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Performance Feedback in Organizations: Understanding the Functions, Forms, and Important Features

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ABSTRACT

Feedback surrounds our personal and professional worlds, informing us about what worked and what did not. Within workplace settings, it is important to understand how feedback operates in order to deliberately and carefully craft performance information that, when delivered, generates desirable organizational outcomes. The current paper examines the many potential functions of feedback, including details on how such functions might be established. Behavioral investigations into how to best structure and deliver feedback are detailed, along with considerations of factors that may impact the reception of feedback. Finally, using the current literature as a blueprint, several possible research directions are suggested that would fit well within a behavior analytic perspective.

Feedback for performance has long been important, if not foundational, for improvements and adaptations, as noted by scholars in general, including the founders of our field. Consider the following quote by B. F. Skinner:

> Reflexes, conditioned or otherwise, are mainly concerned with the internal physiology of the organism. We are most often interested, however, in behavior which has some effect upon the surrounding world. Such behavior raises most of the practical problems in human affairs and is also of particular theoretical interest because of its special characteristics. The consequences of behavior may "feed back" into the organism. When they do so, they may change the probability that the behavior which produced them will occur again. The English language contains many words, such as "reward" or "punishment," which refer to this effect, but we can get a clear picture of it only through experimental analysis. (Skinner, 1953, p. 59)

Skinner introduces readers to the concept of operant conditioning, in which organisms are more than poor creatures at the mercy of the surrounding environment. Instead, our behavior operates to change the environment, just as much as we are changed by that same environment, in a reciprocal dance of control. Feedback is intrinsic to the successful adaptation of our repertoire to the world around us. Performance feedback is built-in during the delivery of

immediate consequences. This is evidenced across many aspects of our lives, including social behaviors (e.g., does our audience laugh or scowl at our attempt at humor?), cooking (e.g., do our seasonings repulse or please taste buds?), gaming (e.g., avatars perish or triumph following our button press combinations), sporting (e.g., free throw made or missed; golf shot hits the green or goes out-of-bounds), document editing (e.g., software indicates mis-spelling of our typing behaviors or accepts words without judgment), and a seemingly endless list of examples. Feedback used in organizational settings would be included in this list and can be expanded to include non-immediate consequences, although formal attempts to implement feedback are often lacking due to issues related to immediacy, frequency, objectivity, and efficacy (Daniels, 2016; Duncan & Bruwelheide, 1985). Unlike many natural sources of feedback, performance feedback in organizations is defined as the provision of information specifically given to change or maintain performance.

This paper is intended to serve several purposes centered on a behavioral understanding of the effects of feedback within organizational settings. First, this paper will cover the potential functions of feedback, adding to and elaborating upon earlier conceptual analyses (Duncan & Bruwelheide, 1985). Fully understanding such potential functions is important to ensure our field is conceptually coherent rather than a simple roster of procedural recipes (Baer et al., 1968) indistinguishable from other performance change disciplines. A comprehensive understanding of multiple functions can suggest potential evocative effects and stimulus transformations to be attentive toward. Furthermore, there may be important implications for prediction and control by understanding how different histories with feedback may result in different functional relations (Michael, 2004). As such, this paper will tend to focus on the usage of feedback within the conceptual framework of organizational behavior management (OBM), although it will not be exclusively restricted. Beyond functional and theoretical considerations, practitioners and research-ers need guidance on how to best utilize feedback to maximize performance. Furthermore, this paper will outline feedback strategies in terms of how to craft feedback, how to deliver feedback, and how to receive feedback through an informal review of the OBM literature. As always, more research needs to be conducted, and this paper will highlight some of the paths forward. Lastly, this paper is meant to complement the other contributions in this series of articles (Johnson & Johnson, 2022) by highlighting one of the most commonly used and studied independent variables within OBM.

The history of feedback

Performance feedback has a long and diverse history in both OBM and beyond and was one of the earliest variables investigated by experimental psycholo-gists (Ammons, 1956). For example, Thorndike's (1927) classic study helping

to establish the law of effect was a feedback study. Participants estimated lengths of lines and within 2 seconds were told "right," "wrong," or given no announcement at all. Practice with feedback improved greater than practice alone. That is, practice does not make perfect, *practice with feedback makes perfect*. A systematic replication (Trowbridge & Cason, 1932) found blind-folded subjects given specific objective feedback after drawing lines improved more than when told "right" or "wrong." Both groups performed better than no feedback or nonsense-syllables control groups. Such "knowledge of results" research (Travers, 1977) in early experimental psychology evolved into the present terminology of "feedback."

Probably the first comprehensive feedback system informed by behavioral principles in a corporate environment was guided by Edward J. Feeney and implemented at Emery Air Freight (Emery Air Freight Corporation, 1971; Feeney, 1982) during the 1970s. The extensive use of feedback and reinforce-ment saved Emery millions of dollars over just a few years (At Emery Air Freight: Positive reinforcement boosts performance, 1973). As Feeney liked to describe it, *problem finding* was much more important to performance improvement than *problem solving* (Feeney, 1972). Often, managers and employees were unaware of gaps between assumed and actual performance. Once discrepancies were brought to light by feedback, dozens of solutions could easily be proposed. The approach was successful enough that Emery was featured in a film titled *Business, Behaviorism, and the Bottom Line*, along with B. F. Skinner and Edward Feeney (Jordan, 1972).

