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THE ROLE OF ACCOUNTING DATA IN PERFORMANCE
EVALUATION, BUDGETARY PARTICIPATION AND
ORGANIZATIONAL EFFECTIVENESS

by

Peter Brownell

WP 1171-80

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MASSACHUSETTS
INSTITUTE OF TECHNOLOGY
50 MEMORIAL DRIVE
CAMBRIDGE, MASSACHUSETTS 02139

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1. Introduction

The relationship between managerial leadership style and the cognitive and behavioral responses of subordinates which are elicited by various styles has been an extremely important topic of inquiry in both organizational behavior and management accounting research. The proceeds of this research in the organizational behavior area have been very fruitful. In the early years, when suitable research measurement instruments and theoretically sound priors were almost non-existent, advancement of knowledge was due largely to experimental work, such as that of Bavelas and his associates (see Bavelas, [1950], for example). In the late 1950s, however, significant advances in the leadership measurement area were made, due to the developmental work of the Ohio State Leadership group, in particular Stogdill and Coons, which led to the well-known Leadership Behavior Description Questionnaire (LBDQ). Two dimensions of this taxonomy, "Consideration" and "Initiation of Structure" have since been the focus of countless empirical studies of the impact of leadership style. Today, we are armed with a relatively well articulated "contingency theory" of leadership style, in the sense that many replicated results point to clear situations in which various leadership styles will be more effective than others.¹

In the management accounting literature though, specifically the area of budget system design, some exploration of appropriate leadership style has begun, but our knowledge is still rudimentary. Although the relevance of leadership style and its consequences were shown quite early to be

important in the area of budgeting (Argyris, [1952]), few studies have followed up from this beginning. Two exceptions, particularly in the area of the LBDQ dimensions, are the work of DeCoster and Fertakis [1968] and Hopwood [1974]. One possible explanation of the lack of research effort in the area may be that the well-developed measurement instrumentation available in organizational behavior is viewed as inappropriate in a budgetary context. This limitation may have seeded the pioneering work of Hopwood [1972, 1973] which has been followed up by Otley [1978].

Hopwood reasoned that the role of accounting information in a superior's style of evaluation of subordinates should be considered in the light of a usually imperfect overlap between organizational goals, individual goals and measurable goals. An undue emphasis on measurable goals alone would, in such a situation, result in dysfunctional consequences such as job-related tension (JRT), poor relationships with superiors and peers, and even manipulative behavior on the part of subordinates. In order to test this hypothesis, Hopwood developed measurement instrumentation aimed at classifying the evaluative behavior of superiors according to the degree of emphasis placed on budget achievement at the exclusion of other wider conceptions of effective subordinate behavior. The resulting taxonomy of evaluative styles embraced three contrasting types; a budget-constrained style (under which subordinates are unfavorably evaluated if their current performance reflects budget variances, regardless of other considerations), a profit-conscious style (under which the imperfections and incompleteness of budget-based measurements are recognized and incorporated into the evaluations of subordinates by superiors) and a non-accounting style (under which budgetary information specifically, and accounting information more

generally, play relatively unimportant roles in evaluation).

The results of Hopwood's study [1972] indicate that a budget constrained style of evaluation is associated with higher JRT, worse relations with superiors and peers and (possibly most importantly among his criterion variables) clear evidence of greater manipulative, dysfunctional behavior on the part of the subordinates than is elicited by either of the other two styles. Whether or not these outcomes can be associated with more important criteria or organizational effectiveness, such as performance, could only be speculated upon on the basis of Hopwood's data, although Hopwood, himself, left little doubt as to his thoughts on the question. In other words, the question left for future research was "What are the effects of JRT and peer/superior relationships on performance?"

Otley [1978] pursued this question, hypothesizing, on no other basis than Hopwood's speculation, it seems, that a budget constrained style of evaluation would, via the JRT and poor relations with superiors and peers, adversely affect performance, particularly its long-term aspects. Employing a slight variant of Hopwood's evaluative style measure, Otley found relationships between evaluative style and the intervening variables which departed somewhat from those of Hopwood. One major difference which resulted was evidence of a curvilinear effect of evaluative style on JRT. As to the relationship between the intervening variables and performance, Otley concluded that only "loose associations" [p. 135] could be claimed, with the causal direction remaining a matter for speculation. One tendency which he did discover was that a budget-constrained evaluative style was associated with a greater degree of budget achievement, a result at variance with Hopwood's suggestion. Consistent with Hopwood, he did find that larger organizational units tended to attract a budget-constrained

style of evaluation. This result has also been suggested by Pruns and Waterhouse [1975].

In general, however, Otley's results were viewed as markedly different from those of Hopwood, and Otley pursued two perspectives in attempting reconciliation. First, he noted that while Hopwood focused on cost centers, his own sample involved profit center heads, more likely, he contended, to be positively motivated by budget goals. Second, an explanation in terms of differences in sub-unit operating environment was offered.

A further possible explanation for differences in results is alluded to by Hopwood [1973] who reported that job satisfaction was strongly associated with budgetary participation for managers evaluated with a budget constrained style. No association could be shown, however, for managers evaluated with a profit conscious style. This extremely important interaction was not followed up by Otley, who, while measuring both participation and performance, was apparently more concerned with the direct impact of the former on JRT and the other intervening variables. He found a curvilinear relationship between participation and JRT, managers apparently experiencing greater JRT when a discrepancy between their own and their superiors' levels of participation is observed. Both too much and too little participation appear to be problematical, with significantly less JRT associated with levels of participation approximately equivalent for managers and their superiors.

The role of participation as a moderator of the effects of evaluative style on performance remains an untested question, however. This is clearly an important question because the presence of moderators in this relationship will suggest good reason for the failure of Otley to more

successfully replicate Hopwood's results. It is this question which provides the focus of the present study.

The balance of this paper will be organized as follows; in the next section two theoretical constructs will be presented to provide the basis for the expectations and hypothesis of the present study. Sections dealing with the hypothesis, research method, results and finally discussion and limitations, will follow in turn.

2. Some Theoretical Constructs

Two theoretical paradigms will be discussed as a basis for the expectations of the present study. These are the areas of operant conditioning (Skinner) and balance theory (Heider), and these will be discussed in turn.

