



Faculty Working Papers

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AND PERFORMANCE APPRAISALS**

David J. Cherrington, University of Illinois

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**College of Commerce and Business Administration
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by

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Many important questions are frequently asked by organizational leaders regarding the use of quantitative measurements, eg. should formal performance appraisals be made on each employee, should minimum performance standards be established, should employees participate in the preparation of budgets and performance standards, should a management by objectives program (MBO) be utilized to reward employees for achieving their objectives, etc.? These are important practical questions to those who are faced with the day to day operations of an organization. The research stimulated by these questions, however, seems to have raised more questions than answers. A manager who seeks a straightforward answer to whether he should have his workers participate in preparing the budget is often told that it depends. If he asks "What does it depend upon?" he is told "Just about everything." Research on these topics has been inconsistent and unclear. It is our contention that the proposed answers to these questions have been based upon research findings obtained in unique conditions of experimental control and the most salient considerations (viz. the reinforcement schedules and the performance-reward contingencies) which should have been abstracted from these studies have been imbedded in the experimental paradigm.

Reinforcement Schedules

The work of B. F. Skinner and the operant conditioners has been largely neglected in the areas of management, accounting, and organizational behavior. Within the past few years, however, the principles of operant conditioning have begun to emerge from the learning theory literature and appear in other areas of industrial psychology and organizational behavior.¹ We are suggesting here that the principles of

operant conditioning and reinforcement can be meaningfully applied to the processes of budgeting, performance standards, and performance appraisals to predict and control attitudes and behavior.

The basic principles of operant conditioning center around the development of stimulus-response (S-R) bonds. One speaks of an S-R bond when a particular stimulus regularly elicits a particular response from an organism. In general, the strength of an S-R bond is increased when the occurrence of the response is followed by a reward and decreased when followed by punishment. In other words, the stimulus comes to elicit the response dependably because the response obtains for the organism something of positive value.

To explain the reinforcing properties of rewards, moderate behaviorists² have assumed the existence of primary drives such as hunger, thirst, sex, activity, curiosity, and removal of pain. Corresponding primary reinforcers are food, water, sexual activity, exercise, information, and freedom from pain. In addition to primary drives and reinforcers there are secondary drives and reinforcers which are learned by the organism because of their association with primary rewards. Thus such diverse goals as money, status, promotions, verbal praise, associations with friendly co-workers, etc., can be conceptualized as secondary rewards, linked by past associations with such primary rewards as food and water.

Radical behaviorists³ do not make a distinction between primary and secondary drives and rewards. Nor do they rely upon drives, needs, or other mentalistic processes to explain reinforcement. Instead, when a stimulus following an operant response increases the strength of the S-R bond, it is called a reinforcing stimulus. Thus a reinforcer

is said to be positive when the effect of the operant response is experimentally observed to "produce" the reinforcing stimulus. In contrast, whenever the effect of an operant response is experimentally observed to "eliminate" a stimulus, that stimulus is called a negative reinforcer.

The above description of operant conditioning is greatly simplified and has not considered several salient aspects of conditioning, eg. the timing of the reward and the importance of immediate feedback on performance. A crucial aspect is the reward schedule, which is the frequency with which a reinforcer is administered. A fixed interval reward schedule is when the reinforcement is given after a specified period of time. With this schedule the reinforcement is not contingent upon (ie. related to) a specific response but is only contingent upon the passing of time. A continuous reward schedule is defined by a 1:1 association between a response and the occurrence of a reward i.e., every time the response is emitted it is rewarded. With an intermittent reward schedule, only some of the specific responses are followed by a reward. There are two basic ways in which intermittent reinforcement can be administered. Every nth response may be reinforced on a fixed ratio schedule, or an average of 1/n of the responses may be reinforced in a random pattern on a variable ratio schedule. Ratio schedules tend to generate a high rate of response; furthermore, the variable ratio schedule leads to a more durable response (i.e., does not extinguish as rapidly once reinforcement is terminated) than both the fixed-ratio and continuous patterns. Under a fixed interval schedule there is an uneven behavioral pattern that varies from a very slow, unenergetic response immediately following reinforce-

ment to a fast, vigorous response immediately preceding reinforcement. Fixed interval schedules have also led to what has been called "superstitious" behavior in animal studies.⁴ Numerous other reinforcement schedules have also been tested for their effectiveness in changing behavior, and organizational leaders responsible for constructing reward schedules ought to examine this information.