Since early demonstrations, such as Feeney's work at Emery, feedback became one of the most extensively used and studied variables within OBM (Van Stelle et al., 2012). Numerous articles examined the usage of feedback in applied settings, some of which used visual inspection and some of which quantified changes through effect sizes (Alvero et al., 2001; Balcazar et al., 1985; Sleiman, Sigurjonsdottir et al., 2020). Overall, feedback was shown to be effective, although these effects were inconsistent, which suggests the need for careful control of potential confounds during implementation or identifica-tion of which variables are most effective in specific contexts. Publication trends of research within the *Journal of Organizational Behavior Management* show that feedback is the most frequently used independent variable across studies (Van Stelle et al., 2012).

There are several reasons to better understand performance feedback beyond the mere commonality of its usage. All things being equal, behavior naturally varies and tends toward the response of least effort (Timberlake, 1977). To put this in organizationally relevant terms, in the absence of either natural or programmed consequences, employee performance might gravitate toward off-task, sloppy, and substandard levels. Feedback is one type of consequence that can maintain behavior when natural outcomes are insuffi-cient, which should be important for daily on-the-job tasks (Johnson &

Akpapuna, 2018). Feedback helps develop new behaviors when individuals cannot self-evaluate so that employees are not "flying blind" while waiting for a formal performance appraisal (Grote, 2002). Improvements in supervisor-subordinate communication made possible by feedback benefit performance by directing employee focus and effort but also show positive effects on job satisfaction and organizational commitment (Aguinis et al., 2012; Ashford & Cummings, 1983; Jawahar, 2006; Kuchinke, 2000; O'Reilly & Anderson, 1980; Pearce & Porter, 1986)

Understanding the function of feedback

Despite the many reasons to better understand the function of feedback, this is not a simple proposal. Part of the complexity and confusion lies in the fact that feedback can be classified as an antecedent, consequence, or both (Mangiapanello & Hemmes, 2015; Peterson, 1982). It may be useful not to lose track of what is probably the only consistent behavioral classification for feedback: it is a stimulus. As every teaching textbook on behavior analysis demonstrates, stimuli can take on any number of functions, some of which may be occurring simultaneously. This suggests that efforts to discover any single function of feedback would be pointless, as it can serve several functions and there is no reason to expect its function to be ubiquitous. This possibility of diverse functions in application means it may be of value to review the potential functions feedback likely acquires, including functions related to pairing history, discriminative functions, evocative effects as a motivating operation, and potential status as a contingency specifying stimulus.

Simple functions based on pairing

One possible function feedback can serve as a respondent conditioned stimulus. When supervisors deliver feedback, it is likely they utilize emotionally laden words (e.g., impressive, great, excellent, failure, disappointed, substandard). Although humans do not have a genetic predisposition to have a positive or negative reaction to such words, common cultural contingencies mean such words are likely to be paired with other stimuli that elicit emotional reactions from most members of a social community (Choi et al., 2018; Kuykendall & Keating, 1990; Staats & Staats, 1958). In other words, most verbally sophisticated individuals will have positive or negative reactions to such words (Critchfield & Doepke, 2018; Critchfield et al., 2017). Depending on the context, the resulting physiological reactions are tacted (i.e, labeled) differentially with terms such as nervous, pride, shame, satisfaction, anger, and more. As such, the emotional learning underlying feedback should not be neglected and has potential to impact other behaviors. For example, the stimuli resulting from physiological changes (e.g.,

anxiety) could generate tacts (accurate or otherwise) about self, world, and future ("I'm a walking disaster," "everyone is against me," "I'll never succeed") that then interfere with other behaviors (e.g., employees become inattentive to training because they are upset or they miss an important customer interaction because they are ruminating about a harsh evaluation).

Feedback also has the possibility to function as a conditioned reinforcer or conditioned punisher (Bucklin et al., 2003; Duncan & Bruwelheide, 1985; Johnson et al., 2008). For example, supervisors may provide on-the-job immediate feedback, including evaluative statements such as praise or criticisms, which will likely have behavior-altering effects on performance. The consequences do not necessarily have to be spoken by the supervisors; stimuli such as gestures or mannerisms indicating approval or disappointment during feedback could function as reinforcers or punishers for behavior preceding feedback sessions. Even feedback devoid of explicit evaluative indicators from supervisors can function as a conditioned reinforcer or punisher if the information from feedback is reliably paired with other reinforcers or punishers within the organization. Furthermore, objective statements about performance improvements or deterioration are culturally typical reinforcers and punishers, even prior to any pairing procedures within the organization. One advantage of such on-the-spot feedback sessions is the potential to be delivered more frequently and at lower costs than other organizational rewards and disciplinary stimuli.

Discriminative functions

Feedback also has the potential to serve different discriminative functions, depending on how it is implemented (Balcazar et al., 1985). Feedback can function as an S^D if the presence of feedback is positively correlated with the availability of reinforcement for performance. For example, feedback from a supervisor may not only provide details regarding the employee's previous performance, but it may also provide notification that the supervisor is monitoring subsequent performance, which could have a powerful impact (Komaki, 1986). As a result, the employee's efforts to engage in valued performance are more likely to be rewarded following such notification and will therefore evoke improvements. Notifications can also have an abative effect on performance if feedback is positively correlated with the availability of punishment. Notifications of monitoring may simultaneously indicate that undesired behaviors will now likely be punished, such as taking extended breaks, completing work in a manner against regulations, excessive socialization. Under these conditions feedback will begin functioning as an S^{Dp} for unacceptable performances.