The basic principle of operant conditioning concerns the development of stimulus/response (S/R) bonds in association with appropriate reinforcement conditions. Usually, the reinforcement assumes takes the form of a desired outcome or the avoidance of an undesired outcome, but it has been shown (see Maddi, [1972] for example) that secondary reinforcements, or outcomes which, while of no potential value in and of themselves, are valued because of their past association with desired outcomes, and can be responsible for the development and maintenance of an S/R bond. This notion takes a familiar form in the expectancy theory model of motivation (see Ronen and Livingstone, [1975], for example) where "first"- and "second-level outcomes" are arguments of the function.

The role of reward structure as a secondary reinforcer on the relationship between budgetary participation and performance and job satisfaction was studied by Cherrington and Cherrington [1973]. They reasoned that a reward structure which was based on budget achievement

would represent appropriate reinforcement only for individuals who are largely responsible for the determination of budget targets, while a reward structure deemphasizing the budget would provide appropriate reinforcement only for individuals for whom the budget is largely imposed. In other words, they hypothesized that rewards for budget-related performance should be compatible with the level of emphasis placed upon budgets. In an experimental task involving 230 undergraduate business students, Cherrington and Cherrington essentially confirmed the hypothesis. Performance and reported job satisfaction were higher in the appropriately reinforced groups, namely the budget-based reward/high participation and non-budget-based reward/low participation groups. In the present context, it is suggested that leadership evaluative style will operate in a similar fashion, that is, superiors who exhibit a budget constrained style, placing primary emphasis in their evaluation of subordinates on budget achievement, will be providing appropriate reinforcement only for those individuals who are heavily involved and influential in the budget setting process.

While the theory of operant conditioning provides a basis for the identification of appropriate and inappropriate degrees of emphasis on budget achievement in superior evaluative style, balance theory (Heider, [1946]), one member of a broader class of theories known as consistency theories, provides a theoretical foundation as a basis for the prediction of the consequences of inappropriate degrees of emphasis. The fundamental thrust of consistency theory is that individuals strive for a balanced or equilibrium cognitive structure, unbalanced or disequilibrium situations being construed in terms of cognitive conflict. As an illustration of the basic notion of cognitive consistency, consider the two relationships depicted in Figure 1.

INSERT FIGURE 1 HERE

Suppose we admit two objects, A and B, to the cognitive set of an individual. In Figure 1(a) the relationship between the two objects and the relationship of the individual toward each of them is shown. The individual is positively disposed towards both objects but a negative (denoted small n) relationship between the two is observed. As a concrete example, suppose that A represents a second individual and B represents some attitudinal object, say nuclear power. The focal individual is positively disposed toward both the other individual and nuclear power, but the other individual, A, is opposed to nuclear power, B. Figure 1(b) indicates a positive orientation toward A but a negative orientation toward B. A is now positively associated with B (denoted small p). Both of these cognitive structures are unbalanced. Balance requires that elements of identical sign [such as in Figure 1(a)] are linked by positive (p) or null (ϕ) relations, and that elements of opposite sign [such as in Figure 1(b)] are linked by negative (n) relations or null relations. The restoration of balance in each of the unbalanced structures in Figure 1 is possible in two basic ways; first the individual can change orientation toward either (but not both) elements, leaving the linkage between the two elements unchanged, second, the orientation toward each element can be left unaltered, the relationship between the two being changed. The former means of balance restoration lies at the heart of the role of balance theory as an important theoretical construct in the study of attitude change.

In the context of the present research, the relationship between three cognitive elements, superior's evaluative style, the superior himself and subordinate performance, together with the subordinates orientation toward

each can be depicted within the framework of balance theory. Let us begin by supposing, not unreasonably, that at least two relationships between the elements are fixed, namely that the superior is favorably disposed towards good subordinate performance, and also towards whatever evaluative style he employs. If we additionally assume a null relationship between subordinate performance and evaluative style (as found by Otley) then only two forms of balance among the elements can prevail. Either the subordinate is favorably disposed toward all three elements or unfavorably disposed toward all three. These two situations are depicted in Figure 2.

INSERT FIGURE 2 HERE

Note that if we further assume a favorable disposition of the subordinate towards evaluative style of his superior, only one form of balance among the three elements [Figure 2(a)] is possible given the previous constraints. This situation is clearly preferable to that shown in Figure 2(b) where balance, in the face of an unfavorable disposition of the subordinate towards the evaluative style of his superior, is only possible via the maintenance of negative orientations on the part of the subordinate also toward both the superior (perhaps manifested by lower reported satisfaction with job in general and with supervision in particular) and the subordinate's own performance (perhaps manifested by inferior actual performance).

The organizational task within this framework is clear. The maintenance of good superior/subordinate relations and a satisfactory level of subordinate performance depends on assuring a positive disposition of the subordinate towards the superior's evaluative style. The question arises as to the conditions under which various degrees of emphasis on the

budget in evaluation by superiors will induce the desired favorable disposition of the subordinate toward the superior's evaluative style. As discussed above, it is contended that the degree of budgetary participation granted to subordinates will be the key variable affecting the orientation toward any particular evaluative style. In particular, and following the previous discussion, it is suggested that only where budgets have been made salient to a subordinate via the process of participation, leading to a commitment to the budget, will an evaluative style focusing heavily on the budget be viewed favorably by the subordinate. Conversely, it is suggested that high participation in the budgetary process is inconsistent with a de-emphasis on budgets in evaluation by superior, subordinates finding it difficult to understand the purpose of their influence and involvement in the budget planning process when the budget is more or less ignored in the evaluation or control phase. The reverse is suggested to hold true for low participation in the budget process. This will only be consistent, and result in favorable subordinate orientations towards superior evaluative style, when this style exhibits an appropriate de-emphasis on the budget. A heavy emphasis on the budget in this situation would be quite inappropriate.