Strategies for changing behavior can be implemented by punishment, extinction, and positive reinforcement. Punishment is a widely used technique for behavioral control and often has a rather immediate effect in stopping or preventing undesired responses. Punishment, however, has generally been considered an inefficient technique for controlling behavior for a number of reasons. Essentially, punishment causes dysfunctional consequences, e.g., (a) it might inhibit a specific response but possibly for only a short time, (b) it does not produce the correct response, (c) it might interfere with the acquisition of the correct response, or (d) it might lead to avoidance and dislike of the punishing agent.

Extinction generates fewer dysfunctional consequences than punishment but still does not increase the probability that the correct response will be emitted. Positive reinforcement is most efficient in changing behavior for at least two reasons. First, it increases the probable occurrence of the desired response. Second, the adverse emotional responses associated with punishment and extinction are apt to be reduced and favorable emotions may be developed.

Since about 1958, the use of positive reinforcement has been examined much more intensively to see how the principles of operant conditioning can be applied to social behavior outside the experimental

laboratory. Most notably, a reinforcement analysis has indicated that the acquisition of numerous responses is consistent with the principles of operant conditioning, e.g., perception, verbal conditioning, interpersonal attraction, attitude formation, conformity, and leadership.⁵ Nord has attempted to apply the principles of operant conditioning to management and organizational behavior and has emphasized the value of variable reinforcement schedules in job design, reduced absenteeism, and training and compensation programs.⁶

Appropriate Reinforcement

The determination of what constitutes "appropriate" reinforcement is necessarily a subjective judgement and numerous theories have been suggested which consider different factors which influence one's subjective evaluation.⁷ Cherrington, Reitz, and Scott have suggested that appropriate reinforcement is defined by the performance-reward contingency. Appropriately reinforced individuals were the rewarded high performers and the nonrewarded low performers. Inappropriately reinforced individuals were the nonrewarded high performers and the rewarded low performers.⁸

We have attempted to apply the concept of appropriate reinforcement to the budgeting process.⁹ Essentially, we postulate that when budgets are used, appropriate reinforcement is provided when an individual's reward is contingent upon some combination of estimated and/or actual results, depending on his ability to control each. Rewards should be contingent on a budget only if the individual is free to set an estimate without undue pressure or interference from upper management. Inappropriate reinforcement can exist (a) when rewards are based upon the budget and the individual is coerced into submitting an unreal-

istic budget, or (b) when he is required to set a budget but not rewarded for making it. Essentially, rewards for estimates and/or performance should be compatible with the level of emphasis placed upon each.

In a laboratory study using 280 undergraduates, significantly higher measures of both performance and satisfaction were obtained under conditions which approximated appropriate reinforcement. Three-person groups estimated their performance and then performed a simple task over 6 periods. The Ss were under one of three reinforcement contingencies, and one of four conditions of budgetary control regarding the acceptance of the estimates.¹⁰ As predicted, the highest performance and satisfaction scores were obtained by Ss in conditions where (a) points were given both for the number of items produced as well as the number estimated and the groups had complete freedom in setting their estimates, and (b) the groups were forced to accept a high estimate but there was not a sizable loss of points if the estimate was not reached. On the other hand, the lowest performance and satisfaction scores were obtained from (a) the groups who were allowed to submit a very lenient (low) budget, regardless of point schedules and (b) from the groups who were required to submit an estimate and could submit any estimate they desired, but who were rewarded only for the number of items made and not for the number estimated. These results are illustrated in Table I which shows the deviations of the performance and satisfaction scores for each cell from the overall mean.

Insert Table I about here

The reward schedule in which the highest performance and satisfaction scores were obtained provided the same number of total points for an item estimated and made as the other reward schedules. However, the relative weights attached to the number of items estimated and made were different. These weights had been determined by a group of research assistants in a pilot group who were specifically asked to subjectively decide what they considered to be the most appropriate reward schedule based upon the nature of the task, what would be a reasonable incentive for increasing the group estimates, the risk associated with predicting their performance, the control they had over their output, etc. Thus, appropriate reinforcement was defined by the subjective decisions of this group regarding an adequate combination of points for the amount estimated, the amount produced, and a penalty for overestimation.

