this study does highlight that simply providing a higher quantity of feedback alone is not a guarantee of improved performance if other aspects of feedback are not taken into consideration.

The present study is also limited because the independent evaluative feedback was sometimes accurate. For example, when supportive feedback was provided irrespective of performance, this meant that performance gains were accidentally followed by an accurate evaluation (likewise with independent critical feedback and performance losses). The difference in outcomes between accurate and inaccurate feedback might have been magnified if the inaccuracy was consistent rather than periodic. However, such a manipulation would also reduce the realism of the experiment. The present methodology was selected to approximate a realistic work implementation because a manager would be unlikely to go to the trouble of monitoring performance only to provide feedback that was the opposite of his or her observations. The more likely scenario is that a manager would be uniformly supportive or critical in his or her feedback regardless of the performance. Such independent feedback would be occasionally correct but not consistently correct across time or employees. Future researchers might consider

ways to increase the amount of inaccurate feedback without reducing the relevance to real-world workplaces.

Another limitation is that this study only examined one aspect of inaccuracy, namely, inaccuracy in evaluative comments. The on-screen numerical summaries of performance provided to participants were always accurate across all conditions. Both evaluative and objective feedback was used to ensure that feedback would be perceived as inaccurate by highlighting the discrepancy between the researcher's evaluation, the numerical data, and the initial instructions emphasizing continual improvements. However, it is possible for objective feedback to also be inaccurate in work settings because of poor, unreliable, or nonexistent data collection methods. Future researchers may wish to investigate situations in which both objective feedback and evaluative feedback are inaccurate or situations in which objective feedback alone is inaccurate.

Lastly, a possible limitation relates to the possibility of goal setting resulting from the pre-experimental statements. These statements from the researchers emphasized the importance of continual performance improvements, which may have led participants to covertly set goals for themselves. Although such goal-oriented statements would presumably be applied equally across conditions, this does mean that the observed differences in feedback effects may be limited to environments within the context of goal setting. It may be the case that goal setting is inherent within feedback research (i.e., participants may covertly and automatically set goals for themselves as soon as they receive feedback), but future researchers might consider limiting the impact of goal setting for feedback investigations.

This is a brief summary of some potential directions for feedback research that are currently lacking in the literature. The current study contributes to this growing knowledge base by highlighting the importance of accurate/contingent content during feedback delivery. Other variables are certain to play a role in the complex social interactions inherent to most instances of feedback delivery. The area is well suited for further research committed to refining understanding of this variable that is central to the field of performance management.

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APPENDIX Ratings of Evaluative Statements

Statement	Average rating
Supportive statements	
Regarding your performance during last session, that was an impressive improvement. Keep up the great work!	6.6
Regarding your performance during last session, thank you for putting in such great effort last time. Let's see more of that.	5.7
Regarding your performance during last session, you've been doing great and we'd love to see you continue doing well!	6.6
Regarding your performance during last session, we appreciate the effort you keep putting into this task.	5.2
Regarding your performance during last session, we'd love it if you kept working at that high level of excellence!	6.6
Regarding your performance during last session, keep at it! We'd like to see you continue improving like this.	6.2
Regarding your performance during last session, you completed quite a few checks! Let's see even more of that.	5.5
Critical statements	
Regarding your performance during last session, that wasn't an impressive performance. Let's see if you could improve today.	2.2
Regarding your performance during last session, we think you could be putting in more effort than what you did last time.	2.9
Regarding your performance during last session, you didn't do great during that session and we'd love to see you do better than that.	2.4
Regarding your performance during last session, there's a lot more room for you to improve. Let's see how well you can do.	3.2
Regarding your performance during last session, I know you're capable of better performance than that. Let's see what you can accomplish this time.	3.3
Regarding your performance during last session, that's lower than what we expect from people. Try to see if you can do more.	2.2
Regarding your performance during last session, we think you can achieve better than that. I'd like to see that achievement today.	3.0

Note. 1 = very critical, 4 = neutral, 7 = very supportive.