In other words, in the present study, the implications of both the theoretical constructs of operant conditioning and cognitive balance are that while no direct relationship between evaluative style of superior and the two criteria of performance and job satisfaction is expected, a significant interaction between evaluative style and budgetary participation is expected. An evaluative style which is heavily reliant on the budget will be associated with higher performance and reported job satisfaction under conditions of high participation than under conditions

of low participation. Conversely, an evaluative style which involves de-emphasis on budget will result in higher performance and reported job satisfaction under conditions of low participation than under conditions of high participation. Of particular interest, will be the direct effects of participation, as well as the interaction, on both performance and job satisfaction. The ordinality of the interaction hypothesized between evaluative style and participation will be carefully studied therefore, to provide further evidence on the direct role of participation, an issue which remains far from settled. On this issue, the evidence is replete with contradiction. For example, evidence of a positive relationship between participation and performance is due to Kenis [1979], however the reverse relationship was found by Bryan and Locke [1967]. Other studies (eg. Milani, [1975]) report no particular relationship at all. It is hoped that the present research can throw some light on this question also.

3. Hypotheses

The expectations developed above can be formalized in terms of the null hypotheses to be tested in this study:-

H₁ There will be no significant interaction between supervisory evaluative style and budgetary participation affecting performance.

H₂ There will be no significant interaction between supervisory evaluative style and budgetary participation affecting job satisfaction.

4. Method

A questionnaire approach was employed to gather the data necessary for the conduct of this study. A sample of forty-eight managers was drawn from a large San Francisco Bay Area manufacturing company. The managers were selected from eight separate functional divisions of the organization, each

of which was involved in one phase of the production or distribution activities of the business. All managers held cost-center responsibility for their respective organizational sub-units, but preliminary meetings with plant management indicated that technological, regulatory and environmental characteristics varied somewhat across cost centers leading to the use of a variety of managerial approaches throughout the organization. This is an important consideration because the focus on a single organization can not only impair generalizability but may also substantially reduce the variance of the measured variables across the sample, rendering hypothesis testing extremely difficult.

Four variables required measurement in the study; two independent variables (evaluative style and budgetary participation) and two dependent variables (performance and job satisfaction).

The Independent Variables

1. Evaluative Style

It was decided that the minor variations made by Otley to the eight dimensional evaluative style index originally developed by Hopwood [1971] were unnecessary for the present study. Having focused on profit centers rather than cost centers, Otley was forced to reword some of the items used by Hopwood. In this study the Hopwood version of the index was employed since, like Hopwood, the focal respondent group was cost-center management. Each manager was asked to rank-order the eight performance criteria according to the relative importance placed on each criterion by supervisors in their evaluation. Using the approach suggested by Hopwood [1972, p. 165], four evaluative styles were extracted from the responses to the index, based on two of the criteria²:-

- (i) Budget-Constrained Style (BC) - meeting the budget, but not concern with costs, ranked among the top three criteria

- (ii) Budget-Profit Style (BP) - both meeting the budget and concern with costs ranked among the top three criteria
- (iii) Profit-Conscious Style (PC) - concern with costs, but not meeting the budget ranked among the top three criteria
- (iv) Non-Accounting Style (NA) - neither meeting the budget nor concern with costs ranked among the top three criteria

Table 1 presents the results of the use of the evaluative style index

INSERT TABLE 1 HERE

and provides comparative data from both Hopwood's and Otley's use of the index. Interestingly, the distribution of respondents in the present study is far more similar to Hopwood's distribution than to Otley's, strengthening the likelihood that type of responsibility center will influence evaluative style chosen by superiors. In particular, it seems, profit center managers generally appear to be evaluated much more on the basis of accounting information than do cost center managers. The most striking difference between the distributions is the dominance of the non-accounting style in Hopwood's sample and in the present sample, and its trivial importance in Otley's sample.

For purposes of analysis, in the present study, the four evaluative styles were collapsed into two; the BC and BP, and the PC and NA. The former pairing was suggested by Hopwood (1974, p. 489, fn 8) and the small sample size, combined with some doubts about the interval nature of the scale, led to the amalgamation of the latter two. Concern about the scale properties was in fact raised by Otley [1978 pp 128-129]. The two resulting styles can be characterized as high and low budget emphasis (BC plus BP and PC plus NA respectively).

2. Budgetary Participation

Several direct (as opposed to factor-analytic) attempts at measurement of budgetary participation are to be found in the literature. Usable measures are due to Vroom [1960], Likert [1961], Hofstede [1967], Heller [1971], Vroom and Yetton [1973] and Milani [1975]. Of these, two were seriously considered for the present study, the Hofstede and Milani measures. Only these two measures were developed for use in a context identical to the present context, and the use of either one will permit an integration of the results of the present study into the most relevant body of previous literature. For purposes of cross-validation, both measures were employed in this study, although the Milani measure deserves major focus because, unlike the Hofstede measure, it is a multi-item measure permitting a reliability assessment, and because it was developed more recently, possibly benefiting from the more contemporary body of literature extant at the time of Milani's work. The Hofstede measure is a single Likert-type item with an eight point scale with eight verbal anchors, while the Milani measure incorporates six Likert-type items with polar anchors at each end of a 7 point scale.³

As a measure of convergent validity, the two measures correlated +0.74, a pleasing result given the dissimilarity of the measures. As a reliability assessment, the Milani responses were factor analyzed. As a multi-item additive scale, one would hope to discover that all six items in the measure load on a single factor. The analysis led to the emergence of two eigenvalues greater than unity, two components therefore being extracted. The rotated factor loadings are presented in Table 2, and the

INSERT TABLE 2 HERE

results reveal that with the exception of item 2, all items in the measure load on a single factor. For purposes of providing for comparability of the present results with those of Milani, it was decided to construct participation scores using the responses to all six items in the measure, the approach used by Milani. Table 3 presents descriptive statistics for the Milani measure.

INSERT TABLE 3 HERE

The Dependent Variables

1. Performance

On the basis of three criteria, a self-rating version of the Mahoney et al. [1963, 1965] nine-dimensional performance measure was employed to gather data on this variable. First, a self-rating rather than superior-rating version of the measure overcomes the problem of "halo error"⁴ to which superior ratings have been shown susceptible (Thornton, [1968]; Nealy and Owen, [1970]). Second, the nine-dimensional structure of the measure clearly captures the multi-dimensional nature of performance without introducing the problem of excessive dimensionality. Kavanagh et al. [1971], for example, obtained disappointing results on a discriminant validity test of a twenty-dimension performance rating scale employed by them. Third, and perhaps most importantly, independent assessments of reliability and validity of the Mahoney instrument have provided supportive evidence of the measure's sound development (Penfield, [1974]; Heneman, [1974]).