Budgets and Performance Estimates

The question frequently asked is what are the effects of budgets on people. We do not think this question is the most meaningful one to ask for several reasons, most of which are associated with the lack of operational specificity regarding budgets. It is not budgets, per se, that have an effect on people, but the positive and negative reinforcing consequences associated with budgets and their reward contingencies which need to be more clearly specified.

The basic concept of budgeting involves estimating future performance, comparing actual results with the estimate and studying the differences (variances) between them. The term "budget" is not a unitary concept, however, but varies from organization to organization. Some of the factors which determine the type of budget and its effects



include the type of organization, the personalities of people affected by the budget, the leadership style of the organization leaders, the method of preparing the budget, and the desired results of the budgeting process.

Several aspects of budgets, both functional and dysfunctional, have been discussed in the literature. Some of the functional aspects of budgets are the positive contributions budgeting makes to planning, coordination, implementation, and control, and it provides a basis by which efforts are rewarded. More specifically, planning means establishing objectives in advance and identifying the steps by which the objectives are to be achieved. The planning process initiates coordination and clarification of subgoals to achieve major enterprise goals. A coordinated plan (or budget) provides a "blue print" for implementation and control. As the plan is implemented, continuous feedback is needed to evaluate actual results. If actual results are compared with planned activities on a timely basis, corrective action may be taken as needed to achieve ultimate goals. Lowe and Shaw have described an organization in which the major planning decisions, resource allocations, and organizational control were centered around the budget.¹¹

Several dysfunctional aspects of budgets have also been discussed in the literature. The dysfunctional aspects observed by Argyris are (a) budgets are used as a pressure device which tends to unite employees against management, (b) reward structures provide success to the finance staff by making factory personnel appear as failures, (c) emphasis on the departmental level to achieve the budget creates a department-centered enterprise, and (d) supervisors use the budget as a means of justifying and expressing their coercive leadership style and personality.¹²



Another dysfunctional aspect is the negative connotation associated with the term "budget" and the negative attitudes created by budgeting.¹³

Most of the dysfunctional consequences identified above appear to represent a failure of management to construct the appropriate reward schedules and reinforcement contingencies. It is not too surprising to learn that budgets are sometimes viewed by workers as a pressure device, because sometimes budgets are intentionally used to pressure employees for higher productivity. Rather than criticising them for uniting against management we perhaps ought to commend them for being so perceptive. While varying degrees of pressure can be exerted by budgets, this pressure is not necessarily good or bad. In the study reported earlier high budget pressures increased performance without reducing satisfaction, but only when the Ss were rewarded accordingly.¹⁴ The dysfunctional consequences of budget pressures seem to exist when budgets are used as punitive devices for criticising performance and withholding rewards. The solution to this problem, as well as the problem of negative attitudes associated with budgets, is most likely to be found in the use of appropriate reinforcement for the desired responses. Beddingfield has suggested that the people affected by the budgets will respond with a proper attitude only if they are assured by experience that the use of the budget is to improve their operations and not to simply single them out as an inefficient element in the firm.¹⁵

The other dysfunctional consequences attributed to budgets are created by inadequate contingencies of reinforcement. When the success of the finance staff is at the expense of the production personnel, or when one department can maximize their rewards at the expense of another department, there quite clearly is a need to rearrange the reward con-



tingencies. If two departments are interdependent then their reward contingencies ought to be tied together to the extent that cooperation is required. On the other hand, if they are independent their reward contingencies should not be too closely tied together since such a situation leads to a loss of control and noncontingent reinforcement.

Budget Participation

Much has been written relative to the effects of worker participation in the budgeting process. The primary purposes for soliciting participation in the budgeting process are to (a) gain acceptance of a plan of action, (b) improve morale among employees and toward management, and (c) increase productivity.