Feedback can also be negatively correlated with the availability of consequences. In regard to reinforcing consequences, vague or inaccurate feedback indicating little or no monitoring may extinguish performance improvements (i.e., "no one is paying attention, so why bother trying?"). Such feedback is functioning as an S^{Δ} and may hinder organizational improvements. The organization could also be hindered by an $S^{\Delta p}$ in which previously punished behavior begins to recover. The same vague or inaccurate feedback could also evoke harmful behaviors (i.e., "no one is paying attention, so now I'll do whatever I want"). The preceding examples involve discriminative functions related only to performance monitoring, which does not exhaust all possible discriminative functions related to feedback.

Functions as motivating operation

Discriminative stimuli are not the only type of operant antecedent; feedback can also play a role as a conditioned motivating operation (CMO) if it establishes other events as reinforcing (Agnew, 1998; Johnson et al., 2015; Michael, 2004; Palmer et al., 2015). Any feedback correlated with the onset of some form of worsening has the potential to serve as a reflexive CMO (CMO-R) if the removal of the conditions generated by the feedback function as reinforcement. For example, feedback may consist of some warning about a forthcoming social worsening or loss of privilege and income (e.g., "I better not have to come back and have this conversation again," "if you don't resolve this problem by next week, you'll be suspended," "if your performance stays in this range, we might have to talk about your future in our company."). Threatening conditions generated by such feedback may now function as a CMO-R and evoke behaviors to remove implied or explicit threats. From the organization's perspective, the evoked behavior would ideally be improvements in performance relevant to the organization's goals. Such aversive control may not go as planned, especially if targeted performance is unclear, if demands are beyond the skills or control of the performer, or if alternative behaviors require less response effort to be successful. For example, the employee may attempt to remove threats established from performance feedback by directing the manager's attention to another employee's poor performance (or falsely describing that employee's performance), hiding evidence of insufficient performance, flattering that manager or superiors higher in the hierarchy, pleading excessively until the situation becomes aversive for the manager, or by making appeals for pity.

Feedback could also potentially function as a transitive CMO (CMO-T) if it alters the value of some other stimulus and evokes responding that will produce that other stimulus. For example, the provision of objective feedback regarding performance may establish evaluations as suddenly more reinforcing (such as an employee starts asking others, "hey, do my numbers look

good to you or not?"). The objective feedback was a CMO-T that established evaluation as more reinforcing and evoked evaluation-seeking behaviors. Evaluative feedback from a supervisor could establish multiple consequences as reinforcing and evoke a variety of behaviors if the evaluation was multi-faceted. For example, suppose a manager completed a feedback session with an employee stating that they lost a promotion because a) they lacked some skills the manager was looking for, b) that their numbers had been looking bad lately, c) that their colleague had been making a better impression, and that d) their equipment usage had not been up-to-standards recently. This feedback session may establish a) training workshops ("I need this certification to rise in the company"), b) information related to self ("what are my numbers lately?"), c) information to others ("what is the person who ranked above me doing different?"), and tools ("where's that screwdriver that my supervisor keeps criticizing me for not having?") as more valuable and evoke behaviors to produce such stimuli. Evaluative feedback could even come from outside the organization, such as when customer praise as a CMO-T makes the sight of an observing manager more reinforcing (or more aversive in the case of customer complaints).

Role as rules: function-altering contingency specifying stimulus

Beyond potential direct evocative effects of feedback, there lies the possibility of feedback having several indirect effects by changing the function of other events. Feedback can operate as a contingency specifying stimulus (Agnew & Redmon, 1992; Blakely & Schlinger, 1987). The feedback might describe the relation between workplace antecedents, employee performance, and consequences for performance. Such descriptions of the organizational contingencies could alter the function of other stimuli – both verbal and non-verbal – without immediately evoking behavior and may aid in the development of rule-governed behavior (Malott, 1992; Weatherly & Malott, 2008). For example, a manager may give subordinates feedback such as, "when you are dealing with a hostile call from a customer, I want to see you follow the new corporate script rather than just ending the call or transferring to another department." Such feedback may not have any immediate evocative effect (especially if a hostile call is not encountered for some time) but will still likely alter the function of certain antecedents and consequences. Previously, an angry phone call would have evoked behaviors to end or transfer it, but now evokes a recitation of the corporate script. The sight of one's finger on the transfer call button may now, for the first time, have aversive properties. The sound of one's own voice saying the script may, for the first time have reinforcing properties. The employee may emit covert verbal behavior ("I'm following protocol") and resulting response products (i.e., covert verbal stimuli) may have reinforcing aspects. The ultimate outcome is that several environmental

products may now have reinforcing and punishing aspects due to the feedback. Even if the manager does not explicate the contingencies during feedback, employees may still describe the contingencies based on feedback. For example, if an employee receives critical feedback every time their performance is within a certain range, they may derive expected performance standards even without the supervisor stating the expectations explicitly. Such feedback may lead to self-generated rules that then alter future instances of behavior ("if I keep my closing percentages above this number, then the boss will leave me alone").