The nine-dimensional structure of the Mahoney measure includes a single overall performance rating, together with ratings on eight sub-

dimensions.⁵ It was decided that, at least initially, the overall rating should form the basis for the test of H_1 , and, as a test of the extent to which variations in this rating can be explained by ratings on the eight separate dimensions, the overall rating was regressed on the eight dimensions. The regression provided for explanation of 60.8% of the variance in the global ratings, a result consistent with Mahoney's developmental work where it was found that approximately 55% of the functions critical to effective managerial performance were common to the 452 managerial assignments in thirteen companies studied, while approximately 45% were job specific (Mahoney et al. [1963, pp. 106-107]). Table 4 presents descriptive statistics for the Mahoney measure.

INSERT TABLE 4 HERE

2. Job Satisfaction

Robinson et al. [1969] catalogued no less than sixteen different instruments employed in the literature to measure job satisfaction. The number of ad hoc measures used in single studies defies estimation. However, the use of reliability and validity criteria as a selection device substantially reduces the number of feasible alternatives. In this study, the Job Descriptive Index (JDI) (Smith et al. [1969]) and the Minnesota Satisfaction Questionnaire (MSQ) (Weiss, et al. [1967]) were considered "because of their careful development and because they have been extensively used by investigators in the field" (Gillet and Schwab [1975, p. 313]). Due to the availability of substantial norm group data, the MSQ, a 100-item Likert-type measure embracing twenty sub-scales of satisfaction, was chosen. In addition, an independent assessment of the validity of the

MSQ has suggested that it outperforms the JDI in tests of discriminant validity (Dunham et al. [1977]). On the question of reliability, Weiss et al. provide Hoyt analysis of variance reliability coefficients for two comparative groups, an entire sample of 27 norm groups and one particular group, managers. Reliability coefficients were computed from the results of the administration of the MSQ in the present study and all three sets of data are presented in Table 5. Table 5 shows that while the coefficients

INSERT TABLE 5 HERE

obtained from the data of the present study are satisfactory per se, they are generally lower than the coefficients obtained from the two comparison groups reported by Weiss et al.

Table 6 presents descriptive statistics for the present sample on each of the twenty sub-scales of the MSQ, together with the overall index of job satisfaction.

INSERT TABLE 6 HERE

5. Results

Questionnaires were collected from all forty-eight managers. Two sets of responses were omitted due to improper completion of the Mahoney measure and the MSQ, and an additional six were omitted due to evidence of response-set bias in completion of the MSQ only. A disturbing 8 sets of responses were also omitted due to improper completion of the ranking called for on the Hopwood budget importance measure, reducing the sample sizes for testing of H_1 and H_2 , to 38 and 32, respectively.

Performance H.

The following equation was developed for purposes of testing H₁

$$Y = \beta_1 + \beta_2 X + \beta_3 Z + \beta_4 XZ \quad (1)$$

where Y is performance

X is budgetary participation

Z is a binary variable,

$$Z = \begin{cases} -1 & \text{for high budget emphasis} \\ +1 & \text{for low budget emphasis} \end{cases}$$

and XZ is the interaction between participation and budget emphasis.

Deviation scores were substituted for the raw scores on the Milani measure, each raw score being subtracted from the overall mean. The effect of this procedure is to code low participation scores positively (the smaller raw scores being subtracted from the mean) and to code high participation scores negatively (the larger raw scores being subtracted from the mean). This procedure allows a clearer conception of the predicted sign of β_4 , the coefficient for the interaction term. Recall that the hypothesis is that the low participation/low budget emphasis and high participation/high budget emphasis combinations are both expected to be associated with high performance. The product term, XZ, will be positively signed in both of these cases. The other two combinations, low participation/high budget emphasis and high participation/low budget emphasis are expected to be associated with lower performance and the product term, XZ, will be negatively signed in each case. Hence, the basic question of the significance of the interaction will be tested via examination of β_4 for significant departure from zero in either direction. For an interaction of the predicted form, however, a significant, positive β_4 will be expected.

The results of this regression are presented in Table 7. β_1 is noted

INSERT TABLE 7 HERE

to be significantly positive indicating rejection of the null hypothesis in a fashion consistent with the expectations. β_1 , the coefficient for evaluative style, does not quite reach significance if $p < 0.05$ is set as the cut-off alpha-level. It is significant at $p < 0.10$, however, suggesting a tendency for higher performance to be associated with a deemphasis on the budget in supervisory evaluative style. The result is consistent with Hopwood [1972] but is contradictory to Otley [1978], who suggested that better performance tends to be associated with a budget constrained style. Participation (β_2), on the other hand, is highly significant ($p < 0.01$) indicating, as is often suggested in the literature, that higher participation is associated with higher performance. The use of Milani's participation measure permits a comparison of the present results with those of his study. Milani hypothesized, but found only very weak support for, a positive relationship between participation and performance. The results of the present study indicate that while the interaction of participation and evaluative style is important, participation alone exerts a powerful direct influence on performance.

To further explore the nature of the interaction, the Johnson-Neyman technique⁶ was employed. This technique establishes a region of values for the continuous independent variable (budgetary participation) within which no significant differences in the dependent variable (performance) can be ascribed to the categorical variable (budget emphasis in evaluative style). The test makes use of the slopes and intercepts derived from two

regressions of performance on budgetary participation, one regression for each of the two categories of evaluative style.⁷ The derived range of values for this test was 23.06 to 74.45. Considering the mean score for participation ($\bar{X}=25.79$) and its standard deviation ($\sigma_x = 7.10$), this result indicates that for participation scores in excess of 0.38σ below the mean, performance is significantly higher under conditions of a deemphasis on the budget in evaluative style. The intersection of the two curves occurs at $X=30.12$ ($\bar{X}+0.61\sigma_x$) suggesting that for participation scores above 30.13, performance is superior under conditions of a heavy emphasis on the budget in evaluative style. However, the difference between performance levels under the two evaluative styles does not become significant until $X=74.45$ ($\bar{X}+6.85\sigma_x$). These results are depicted in Figure 3. The hatched area in

INSERT FIGURE 3 HERE

Figure 3 represents the range of participation scores within which no significant differences in performance can be attributed to evaluative style.