Participation in the budgeting process has been found in some studies to increase the probability of its acceptance. Argyris, in a study of the effect of manufacturing budgets upon frontline supervisors, points out that "...goals are more often accepted if the individual members can come together in a group, freely discuss their opinions concerning these goals, and take part in defining the steps by which these goals will be accomplished."¹⁶ Similar arguments have been made by others, e.g., McGregor¹⁷ In studying resistance to change by employees in a pajama manufacturing plant, Coch and French found that employees who participated or who were represented in a group meeting to discuss the need for change, new job plans, and piece rates had a more cooperative and permissive attitude toward making the change than those not represented.¹⁸ The belief that an individual will be more receptive and more favorably disposed to a procedure if it contains his ideas is common to several theories of management.¹⁹



There is also evidence in the literature that participation improves morale. Coch and French found a much lower turnover rate, fewer grievances about piece rates, and less aggression against the supervisor as individual participation in planning job changes increased.²⁰ French, Israel, and As in studying participation in a Norwegian factory found that worker participation increased job satisfaction by satisfying important needs such as the need to be valued and appreciated by others.²¹ Active participation seems to be desired by employees. It makes them feel more a part of the activities, less dominated by a superior, more independent, and thus improves the employees attitude toward his job.²²

Increased productivity may, but does not necessarily, result from worker participation. Prior research has been contradictory on this point. Coch and French found greater productivity as a result of worker participation.²³ However, in attempting to replicate the study in a different organization and culture, French, Israel, and As found productivity uneffected.²⁴ The results of a field experiment conducted by French, Kay, and Meyer found no significant differences in goal attainment between participatively and non-participatively set goals.²⁵ Thus, the literature suggests that there is no direct correlation between participation and improved productivity.

It has been argued by some that participation exerts an impact on productivity chiefly through its effect on group cohesiveness.²⁶ However, several studies have shown that there is not a direct relationship between group cohesiveness and productivity but that the relationship is mediated by the norms of the work group.²⁷ If the group norms are counter-productive or inconsistent with the goals of



the organization then increased group cohesiveness would most likely decrease productivity.

Like the term "budgets," the term "participation" is subject to different empirical interpretations and there are great differences in the situations in which it has been applied.²⁸ One could attempt to develop a complete categorization of the various forms of participation and a catalog of situations appropriate to each form. It seems more appropriate to us, however, to focus upon the positive or negative reinforcing properties of participation.

Participation in the preparation of a budget is a form of job enrichment and, hence, is a potential positive organizational reinforcer for most individuals. Katz and Kahn have argued that individuals want to be involved in significant decisions which affect their own fate.²⁹ They attributed the failure of French, Israel, and As to find performance increases in a Norwegian shoe factory to the lack of freedom the workers were allowed to make significant decisions, and to the absence of accompanying rewards. Besides the major factor of influence in significant decisions, participation invokes powerful forces of self-expression and self-determination. Not only are people discussing important matters, but each individual is given a chance to express his own views and to persuade others. Hulin and Blood have suggested that job enrichment is a significant positive outcome for individuals who espouse the Protestant work ethic (which suggests that participation may not have acquired reinforcing properties for all individuals).³⁰ For those individuals who value enriched jobs, participation in the budgeting process (as well as participation in other activities, e.g., decision making, and performance appraisals, etc.)



should increase job satisfaction. Productivity, however, might increase, decrease, or stay the same depending upon (a) appropriate reinforcement for the actual level of performance, (b) the pressure (which is itself a form of positive or negative reinforcement) from either peer group norms or management for a high performance standard, and (c) the efficiency of the organizational structures or production processes adopted by the group as a result of their participation.

Performance Appraisals

The entire notion of appropriate reinforcement and performance-reward contingencies requires that performance be evaluated. Like the topics discussed above, however, performance appraisals produce both functional and dysfunctional consequences.