The effects of feedback can be subtle and the function(s) it serves may depend on the particular learning history of the individual. This may be part of why presenting feedback alone does not consistently improve performance (Johnson, 2013). To be clear, feedback alone does have the potential to improve performance, but it likely requires that feedback brings the performer into contact with naturally occurring sources of reinforcement or requires idiosyncratic learning histories. Absent such preexisting provisions, feedback will likely need to be combined with some other maintaining variable. Pairing feedback with goal setting, consequences (praise, reprimands, tangible rewards & reinforcers), or both increases efficacy (Alvero et al., 2001; Balcazar et al., 1985; Duncan & Bruwelheide, 1985; Sleiman, Sigurjonsdottir et al., 2020). Coupling feedback with goal setting and consequences, however, makes performance feedback multifaceted. Moreover, the type, schedule, mode, source, and content are just some parameters that potentially confound the efficacy of performance feedback (Prue & Fairbank, 1981). Clearly performance feedback is multiply-controlled and usually has multiple effects on the behavior of individuals and groups; thus, managers and supervisors need to develop efficacious feedback systems to create maximal organizational impact. We believe most managers and practitioners are not aware of this and do not comprehend these concerns. They believe they provide feedback to employees and cannot understand why performance is not improving. We hope the contents of this article provide useful information to improve performance feedback systems for readers.

How to craft feedback: components and elements

Despite many aforementioned successes, feedback has not been uniformly successful, likely because it is not uniformly implemented in either research or practice (Alvero et al., 2001). Just as there are many potential functions of feedback, the components and formal elements that constitute feedback also vary widely and can pose a challenge for understanding from both a research and practice perspective (Duncan & Bruwelheide, 1985; Ford, 1980; Johnson, 2013). In fact, given the robust literature demonstrating feedback can improve

performance, there is probably little need for more of this type of general research. Instead, research is needed on specific components and elements that modulate success of feedback interventions.

Type of feedback appraisal

Daniels and Bailey (2014) point out that feedback should provide objective information about past performance. Objective feedback is essential as it directs people toward factors that contribute to performance and provides clear measures for improvement. However, simply providing such information by itself may not have performance enhancing effects (Johnson et al., 2008; Kluger & DeNisi, 1996). Instead, several considerations must be taken into account. One consideration is whether the feedback contains any evaluative components. Supervisors rarely just state the performance data of their subordinates – they also incorporate appreciative or critical statements into their delivery. Research by Johnson (2013) recommended that evaluation of performance and objective details are essential components for performance feedback. In this study, participants completed an experiment modeled after a check processor job in a bank. Participants received objective feedback alone, evaluative feedback alone, combined, or no feedback. Results demonstrated that all three feedback groups performed considerably better than the no-feedback group. The author noted that, though it takes a few more minutes to administer, a combination of evaluative and objective feedback produced significant improvements in performance than general and objective evaluation alone.

Specificity of feedback

Another important consideration involves specificity. An early demonstration (Frederiksen et al., 1982) involved recordkeeping in a university psychology clinic and the experiment was conducted in two phases. Chart maintenance by therapists was the object of intervention; four types of charting errors (status error, error of completeness, format error, and signature error) were tracked and experimenters controlled the delivery of feedback. In the first part of the study, two charting errors (status and completeness) were specifically targeted using an ABA design, while the other two (format and signature) were only measured. The second part was an AB replication of the first using a second group of employees, this time targeting two different charting errors (format and signature) while the other two (status and completeness) were tracked but untargeted. In both phases during staff meetings, supervisors described individuals' specific information about the number and type of errors, along with praise when appropriate. Overall, only the behaviors receiving specific feedback during intervention phases improved (and reverted to baseline levels

during withdrawal), while performance for untargeted behavior remained largely unchanged throughout the study. This showed that simply delivering feedback alone was insufficient, rather feedback needed to be tailored to the performance of interest.

Similarly, Goodman and Wood (2004) investigated specificity using a work simulation called Furniture Factory, in which participants served as department managers. The simulation required managers to complete four trials involving a sequence of decisions related to job allocation, goals set, feedback given, and the distribution of rewards. Based upon relevant literature for those areas, participants received feedback on each trial on their decision according to three levels of specificity. Low specificity simply provided participants details on how their employees performed after decisions, with no information on whether their decision was correct or not (thus requiring inference of their performance). Moderate specificity added details in which participants were told whether their decisions were correct for each worker. High specificity added more detail, informing participants on how their decisions with each worker were correct or incorrect, thus requiring almost no inference by participants.

How specificity influenced performance depended upon the type of performance. When correct, highly specific feedback was superior. When participants made errors, low feedback specificity was best for learning. Thus, when participants needed to learn from their mistakes, it was best to require them to figure out what went wrong. The opposite was true for learning from one's successes. Thus, the simple rule of "more specific feedback is always best" may not hold true across all contexts and demands (i.e., learning versus maintenance, positive versus corrective).

K. Lee et al. (2014) looked at the relative and generalization effects of global and specific feedback on safety performance and safety items at a road construction site in South Korea. Findings indicated that specific feedback is not always effective as global feedback. Global feedback could compel recipients to analyze their own behavior afterward. For feedback interventions in applied settings, cost and time are important variables and they argued that global feedback could be easy, quick, and cost-effective compared to specific feedback. The researchers found that both global and specific feedback produced comparable performance and furthermore global feedback demonstrated a greater degree of generalization for non-targeted items.

Finally, Park et al. (2019) explored the effects between feedback specificity (specific vs. global) and frequency of feedback (frequent vs. infrequent) on the quality of work performance. Participants were randomly assigned to one of four feedback groups (specific and frequent, global and frequent, global and infrequent, and specific and infrequent) and asked to complete a simulation of stocking at a distribution center. One variable examined was how global (e.g., average overall rate of errors) or specific (e.g., error rates in the following

performance areas) feedback influence the average rate of errors. Specific feedback was more effective than global when feedback was infrequent. However, no differences were found in terms of specificity when feedback was provided frequently. Thus, the theme of research on specificity seems to be that more specific feedback is generally more effective, but this relationship is not so consistent that one can blindly follow a simple heuristic.