What is suggested by these results is that performance differences resulting from the use of alternative evaluative styles can be far better explained when budgetary participation is introduced as a moderating factor. In particular, the undesirable consequences of an excessive emphasis on budgets in evaluative style, suggested by Hopwood [1972], are seen to be ameliorated by a suitably high level of budgetary participation, a result which may tend to explain why Otley [1978] obtained disappointing results when studying the direct effects of evaluative style on performance.

Further Analysis

In order to explore the effects of the evaluative style/participation interaction on the various sub-dimensions of performance, regressions similar to equation (1) were performed for each of the eight sub-scales from the Mahoney measure. The results of these eight regressions are summarized in Table 8.

INSERT TABLE 8 HERE

Some interesting results emerge from these analyses. Note, in particular, the strong effects of all three variables (evaluative style, participation and their interaction) on the subscale of investigating. This subscale provides the strongest support of any for Hopwood's contention that a budget constrained style can directly result in adverse consequences. It is also true, however, that participation directly affects performance on this dimension, as does the participation/evaluative style interaction. The strong direct effects of participation on performance in the areas of negotiating and representing are worthy of note also. Both of these results are intuitively appealing.

Job Satisfaction H_2

Equation 1 was again employed as the basis for testing of H_2 , the hypothesis of interaction affecting job satisfaction. The results of this regression are presented in Table 9.

INSERT TABLE 9 HERE

The results shown in Table 9 fail to permit rejection of H_2 . None of the

variables appear to exert any significant influence on job satisfaction. However, the results of testing using the twenty subscales of the MSQ produce some interesting relationships. Table 10 presents the results of twenty regressions employing as dependent variables each of the twenty subscales in regressions of the form of equation (1).

INSERT TABLE 10 HERE

The significant coefficients for participation for the dimensions of creativity, ability utilization, responsibility recognition and achievement are all results which are not surprising, high participation being associated with higher reported satisfaction with the individual job facets. The strongest results for evaluative style involve the dimensions of working conditions and co-workers. The latter is particularly interesting since it suggests that a budget-constrained style of evaluation is associated with lower reported satisfaction with co-workers. This result is similar to a conclusion of Argyris [1952] who suggested that one means of relieving the pressure associated with a heavy emphasis on budgets in evaluation was to blame other workers, with the consequence of increased intra-departmental strife. While only one of the interaction coefficients is significant (ability utilization), all but six are in the predicted direction. A sign test (Siegel, [1956]) shows that the probability of this result is 0.06, suggesting a general tendency for the interaction terms to be as predicted.

Discussion

The results of this study indicate that the impact of supervisory evaluative style on performance is moderated by budgetary participation,

which, itself exerts a substantial positive influence on performance. In the area of job satisfaction, no conclusive results emerged, therefore the discussion will be confined to a consideration of the performance-related results. That evaluative style itself exerts no direct influence on performance should not be surprising. Otley [1978] pointed to several important considerations in explaining this result. First, the type of responsibility center involved was suggested as a potential influence, and Otley's results may have differed from Hopwood's due to the former's use of profit center managers and the latter's use of cost center managers. The degree of staff supportiveness was suggested as a second factor affecting the relationship. Otley reasoned that better staff-line relationships existed in the company from which his sample was drawn, than in Hopwood's company.

Finally, Otley suggested that environmental conditions represented possible influences on the relationship. The results of the present study, suggesting the role of budgetary participation as a moderating influence, can be integrated with this last suggestion of Otley. The basis for integration is the important work of Hayes [1977] who found that accounting information was less appropriate as a focal element in organizational control, as the exposure of the organization, or sub-units of it, to the environment increases. Stated alternatively, the greater the degree to which organizational sub-units are buffered from environmental influences, the greater is the reliance which can be placed on accounting information. In the context of the framework introduced by Hopwood [1973, p.11] and slightly modified by Otley [1978, p. 124], as the exposure of an organizational sub-unit to the external environment increases, the overlap between formally measured behaviors and organizational objectives

decreases. In Figure 4, Hopwood's original framework is presented to

INSERT FIGURE 4 HERE

illustrate this point. In Figure 4, A represents the set of behaviors necessary to achieve organizational objectives, B is the set of behaviors actually engaged in by an individual manager, and C is the set of behaviors formally measured by the control system. Hayes' results generally suggest that, with increased environmental exposure, the extent of overlap between A and C decreases, many of the necessary behaviors (A) not being captured by the formal measurement system in such circumstances. Participation in the budgeting process can have important desirable effects towards achieving a more complete overlap. Through the process of participation, lower-level management can influence the parameters formally captured by the measurement system and can at least help to ensure that among the behaviors necessary to accomplish organizational objectives, only those behaviors which submit readily to measurement are embraced by the formal measurement system. Participation can therefore assist in shifting the set of measured behaviors, C, so that they are more completely contained within A, the organizationally desirable set of behaviors. This situation is depicted in Figure 4. Informal (or possibly "non-accounting" in Hopwood's terms) measurement systems will need to be developed to complete the overlap between A and C, and their sophistication will likely be a function of environmental exposure. Participation may even contribute positively to this process.

A heavy emphasis on budgets in evaluation will, therefore, not necessarily induce undesirable consequences. In the presence of a

participatory budget-setting environment, individual managers can have more faith in the propriety of budgeted targets, even if the resulting set of behaviors measured by the formal system is smaller than the set of all behaviors necessary to accomplish organizational objectives. The success of the informal measurement system developed to capture the remaining set of behaviors will determine the extent to which individual manager behavior, B, will merge with A and C. Environmental conditions will therefore affect the difference in sizes of A and C, more turbulent environments generally reducing the size of C relative to the size of A, which, itself, could be enlarged in such circumstance. Irrespective of this size differential, participation can serve as a critical means of achieving an overlap between them, such as the overlap depicted in Figure 4. Generally, a heavy focus in evaluation on the formal measurement system, particularly budgets, is probably less appropriate in turbulent environmental conditions, as suggested by Otley and confirmed by Hayes. However participation will help to legitimize this focus by assisting in the elimination from the formal measurement system of both behaviors which do not submit readily to measurement by the system and behaviors which, while readily measurable, are not consistent with those behaviors necessary to accomplish organizational objectives.

