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Organization environment: antecedent for normative statements on organization design?

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ABSTRACT

This paper examines whether the structure of brokerage offices is contingent upon environmental characteristics. A contextual analysis has been conducted to isolate the individual and structural effects of environmental characteristics on centralization and communication. The results show little support for the contention that environment has such structural correlates. The structural variables are related to measures of performance. The implications for organizational design are identified; it is suggested that a structure which induces decentralization is preferable.

Recently, there has been a growing interest in the relationship between organizations and their environments. Variations in environmental characteristics are assumed to correspond with variations in organizational characteristics—a correspondence which often implies congruence. This congruence is seen as critical for explaining organizational effectiveness. Also it implies for many theorists that the organization's structural design is predicated on the characteristics of the environment. The objective of this paper is to describe empirical results which are germane to the organization-environment relationship and to derive normative statements about the appropriateness of the organizational design.

ORGANIZATION, ENVIRONMENT AND EFFECTIVENESS

Structural contingency theory is the general term to refer to the notion that environment has structural correlates. It has been developed by Thompson (1967) and Katz and Kahn (1966). Currently there is a considerable flurry of organizational research to examine this "theory" Leading but conflicting reports are from Becker and Gordon (1966), Duncan (1971), Lawrence and Lorsch (1967), and Pfeffer and Leblebici (1973).

Environment is the set of persons, groups, and organizations with which an organization has exchange relationships, but it can also be viewed as a

set of general social, economic and technological conditions. Various dimensions are used to describe and to measure environmental characteristics; for example, instability, complexity, competitiveness and uncertainty. This latter characteristic is the more generic one (e.g. Burns and Stalker, 1961; Dill, 1958; Duncan, 1972; Galbraith, 1972; and Pfeffer and Leblebici, 1973). Uncertainty as the more generic dimension points to randomness, unpredictability and lack of information about cause-effect relationship; for example, the organization may have incomplete information about customers' preferences, competitors' behavior, governmental regulations, supply of raw materials, etc.

Structural contingency theory holds that organizations have to be tuned in structurally to cope with the environment as described by the above mentioned characteristics. The earlier mentioned Burns and Stalker (1961) describe organizations whose roles are diffuse and whose arrangement of authority relationships is highly flexible in order for the organization to deal with environmental uncertainty and instability. Uncertainty is incompatible with programs of problem solving behavior, an organizational design emphasizing centralization of decision making, or formal and rigid patterns of work relationships, but instead requires consultative vertical relationships and frequent but loose lateral relationships.

Such a relationship between environmental and organizational characteristics is highly intelligible. It also constitutes one of the major ingredients for generating prescriptive statements on organizational design and its ramification for organizational effectiveness. However, only a few of the contingency theorists have examined whether it is indeed the congruence or goodness of fit between organizations and environments which accounts for organizational effectiveness (e.g. Mohr, 1971). Generally, the empirical results have not been too convincing. In a previous paper (Pennings, 1975) we have described results which are similar to those of Mohr (1971) and which provide only limited support for the congruence-effectiveness assumption. Altogether, then, the net yield of structural contingency theory remains rather disappointing.

METHODOLOGICAL ISSUES

It is rather amazing that the empirical evidence so far has not unequivocally corroborated a theory which is rather self evident. It also raises some doubts about the implied prescriptions for organizational design. Yet, there are many contingency theorists who have advanced such prescriptive statements (e.g. Galbraith, 1972).

The literature of contingency theory shows little concern for differences between different types of organizations; for example, would the empirical and normative outcomes of the theory apply equally to organizations whose technology is "longlinked" (e.g. mass-production assembly line), "mediating" (e.g. banks or insurance firms) or "intensive" (e.g. general hospitals or research and development laboratories)? This technology classification is due to Thompson (1967). It is particularly questionable whether the

theory is applicable to organizations whose components are relatively independent of each other such as those having a mediating technology or more generally those having pooled or parallel interdependence. Such interdependence exists when each part renders a discrete contribution to the whole; unlike sequential or reciprocal interdependence there are no functional or technological lateral relationships between parts in such organizations. Compare, for example, department stores, insurance firms and employment agencies. In such organizations most employees have direct contact with the environment but the required lateral coordination is minimal so that the structural arrangement may not be contingent on the characteristics of the environment. Naturally, one could speculate that from a contingency point of view brokerage offices, having a longlinked technology and pooled interdependence appear that way because of the types of tasks they must perform. Such a line of reasoning is rather global, however, and still does not invalidate an examination of the environment-structure relationship within the limits of pooled interdependence. Such considerations have serious implications for research that relies on survey data for obtaining aggregate environmental and organizational measures. It is questionable whether such an analysis can be conducted if there is considerable variation in the way the employees perceive the environment or their organization. Particularly in organizations whose components are not laterally interdependent because they are not arranged along a workflow, there may be little homogeneity in the members' perceptions.