Comparative feedback

The basis for comparisons is another important element for feedback – whether the evaluation involves a comparison to standards or goals, the performance of others, or one's individual prior performance. Hartwell and Campion (2016) examined a way to reduce rating errors that increased the reliability and validity of structured interview ratings using normative performance feedback. The experimenters provided feedback reports to over 100 experienced full-time interviewers which anonymously listed each interviewer rating and the average rating across all interviewers (individuals could identify their specific scores using an identification code). Such normative feedback reduced deviations from the average ratings (beyond what could be expected from regression to the mean), with lenient interviewers being more impacted than severe interviewers. Therefore, normative interviewer feedback shared by organizations made interview ratings more reliable and normative feedback was found to be effective (at least for predicting ratings, although it may be important to note that these measures were not tied to any objective measures).

In a related line of research, Goltz et al. (1989) examined the effects of adding individualized feedback after performers were already receiving feedback based on average group performance. This study was carried out with employees at a Midwestern microelectronics plant and assessed performance using an ABCB design (A = baseline, B = group feedback, C = group and individual feedback). The addition of individual feedback exerted a clear improvement upon performance, although the reversal to group only feedback showed a more ambiguous loss of performance (mean was lower but not to a significant degree). This outcome strongly suggests that group feedback will not maximize performance; other means of feedback should be added or used in place of group feedback. This aligned well with the findings of Newby and Robinson (1983), who found individual feedback (with and without reinforcement) positively impacted multiple measures of cashier performance, but group feedback was ineffective.

Moon et al. (2017) directly compared normative feedback (i.e., social comparison) to objective feedback using high and low performers. Undergraduate students at a large university were in three computer laboratories simulating an online bank money transfer. Social comparison feedback

was more effective for high performers than objective feedback, while objective feedback was more effective than social comparison feedback for low performers. In this scenario, it can be presumed that social feedback could work as a powerful reinforcer to increase performance in organizational settings. However, for those whose performance is low, social comparison feedback might function as a punisher. In these cases, the effects of feedback might depend on performance levels and the basis of comparison.

A similar lesson of how performance levels might matter with normative feedback was found by Mesch et al. (1994), but with different outcomes in regard to positive versus negative normative feedback. In their study, 59 three-person groups were randomly assigned to positive or negative feedback following performance on a word recognition task. Participants were given a sheet with feedback indicating the number of correct words, the number of total words attempted, and the mean score of other groups (mean scores were contrived to indicate team performance was either above or below average group performance, depending on random assignment). Unlike Moon et al. (2017), "low" performers did better during a subsequent session than "high" performers. It is difficult to account for the experimental differences that might be responsible for the differences between studies (e.g., cultural differences, individual versus group data, tasks, genuine versus fake normative comparisons). Mesch et al. pointed out that teams in their study were able to communicate and set self-goals between performance sessions and performers would reliably set higher goals for themselves after getting negative feedback. In essence, negative normative feedback implies higher performance standards are necessitated, thus blurring the lines between feedback and goal setting interventions. Mesch et al. also cautioned against regular use of negative feedback, as negative feedback performers showed higher levels of dissatisfaction and extensive exposure to signs of failure could result in learned helplessness.

In general, there appear to be many important qualifiers for feedback based on group performance. A general rule of thumb is to provide feedback to recipients with all the essential information to precisely identify instances of appropriate and inappropriate goal-directed behavior (Prue & Fairbank, 1981). If aggregated feedback is sufficient to enable performers to identify how to improve their individual performance, then group or normative feedback is likely to be effective (how effective may depend on the extent to which performers can accurately pinpoint strengths and deficits).

As mentioned above, negative feedback could potentially harm performance. However, there are times when such appraisal may be warranted, if not necessary. Unfortunately, feedback procedures describing substandard performance often involve multiple terms, such as constructive, negative, or corrective feedback, that often conflate subtle but important distinctions among these labels (Simonian & Brand, 2022). Many of the differences depend

upon whether the feedback procedures contain objective or subjective elements (Johnson, 2013). For the sake of clarity, this paper will use "corrective feedback" to refer to objective descriptions of substandard or erroneous performance (e.g., "you achieved 85% of the expected performance" or "you did not include the third step of the protocol") and "negative feedback" to refer to subjective descriptions of substandard or erroneous performance (e.g., "you performed poorly during your last shift") or a mixture of objective and subjective (e.g., "you keep forgetting the closing statement and I expect to see you do better next time").

Feedback combinations

To avoid or minimize any harmful effects of subpar evaluations, some advocate that corrective or negative feedback be couched in the context of positive feedback. For example, delivering one positive comment, followed by the negative comment, and concluding with a second positive comment (sometimes labeled as a "feedback sandwich"). There are multiple sequences possible, such as one negative followed by one positive (or vice-versa), multiple negatives followed by multiple positives (or vice-versa), or a variety of interspersed combinations. Supporters of these various feedback sandwiches claim the method is more effective and preferred because it makes corrective feedback more acceptable to the receiver and reduces discomfort between recipient and deliverer (Berger, 2013). Whereas critics claim it obscures the message and devalues the corrective feedback because employees receive more positive statements overall than negative statements (Daniels, 2009).