The implications of the present study should, however, be tempered by a consideration of its limitations and weaknesses, and several deserve mention. First, as with any study which focuses on purely correlational evidence, caution must be exercised to avoid overly strong statements of causation. In particular, the direction of causation remains problematical and, in the area of leadership style, statements of causal direction must be especially guarded. While most studies in the area implicitly view

style of leadership as an independent variable whose effects on such dependent variables as performance are of research interest, a reverse directional linkage might be conceivable. In other words, it is entirely feasible that a highly-performing organizational unit will permit the luxury of one type of leadership style, while a unit experiencing sub-standard performance might command a quite different style. This issue has not gone unnoticed in the literature. Both empirical (Goodstadt and Kipnis, [1970]) and non-empirical (Ritchie, [1976]) statements on the question are to be found, the former specifically showing that effective work groups will elicit generally supportive behavior from superiors while less effective groups will generate close supervision. Hopwood [1974] offers some further supportive evidence on this point. Strictly interpreted, the implicatiton of this point is that survey evidence generally confines the researcher to statements of association rather than of causation. It is the strength of the underlying theoretical foundations which must provide the basis for causal conclusions.

Second, as with almost all survey research, the measurement instrumentation is invariably crude. In the context of the present paper, budgetary participation remains an area in need of attention as far as measurement issues are concerned. The factor structure inherent in the Milani measure (refer to Table 2) suggests a construct which is multi-dimensional, and admittedly little is known about its properties. Hopwood's measure of evaluative style is also problematical. This was a principal criticism elicited by Hopwood's 1972 paper (see Kahn, [1972]).

Third it should be noted that the present sample was drawn from a single corporation and the generalizability of the results should be considered with this limitation in mind.

Finally, the role of omitted variables should not be overlooked. Further reserach along this line enquiry would do well to specifically incorporate the environmental characteristics suggested above, and by both Otley and Hayes, to be important determinants of the relative importance of accounting information in evaluation. Structural variables might also be included in future research to pursue the question of the appropriate role of accounting information in the evaluation of performance in different types of responsibility centers. Recall from the discussion of Table 1 that an emerging tendency appears to be that accounting information is more important in the evaluation of profit centers than of cost centers.

The pursuit of a knowledge of the nature of the interactions between variables at different levels of analysis, and their effects on organizational criteria of importance will vastly improve our understanding of the complex of factors which impact on the effectiveness of different types of managerial controls. This study has shown that budgetary participation, the perception of which is an individual phenomenon, interacts with supervisory evaluative style, an interpersonal-level variable, the interaction having important effects on performance. The above discussion has suggested the need to incorporate variables from the organizational and environmental levels of analysis as well, so as to more fully explore the impact of the wider dimensions of control system design on organizational effectiveness.

FOOTNOTES

1. A Review of this literature would not only be inordinately lengthy but is tangential to the purpose of the present paper. Interested readers should see Kerr, et al. [1974] for a comprehensive review, specifically dealing with the consideration and initiation of structure dimensions.
2. The other six criteria were job-effort, concern with quality, ability to handle men, attitude toward work and company, co-worker relationships and collegial cooperation.
3. Milani's original use of the measure incorporated a set of 51-point Likert scales.
4. "Halo error" is the tendency to evaluate "globally", or, in other words, to evaluate on only one cognitive dimension. A high intercorrelation among separate dimensions is evidence of halo error.
5. The eight sub-dimensions are planning, investigating, co-ordinating, evaluating, supervising, staffing, negotiating and representing.
6. See for example, Kerlinger and Pedhazur [1973, pp. 256-258].
7. It is not necessary to perform these two regressions since the slopes and intercepts for each can be derived from the coefficients produced from the multiple regression in equation (1). For the high budget importance group (ie. when $Z=-1$) we have:

$$Y = \delta_1 + \delta_2 X$$

$$\text{where } \delta_1 = \beta_1 - \beta_3$$

$$\text{and } \delta_2 = \beta_2 - \beta_4$$

while for the low budget importance group (ie. when $Z=+1$) we have:

$$Y = \gamma_1 + \gamma_2 X$$

$$\text{where } \gamma_1 = \beta_1 + \beta_3$$

$$\gamma_2 = \beta_2 + \beta_4$$

TABLE 1

PERCENTAGES OF RESPONDENTS PERCEIVING EACH EVALUATIVE STYLE

Sample	Style of Evaluation			
	BC	BP	PC	NA
Hopwood (N=167)	20	10	26	44
Otley (N=39)	13	56	28	3
Present Study (N=38)	21	24	24	31

TABLE 2

ROTATED FACTOR LOADINGS FROM MILANI MEASURE

	<u>Factor 1</u>	<u>Factor 2</u>
Item 1	0.824	0.166
2	0.091	0.961
3	0.736	-0.246
4	0.888	0.248
5	0.860	0.214
6	0.902	0.001

TABLE 3

DESCRIPTIVE STATISTICS FOR MILANI MEASURE

Mean	Std. Dev'n	Theoretical Range		Actual Range	
		Minimum	Maximum	Minimum	Maximum
25.79	7.10	6	42	13	39

TABLE 4
DESCRIPTIVE STATISTICS FOR MAHONEY MEASURE

Dimension	Mean	Std. Dev'n	Theoretical Range		Actual Range	
			Minimum	Maximum	Minimum	Maximum
Overall	6.84	0.95	1	9	5	8
Planning	6.58	1.48	1	9	2	9
Investigating	6.50	1.66	1	9	2	8
Coordinating	6.84	1.37	1	9	3	9
Evaluating	6.45	1.46	1	9	3	9
Supervising	7.53	1.01	1	9	5	9
Staffing	6.26	1.62	1	9	3	9
Negotiating	4.84	2.10	1	9	1	9
Representing	3.95	2.44	1	9	1	8