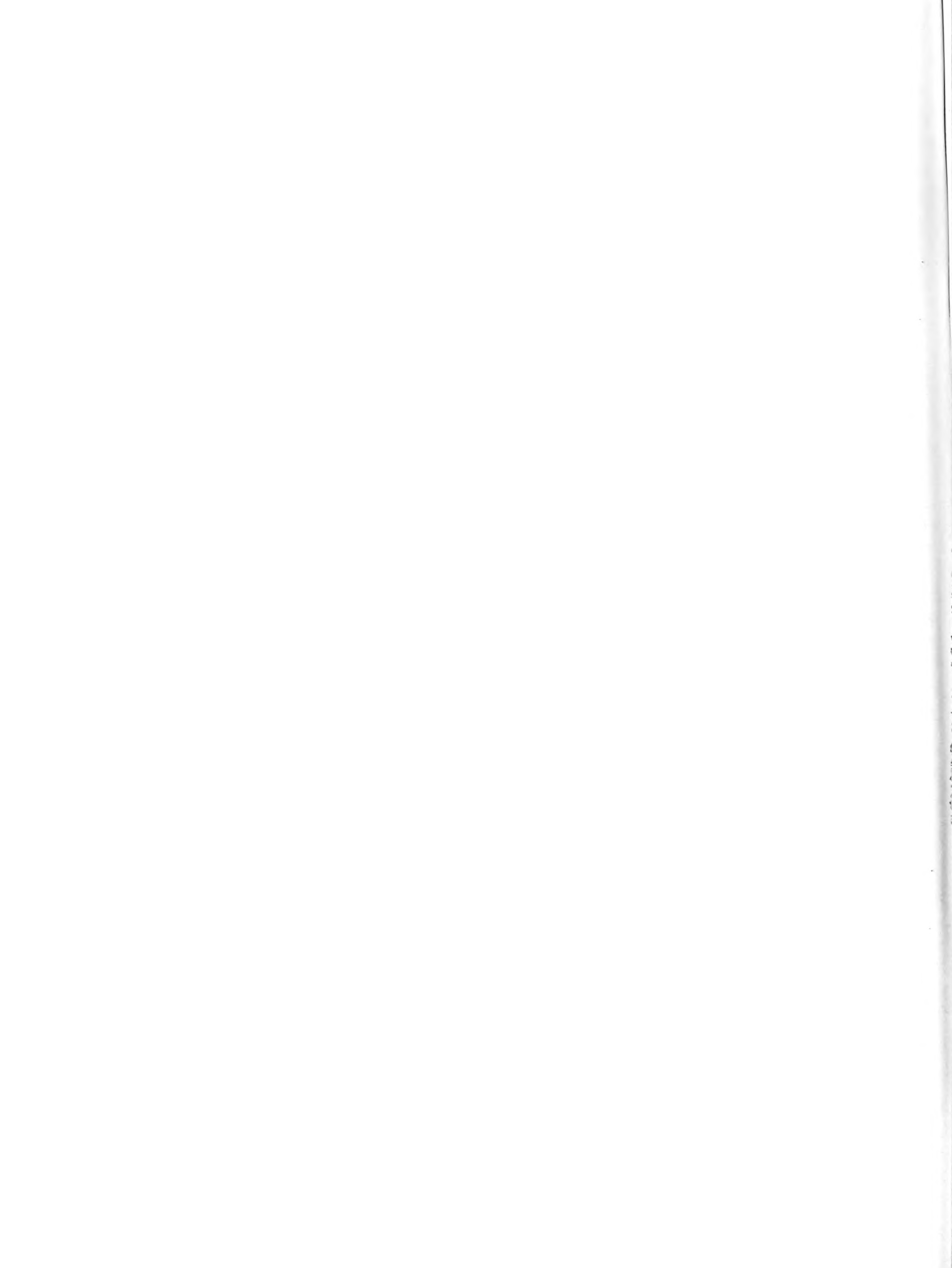
At the beginning of this article the question was posed whether performance appraisals should be conducted. This is a moot question since they are, in fact, done. It isn't really a question of whether or not we should conduct performance appraisals, but how we do it more effectively. The demands to hire, fire, promote, and compensate all necessitate some form of evaluation. Supervisors have always evaluated their subordinates and it is no doubt true that evaluations made in a random and unsystematic fashion, unrecorded and undefended, whether valid or not, have in the past been just as important in influencing personnel actions as evaluations made in a more formal manner.

Numerous systems have been suggested for evaluating performance.³¹ It is usually desirable to obtain objective data when possible and applicable. Objective measures include production data (e.g., number of items made, number of errors, volume of sales, commissions earned,



number of publications, etc.) and personnel data (e.g., absences, tardiness, accident rates, number of suggestions, etc.). When objective measures do not exist or can't be obtained, subjective judgments can be obtained from peer ratings, subordinate ratings or superior ratings. Such evaluations are subject to various weaknesses which can be quite serious in some conditions. Graphic rating scales (where the rater makes his evaluations on a scale from 1 to n regarding various characteristics) have frequently been subject to (a) unreliability, (b) the halo effect, (c) leniency in judgments, and (d) errors toward the central tendency. Some of these weaknesses have been minimized or eliminated, however by employee comparison methods and forced-choice techniques as well as by more refined rating scales. Some of the most frequently used characteristics include quantity of performance, quality of performance, dependability, job knowledge, initiative, cooperation, and overall performance.