Several studies investigated these various feedback sequences (Bottini & Gillis, 2021; Choi et al., 2018; Henley & DiGennaro Reed, 2015) across numerous settings and skills. Overall, the consensus seems to be there is no beneficial effect of mixing negative with positive appraisals, at least for performance (although this consensus may not hold for nonperformance measures such as emotional reactions). Interestingly, one study (Choi et al., 2018) that compared congruent feedback (all positive or all negative comments) to blended feedback (mixture of positive and negative) showed congruent feedback was superior. In other words, if an employee needs a critique or disciplinary action, it may be best to simply deliver negative feedback by itself and not confuse the evaluation with positive feedback before or after the negative message.

Accuracy of feedback

Accuracy of feedback is another important consideration. There may be many reasons feedback is inaccurate, such as inconsistent data collection, imprecise or indirect measurement of performance, inattention by supervisors to collected

data, avoidance by supervisors when delivering potentially uncomfortable eva-luations, or even intentional distortion to boost performance (such as a manager making normative standards look higher than they are in reality). However, it has been suggested that trust in feedback is critical to both employer-employee relations and the effect feedback will have on performance (O'Reilly & Anderson, 1980). In general, the empirical relationship seems clear, feedback that is accurate is more effective than inaccurate across numerous settings and tasks (Brand et al., 2020; Hirst & DiGennaro Reed, 2015; Johnson et al., 2015). Although some research suggested that inaccuracy may not be a problem if performers are unaware of the inaccuracy (Palmer et al., 2015), the inaccuracy can become problematic and harm performance once performers become aware that feedback cannot be trusted (Brett & Atwater, 2001; J. Lee et al., 2020).

How to give feedback: important practices and procedures

Private versus public delivery

Just as it is important to understand components and elements that constitute effective feedback, it is also important to understand the important practices and procedures for delivery of feedback. When specific performer information needs to be shared with a recipient, it is generally recommended feedback be provided privately and confidentially (Daniels, 2016). This is despite some research that suggested public feedback may have a greater effect than private (Welsch et al., 1973). However, whether performance information should be provided publicly or privately is determined by variety of factors in addition to just performance. For example, when individuals are performing low, public display of perfor-mance data may adversely affect employees as a form of punishment.

Frequency of feedback delivery

The frequency of feedback delivery is another crucial component. Authors such as DeNisi and Pritchard (2006) suggested performance feedback be a regular part of any appraisal system. This assertion has been borne out by both laboratory and field research; more frequent feedback improves perfor-mance than infrequent (Kang et al., 2005; Pampino et al., 2004; So et al., 2013). Although practical constraints will probably impose limits on how frequently managers can personally deliver feedback, the general rule appears to be the more frequent, the better, especially for workers learning new jobs compared to seasoned employees.

Timing of feedback

Another temporal consideration involves timing feedback. According to Lechermeier and Fassnacht (2018), feedback varies across two broad categories: immediate and delayed. However, the conceptualization of immediate versus delayed may be problematic for the typical workplace. In most settings, it is probably quite rare that a task would occur only once (at least rare for any performance for which we would bother to provide feedback). Instead, it is typical that behavior will be repeated by employees and such repetition means that as feedback becomes more distal from previous performance, it also becomes more proximal to subsequent performance. Therefore, it may be more important to look at the categories of after-session and before-session feedback. The importance of this distinction becomes clearer when examining research on feedback timing.

For example, Mason & Redmon, 1993) reported a comparison of immediate and delayed feedback upon performance. Participants completed a quality control task and received feedback either less than a second after a response or at the end of each session, about 10–15 minutes long. Although one of the experimental conditions was labeled as immediate, it is probably better conceptualized as frequent and ongoing, since feedback was not delivered immediately after finishing a complete session but instead delivered after each response throughout the session. Since participants engaged in continuous performance, feedback both followed and preceded responding. Furthermore, the delayed feedback was based on a summary of several responses and was not specific to particular responses. Finally, the experimental arrangements meant several instances of behavior were each followed by feedback in the immediate condition, whereas a single instance of feedback followed several behaviors in delayed conditions. Although the authors correctly concluded that immediate was more effective than delayed feedback, the study compared ongoing, specific, and repeated feedback against delayed, global, and singular feedback. Qualitative and quantitative confounds make it difficult to separate controlling variables and confuse underlying conceptual issues.

Later researchers pinpointed feedback timing characteristics more precisely. For example, Bechtel et al. (2015) compared feedback placed immediately after or immediately before sessions when completing a medical data entry task. No performance differences were found between the different feedback timings. This in contrast to Aljadeff-Abergel et al. (2017), who found feedback immediately preceding was superior to feedback following sessions for the performance of implementing a teaching protocol. Wine et al. (2019) reached a different conclusion than Aljadeff-Abergel et al., finding no performance differences between feedback following or preceding performance for staff operating a locking mechanism at a private school. These authors suggested simple tasks (such as data entry or lock operation) may not depend on

a particular timing of feedback, whereas complex performance (such as implementing a teaching protocol) may benefit from antecedent feedback as a form of task clarification. Brand et al. (2020) used a fairly simple task (matching-to-sample with names of shapes) and also found no differences between after-session and before-session feedback.