TABLE 5

HOYT ANALYSIS OF VARIANCE RELIABILITY COEFFICIENTS
FOR THREE SAMPLES OF MSQ RESPONDENTS

<u>Subscale</u>	<u>Present</u> <u>Study</u>	<u>Other</u> <u>Managers</u>	<u>27 Norm</u> <u>Groups</u>
Ability Utilization	.72	.92	.91
Achievement	.76	.73	.84
Activity	.60	.81	.86
Advancement	.68	.96	.93
Authority	.70	.91	.85
Company Policies	.71	.87	.90
Compensation	.74	.95	.91
Co-workers	.50	.67	.85
Creativity	.71	.87	.87
Independence	.74	.73	.85
Moral Values	.66	.77	.81
Recognition	.80	.96	.93
Responsibility	.77	.85	.78
Security	.66	.78	.80
Social Service	.64	.89	.89
Social Status	.63	.76	.79
Supervision - Human	.81	.90	.89
Supervision - Technical	.80	.71	.86
Variety	.70	.85	.86
Working Conditions	.77	.94	.89
GENERAL SATISFACTION	.72	.85	.88

TABLE 6

DESCRIPTIVE STATISTICS FROM MSQ ADMINISTRATION

Sub Scale	Mean	Std. Dev'n	Minimum	Maximum
Ability Utilization	20.03	2.76	13	25
Achievement	20.84	2.80	12	25
Activity	20.53	2.98	10	25
Advancement	18.34	3.64	10	25
Authority	19.91	2.22	16	25
Company Policies	17.88	3.41	7	23
Compensation	18.16	3.47	12	25
Co-workers	19.47	2.92	11	25
Creativity	20.25	3.45	10	25
Independence	17.91	2.13	15	22
Moral Values	20.63	2.76	16	25
Recognition	17.97	4.05	9	25
Responsibility	20.88	2.31	15	25
Security	21.19	2.68	17	25
Social Service	19.09	2.79	12	23
Social Status	17.22	2.03	14	22
Supervision - Human	18.59	4.20	10	25
Supervision - Technical	19.16	3.52	11	25
Variety	19.72	2.61	11	25
Working Conditions	19.22	2.92	10	25
GENERAL SATISFACTION	76.50	7.25	58	93

The theoretical range for the twenty sub-scales is 5-25, while for general satisfaction it is 20-100.

TABLE 7
RESULTS OF REGRESSION - HYPOTHESIS TEST H_1

Coefficient	Value	Standard Error	t	Probability
β_1	6.71	0.14	48.92	<0.01
β_2	-0.09	0.02	-4.32	<0.01
β_3	0.19	0.14	1.40	N.S.
β_4	0.04	0.02	2.22	<0.025
R ² =0.38,				
df=34				

TABLE 8

RESULTS OF REGRESSIONS USING PERFORMANCE SUBSCALES

Dimension	β_2	β_3	β_4	R ²
Planning	-2.21**	-0.04	0.74	0.15
Investigating	-2.28**	2.46***	2.56***	0.27
Coordinating	-0.98	0.67	0.63	0.04
Evaluating	-1.47	0.30	1.28	0.09
Supervising	-0.99	0.68	0.96	0.05
Staffing	-1.72*	1.10	0.23	0.09
Negotiating	-2.92***	0.00	-0.27	0.24
Representing	-3.05***	-1.03	-0.26	0.31

*p<0.05

**p<0.025

***p<0.01

TABLE 9

RESULTS OF REGRESSION - HYPOTHESIS TEST H_2

Coefficient	Value	Standard Error	t	Probability
β_1	76.48	1.44	53.09	<0.01
β_2	-0.19	0.21	-0.91	N.S.
β_3	-0.79	1.44	-0.55	N.S.
β_4	0.05	0.21	0.21	N.S.
$R^2=0.06$				
df=28				

TABLE 10

RESULTS OF REGRESSIONS USING SATISFACTION SUBSCALES

Dimension	β_2	β_3	β_4	R ²
Ability Utilization	-2.64***	0.81	1.82*	0.25
Achievement	-1.70*	0.21	0.50	0.11
Activity	-1.10	-0.42	-0.70	0.09
Advancement	-0.96	0.02	0.09	0.04
Authority	-1.01	0.02	-0.99	0.08
Co. Policy & Practice	-0.42	-1.31	1.26	0.14
Compensation	-0.28	-0.31	-1.33	0.07
Co-workers	-0.11	-1.81*	0.23	0.13
Creativity	-2.50***	1.20	1.07	0.20
Independence	-0.60	-0.07	0.70	0.03
Moral Values	-1.22	-0.26	-0.38	0.08
Recognition	-1.96*	-0.78	0.15	0.20
Responsibility	-1.75*	0.63	0.77	0.11
Security	-1.17	-0.63	1.26	0.13
Social Service	-1.26	-0.11	1.14	0.10
Social Status	-2.07**	-0.49	0.66	0.19
Supervision - (human relations)	-0.83	-0.60	0.65	0.07
Supervision - (technical)	-1.58	-0.58	-0.03	0.13
Variety	-1.65	0.03	-0.20	0.11
Working conditions	0.24	-1.90*	1.40	0.18