Perhaps the most important point to remember is that these evaluations are value judgments. When evaluating an employee's performance the rater is imposing his own value system of what is good or bad, valuable or worthless upon the judgments he makes. This suggests that serious thought be given to the characteristics and dimensions upon which an individual is evaluated. Guion has suggested that all evaluations be compared against the concept of an ultimate criterion (after Thorndike).³² The ultimate criterion is not a measure; but it is an abstraction embodying everything that ultimately defines success on the job. As a theoretical guideline, Guion suggested that performance appraisals be free from the contamination of anything unrelated to the ultimate criterion but not leave anything related to it out.



Several dysfunctional consequences associated with performance appraisals have been identified in ongoing organizations and described in the literature.³³ Labovitz has argued that "at the higher levels of organizational life a greater portion of an individual's performance becomes difficult to measure in quantitative terms. Technical demands placed on individuals at technical levels can usually be measured by some objective standards, while the executive or administrative functions cannot."³⁴ While executive or administrative functions are more difficult to quantify it is unnecessary despair to say that they can't be evaluated. When objective measures are not available, subjective judgments can be obtained. When we say that supervisor A is better than supervisor B or that supervisor A is doing a good or poor job we are simply stating an attitude regarding their performance. Considering the amount of thought and research which has been devoted to attitude measurement, it is quite likely that these attitudes can be measured reliably.

Furthermore, even though it is desirable to have quantitative measures, such as the number of units produced or errors made, there are other important dimensions in every job. Any evaluation or appraisal which only looks at the quantity and quality of performance in objective terms omits the spontaneous and innovative behaviors (discussed by Katz and Kahn)³⁵ which are vital to organizational effectiveness.

The difficulties associated with measuring the diverse aspects of an administrator's job along with the dynamic nature of such a job have been cited as some of the major problems associated with management by objectives.³⁶ MBO provides for an individual to participate in



selecting his own goals or objectives and assumes that he will work hard to accomplish them and be pushed internally by reason of his commitment. However, he is frequently evaluated on something less than the ultimate criteria, and his rewards are tied to the appraisal. Consequently, if behavior is a function of the reinforcement contingencies, as suggested earlier, only those activities included within the appraisal will be performed. Several activities vital to the effective, coordinated functioning of the organization are then omitted. The solution to this problem is to make the evaluation more closely approximate the ultimate criterion. In addition, Levinson has suggested that every MBO and appraisal program should include regular appraisals of the manager by his subordinates and be reviewed by the manager's superior. If the supervisor is free to say that a subordinate was sometimes irresponsible and would not complete various odd jobs when asked, then the subordinate should be able to say when he evaluates his superior that sometimes his task instructions were so garbled that he frequently didn't know what to do. This points to the advantages of joint appraisal reviews when time permits.

Thompson and Dalton have argued in favor of an objective-focused performance appraisal approach.³⁷ Essentially what they advocate is specifying the specific objectives of each individual in advance and holding them responsible for the outcomes during the performance appraisal. This procedure avoids the negative consequences of a zero-sum situation in which some workers must be evaluated below average in order to have other workers evaluated above average. Since each man has different tasks and different objectives, there is no reason why he cannot experience some success. Marked improvement in the perfor-



mance of one person does not automatically require that someone else must slip backward.

Using performance appraisals to reward performance implies an underlying personal value to the effect that there should be a balance between the contributions of the employee and his level of compensation. This personal value has underlied this entire discourse and it is appropriate that this fact be recognized. What we are basically saying is that in return for the compensation an individual receives from the organization it is appropriate to expect him to make a reliable contribution to the organization which will be evaluated and determine in part the magnitude of his reinforcement. Aside from this value is the idea that appropriate reinforcement which is contingent upon certain desired responses will increase satisfaction and performance as was discussed above. Someone with a different value system might feel differnetly about the need for a compensation-contributions balance, but should agree upon the effects of appropriate reinforcement.