A conceptual analysis may explain some of the inconsistency across studies. The aforementioned results suggest feedback for complex behaviors may rely quite heavily on rule control since feedback was not superior as an immediate consequence but was effective as an antecedent, even before it could be correlated with differential outcomes (thus precluding simple discriminative functions). Verbal mediation generated by feedback right before performance may be similar to verbal mediation generated right after performance. The critical question is whether repetition of the verbal rules persist over time. If not, then feedback right before performance may be necessary. If so, then no differences may be seen with before- or after-session feedback. It may be telling that studies with typical durations of a day or less between sessions found no performance differences (Bechtel et al., 2015; Brand et al., 2020; Wine et al., 2019), whereas the study in which a duration of multiple days between sessions (Aljadeff-Abergel et al., 2017) found improved performance with before-session feedback. That is, if one performs a task again in 10 min, it probably does not matter if you receive feedback 1 min after previous performance or 1 min before subsequent performance (any verbal self-statements are likely to persist during the duration and thus maintain any behavior strengthening aspects). However, if one performs the task again in 10 weeks, it is possible verbal self-statements may dissipate over time and therefore placing feedback right before performance may be beneficial. To our knowledge, this consideration has yet to be examined in the research (e.g., explicit control of differing durations between sessions for various behaviors with differing feedback timings). Meanwhile, there appears to be no drawbacks to providing feedback right before performance, at least for well-learned skills (skills being acquired may still benefit from ongoing corrections during performance; Bacotti et al., 2021). Further, there is some evidence that people may prefer feedback placed right before their next performance (Bacotti et al., 2021; Bechtel et al., 2015).

Feedback source

Another importance feature of performance feedback is the source. For example, does the impact of praise for performance improvement alter if delivered by a high-ranking authority figure, low-ranking authority figure, peer, friend, enemy, family member, stranger, automated computer program, or self? Differences in social histories and relationship dynamics could plausibly make similar forms of feedback effective, neutral, or even counterproductive.

In one of the few studies explicitly examining these possibilities, Chae et al. (2020) compared how college students completing an assembly task responded to feedback from an established authority figure (an experimenter who previously or currently was the professor for one of their classes) or a non-authority figure (an experimenter that the participants had not previously met). The results showed that feedback from an authority figure was more consistently effective than feedback from a non-authority figure. When provided by an authority figure, their feedback was effective when delivered either face-to-face or via e-mail. However, Chae et al. (2020) found non-authority figures could also be effective, but only when delivering feedback face-to-face.

Feedback modality

Thus, feedback modality appears important, especially as advancing technology opens up a plethora of options for feedback delivery (in-person, virtual, printed, e-mail, etc.). As Warrilow et al. (2020) point out, remote supervision is on the rise and the health concerns related to COVID-19 will likely accelerate this preexisting trend. Therefore, it is important to identify benefits and issues when supervision is provided remotely, especially when employees are juggling office work, household chores, parenting responsibilities, and more. Like Chae et al., Warrilow et al. examined the impact of different feedback modalities on performance, specifically feedback delivered via computer message, text message, and face-to-face. In alignment with Chae et al., these researchers found face-to-face feedback the most effective medium, although they noted the potential of unexplored modalities to approximate such control (e.g., one-on-one video conferencing). It is important to discover the controlling features that make certain modalities effective and, if possible, replicate those features across alternative situations.

The reception of feedback

These aforementioned studies largely focused on the elements of feedback and how people (typically managers and other authority figures) should best deliver feedback. Naturally, it would be of interest to also examine critical practices for the reception of feedback (typically by employees and other subordinates) and how the reactions of recipients might influence the delivery of feedback. For example, Matey et al. (2019) investigated the latter issue when participants were asked to deliver feedback classifying posture as "safe" or "at-risk" to confederates who would periodically act safe or unsafe. The researchers noted that participants felt uncomfortable delivering corrective feedback in particular and often classified "at-risk" behaviors as "safe." In a follow-up study, Matey et al. (2021) systematically evaluated the effect of differential feedback reactions on data collection and subsequent feedback delivery.

Confederates receiving feedback from participants were instructed to react in a negative, neutral, or positive manner. When confederates reacted to feedback in a negative manner, feedback accuracy decreased by 13% (although unchanged in the neutral or positive conditions). Furthermore, participants greatly reduced their frequency of feedback deliveries in the negative and neutral conditions as compared with the positive conditions. This suggests that lack of reinforcement (or even punitive) aspects of feedback for people assigned to observations and feedback delivery necessitates steps to either support the accuracy of feedback, particularly non-positive forms, through supplemental management efforts or by training recipients how to react appropriately to feedback.

In a perhaps ironic twist, despite the fact that people may avoid delivering corrective feedback, there is some evidence that recipients may prefer corrective feedback over positive feedback, at least under some circumstances. For example, Simonian and Brand (2022) allowed participants to select either corrective or positive feedback while learning a new task. Not only did all participants prefer corrective feedback over positive feedback, but their performance also improved only after receiving corrective feedback. In order to maintain the behaviors of people tasked with delivering feedback, it may be critical to shape the reactions of those receiving feedback. Both Ehrlich et al. (2020) and Walker and Sellers (2021) demonstrated that training could increase behaviors believed to be associated with better receptive skills. More research is needed to establish which feedback receptive skills have the best effects on subsequent performance of employees or influence the willingness of managers to continue delivering feedback. Furthermore, more research is needed that examines how preference for feedback and motivation to seek out feedback might be altered (Ashford & Cummings, 1983; Sleiman, Gravina et al., 2020).