*p<0.05

**p<0.025

***p<0.01

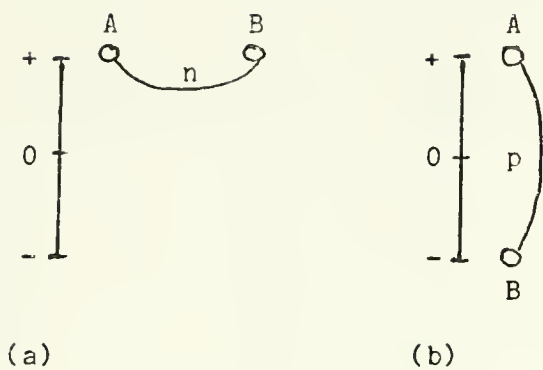


FIGURE 1

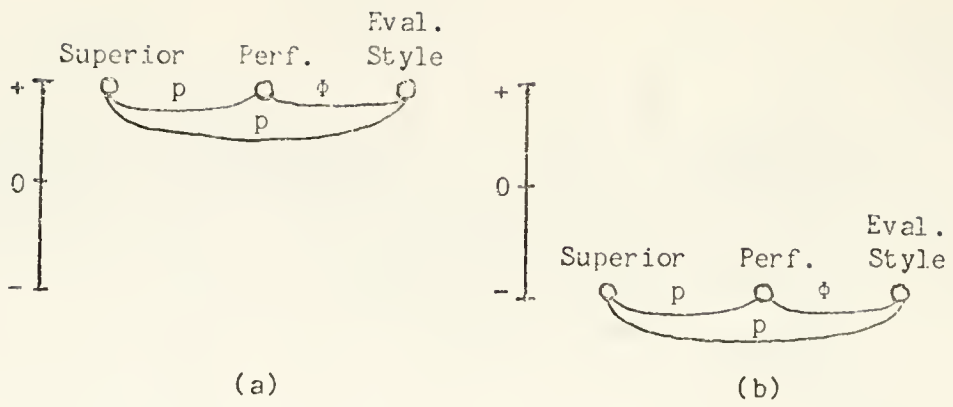


FIGURE 2

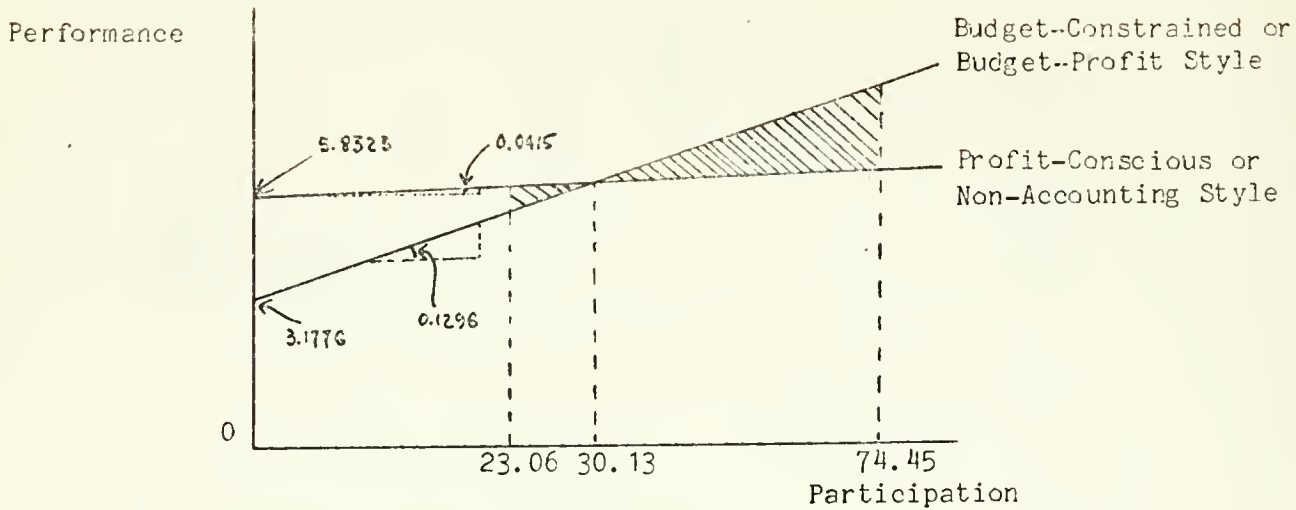


FIGURE 3

RESULTS OF JOHNSON-NEYMAN TEST

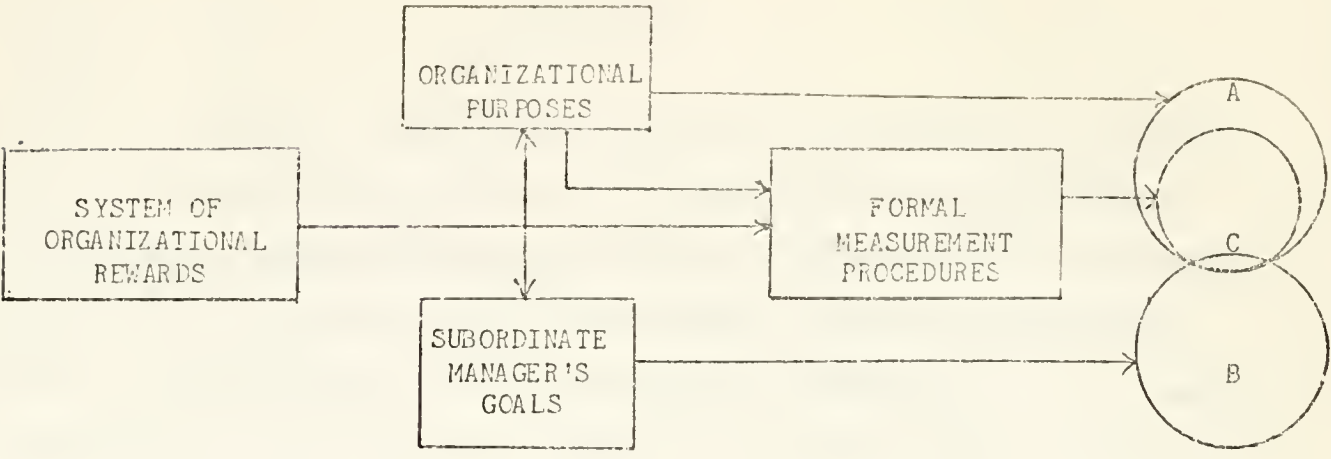


FIGURE 4

THE MEASUREMENT-REWARD PROCESS

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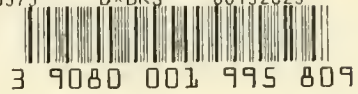
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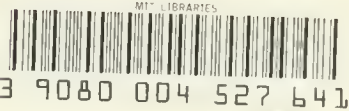
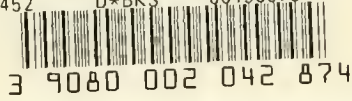
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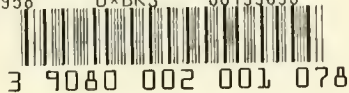


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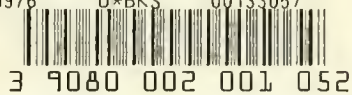


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