FOOTNOTES

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4. B.F. Skinner, Contingencies of Reinforcement: A Theoretical Analysis (New York: Appleton-Century-Crofts, 1969).
5. For a good collection of readings, see Elliot McGinnies and C.B. Ferster, The Reinforcement of Social Behavior (Boston: Houghton Mifflin, 1971).
6. Nord, op. cit.
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8. David J. Cherrington, H. Joseph Reitz, and William E. Scott, "Effects of Reward and Contingent Reinforcement on Satisfaction and Task Performance," Journal of Applied Psychology, Vol. LV, No. 6 (1971), pp. 531-536.



9. This study has been reported in greater detail in David J. Cherrington and J. Owen Cherrington, "Appropriate Reinforcement Contingencies in the Budgeting Process," (A paper presented at the Empirical Research in Accounting Conference, Chicago, May, 1973).
10. The three reinforcement contingencies were "output-only" (5 points per item), "budget-oriented" (1 point per item made, 4 points per item estimated, and -6 points per item overestimated), and "output-budget" (4 points per item made, 1 point per item estimated, and -2 points per item overestimated). The four budgetary control conditions were "imposed" (only a high, stated estimate was acceptable), "pseudo-participation" (a high but unstated estimate was required), "lenient" (a low, stated estimate was necessary), and "group-based" (the group was free to set its own estimate).
11. A.E. Lowe and R.W. Shaw, "An Analysis of Managerial Biasing: Evidence from a Company's Budgeting Process," The Journal of Management Studies, Vol V, No. 3 (October, 1968), pp. 304-315.
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13. Milton F. Usry, "Solving the Problems of Human Relations in Budgeting," Budgeting, Vol. XVI (November-December, 1968), pp. 4-6.
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15. Ronald Beddingfield, "Human Behavior: The Key to Success in Budgeting," Management Accounting (NAA), Vol. LI (September, 1961) pp. 54-56.



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32. Ibid., p. 113.
33. G.H. Labovitz, "More on Subjective Executive Appraisals: An Empirical Study," Academy of Management Journal, Vol. XV, No. 3 (1972), pp. 289-304; Paul H. Thompson, Performance Appraisal: Some Unanticipated Consequences (Boston: Harvard Business School, Unpublished Doctoral Dissertation, 1969); Paul H. Thompson and Gene W. Dalton, "Performance Appraisal: Managers Beware," Harvard Business Review (January-February, 1970), pp. 149-157.
34. Labovitz, op. cit., p. 290.
35. Katz and Kahn, op. cit., Ch. 12.
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37. Thompson and Dalton, op. cit.

Table 1

Deviations from the overall means: performance^a and satisfaction^b scores

Reinforcement Contingency	Budgetary Control							
	Imposed		Group-based		Pseudo-participation		Lenient	
	Perfor- mance	Satis- faction	Perfor- mance	Satis- faction	Perfor- mance	Satis- faction	Perfor- mance	Satis- faction
Output- Only	+ 0.8	A + .58 B + .31 C + .33 D + .48	- 4.6	A - .81 B - .65 C - .73 D - .84	- 0.2	A - .01 B + .05 C - .17 D - .07	- 1.5	A - .57 B - .53 C - .78 D - .53
Budget- Oriented	+ 2.2	A + .03 B .00 C - .16 D - .07	+ 0.4	A - .12 B - .01 C - .16 D - .09	+ 2.3	A - .11 B + .20 C - .19 D + .03	- 2.2	A - .11 B - .33 C + .14 D - .09
Output & Budget	+ 0.8	A + .28 B + .17 C + .26 D + .24	+ 2.0	A + .30 B + .56 C + .79 D + .46	+ 2.0	A + .47 B + .35 C + .53 D + .31	- 1.9	A + .07 B - .11 C + .12 D + .16

- a. The overall performance mean for all six periods was 21.9.
 b. Satisfaction scores were based on a 1 - 7 scale; 1 = unfavorable and 7 = favorable.
 The attitude measures are indentified by the following letters:

- A General Satisfaction (overall mean = 4.63)
- B Personal Competence (overall mean = 5.22)
- C Supervisor Consideration (overall mean = 5.02)
- D Supervisor Competence (overall mean = 4.61)





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