Conclusion

Much research has been done investigating feedback, and given the complexity involved with this seemingly simple concept, much research is still needed. Table 1 summarizes the topics our field has investigated and the findings thus far (undoubtedly, nuances will need to be added as more research is conducted). This past information suggests several potential future research avenues. Table 1 also suggests a non-exhaustive list of feedback research questions still in need of answering. Furthermore, all of the suggested directions could be further investigated by looking at how these variable factors might combine and interact, both in controlled and applied settings, using tasks of differing levels of complexity and work types. Each of the feedback variables could also be examined in terms of effects across various demographics and cultures (Nastasi et al., 2022). Most studies on feedback performance have largely focused on productivity or

Table 1. Summary of feedback findings and future directions.

Feedback Factor	Current Findings and Understanding	Relevant Areas of Future Research
Function of feedback	There is no definitive function of feedback; rather, it is a stimulus that can acquire a number of sometimes overlapping functions	• What is the most common function of feedback in organizations? • What are the best procedures to train individuals to establish or abolish certain functions of feedback? • What commonly seen organizational procedures tend to establish or abolish certain feedback functions?
Objective and evaluative elements of feedback	Combining objective information and subjective evaluations will enhance the effects of feedback over objective or evaluative components alone.	• How do explicit and implicit evaluations compare? • What are the critical features of evaluation (e.g., content of message, tone during delivery, body language, etc.)? • What is the impact when various evaluations are in conflict with one another (e.g., self, peer, or managerial evaluations)? • What effect does the degree or severity of evaluation have (e.g., "your performance was substandard/poor/awful/atrocious/disgusting" or "I saw your data and it was improved/good/excellent/amazing/inspiring")? • Do rote statements undermine evaluations? How much variance is necessary to maintain enhancements?
Specificity of feedback	Feedback effects are enhanced as precision increases, at least for correct performance or infrequent feedback; reduced specificity might be preferable for the problem solving of mistakes; specific feedback may be unnecessary in the context of frequent feedback	• At what point, if any, does specificity become overwhelming for a performer (e.g., describing performance in terms of several dimensions of behavior or outcome measures)? • Do certain dimensions of performance (e.g., rate, accuracy, latency, creativity, duration, quality, etc.) benefit differentially from specificity? • At what point during the learning process should feedback change from general to specific? • What are guidelines for determining if feedback for errors should only indicate nonspecific results (e.g., correct or incorrect) to promote problem-solving or indicate precise corrections (e.g., steps omitted and how to fix) to foster immediate improvements?
Feedback based on comparisons	Group feedback, without an indication of an individual's placing with the group, is generally ineffective; the effects of social comparison feedback is unclear	• What are the mediating factors that determine the effectiveness of normative feedback (e.g., culture, individual position within rankings, specificity of feedback when above or below group average, are the group members familiar with each other)?
Combinations feedback of different natures	Performance is not enhanced by combining feedbacks incongruent in nature (e.g., feedback sandwich); positive feedback and negative feedback should be delivered separately	• How much time must separate positive and negative feedback sessions? • How to mitigate the emotional impact of negative feedback while maintaining the performance impact? • Do positive-negative and positive-corrective combinations of feedback have the same effect?

(*Continued*)

Table 1. (Continued).

Feedback Factor	Current Findings and Understanding	Relevant Areas of Future Research
Accuracy in feedback delivery	Feedback is more effective when steps are taking to ensure accuracy	• What factors will lead a performer to detect feedback inaccuracy? • Are there factors that will make a performer distrust accurate feedback? • How to correct the general distrust of feedback following a history of inaccurate feedback? • What is the effect when feedback starts out accurate but slowly becomes inaccurate and vice-versa?
Privacy of feedback	Generally, it has been cautioned to provide feedback privately when involved individual and identifiable performance	• What are the contextual factors that will differentially impact the impact of public versus private feedback?
Frequency of feedback	Feedback becomes more effective as it becomes more frequent	• When considering time, effort, and money, is there a point of diminishing returns as feedback frequency increases? • What standards should be used to determine when new performers under frequent feedback should be transitioned to less frequent feedback?
Timing of feedback	Unclear whether after-session or before-session feedback is more beneficial; slight evidence for presenting feedback about prior performance immediately before subsequent performance	• Does the complexity of the task interact with the effectiveness of feedback timing? • Is verbal mediation an important consideration to determining the effectiveness of feedback timing? • Does the size of the duration between sessions differentially impact the effectiveness of after-session or before-session feedback?
Source of feedback	Feedback from authority figure more effective than feedback from non-authority	• How do other feedback sources (e.g., self, peer, enemy, stranger, etc.) compare to one another? • Is there an interaction effect with different feedback sources and recipients (e.g., front-line employees and managers versus knowledge workers and managers)?
Feedback modality	Face-to-face feedback is most effective	• What elements make face-to-face feedback effective (and how might they be recreated through other modalities)? • What are strategies to enhance the effectiveness of remote feedback?
Feedback reception	People will distort data or avoid delivering non-positive feedback; recipients prefer corrective feedback when learning a new task	• What strategies can be used to ensure regular and accurate feedback delivery, even in the face of negative reactions from recipients? • What are the minimal elements necessary to prevent feedback reactions from being perceived as negative?

some closely related other measure, but additional dependent variables merit investigation (e.g., quality, creativity, satisfaction, well-being, cost-benefit). Much work remains to be done to understand functional properties and how to create the best systems of feedback for both the people delivering and the people receiving feedback (Balcazar et al., 1985; Johnson, 2013; Matey et al., 2021). Just as consequences may provide feedback to the organism, the findings of our research should continue to provide feedback to our practices and procedures.

Disclosure statement

We have no known conflicts of interest to disclose.

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