There are also other methodological issues which may help account for the meager yield of structural contingency theory research. There is little continuity in the use of measurement instruments and models of testing. Some measures may have poor or unknown validity and reliability. Such issues are beyond the present scope. It is clear, though, that they are crucial in the case of endorsing weakly founded normative views on organizational design.

OBJECTIVES

Given issues of aggregation, homogeneity and typal differences, it is of interest to examine the environmental-organizational relationships of brokerage offices. The employees in such organizations are rather loosely interconnected and work within the context of a mediating technology and pooled interdependence. Their offices are a "home base" from which they operate as quasi-independent actors. In this respect brokerage offices resemble health agencies, welfare and social services agencies and financial institutions. In such organizations an individual employee interacts with his environment in a "dyadic" manner and may perceive his environment idiosyncratically and orthogonally compared with his fellow employees. Also, in such organizations environment may be of little importance for arranging the organizational roles in a prescriptive fashion. Perhaps the environment is only relevant if people in such organizations are task-interdependent by virtue of pooling skills, knowledge or insights or by

developing a division of labor resulting in complementarity among them.

In order to deal with these problems, the present study will describe a contextual analysis of environmental attributes and organizational structure. Contextual analysis tries to determine the degree to which an aggregate variable explains individual behavior, including perceptions and questionnaire responses, while controlling for the very same but disaggregate variable. Such an analysis may help solve the aggregation and homogeneity problem as it applies to survey data descriptive of brokerage offices and their environment. In the case of questionnaire responses one can examine the extent to which the perception of structural attributes of an employee is explained not only by how he rates environmental variables, but also by the aggregate rating of the brokers in his branch office. Thus it is possible to isolate individual effects from structural effects.

In view of the pooled interdependence of brokerage offices it seems likely that the individual effects, if any, are stronger than the structural effects. It also seems likely, however, that structural effects are stronger when brokers are interdependent. Interdependence may be inferred from complementarity due to division of labor or from cohesiveness among the brokers as a group. Thus, the contextual analysis can be extended. Complementarity or other indicators of interdependence are hypothesized to enhance the weights of aggregate, i.e. contextual, variables.

This paper aims at further examining the validity of the structural contingency theory by employing a contextual analysis strategy. Environmental characteristics are related with two measures of centralization and two measures of communication. The analysis is then extended by controlling for division of labor and cohesiveness. Finally, the normative complications, if any, are identified.

METHOD

The data of this study were collected in 40 widely dispersed offices of a large U.S. brokerage firm. The firm performs the function of buying and selling shares, mutual funds and commodities for its clients. However, during the most recent years it has diversified its operations by acquiring a substantial amount of business in underwriting, investment banking and principal transactions. The head office controls the branch offices in that it formulates policies, it enforces the rules of the SEC and it provides various supportive facilities such as research and marketing.

All the branch offices studied carry out similar services. Each office has been allocated a territory for its sales activities. Some offices are more oriented to certain types of transactions, such as mutual funds and bonds, while securities and commodities are more important types of transactions in other offices. Their income is from commissions and the productivity of the firm is expressed by commissions earned for the firm.

Branch offices have a similar formal authority structure in common. They are headed by an office manager. Each of his subordinates, the sales men or brokers, serve a roster of clients. The salesmen are the brokers who meditate between the various stock markets and the clients. The size of the

branch offices varies from 31 to 141 employees. In addition, each office has a number of clerical and operations personnel, most of whom are supervised by an operations manager.

The sampling of the offices out of a much larger population ($N > 200$) has been carried out along complicated lines. The sampling procedure was purposive such that those branch offices were selected which differed maximally on the variables of size and office performance. An earlier paper (Pennings, 1975) provides a more complete description of the nature of the brokerage firm, the administration of the questionnaire and the sampling procedure which was followed to select the forty units of this study.

The data collected included both objective and subjective data. The objective data were derived from company records. The subjective data came from questionnaires.

MEASUREMENT OF THE VARIABLES

The environmental variables in this study were measured by nine questionnaire scales. For a full description of their wording and estimates of reliability and validity the reader is referred to Pennings (1975). The scales measured the following variables:

Knowledge about competition, measuring the degree of information known about competitors' selling strategies, advertising, sales promotion and other aspects.

Organizational intelligence, consisting of six items descriptive of the efficacy of information gathering devices.

Uncertainty, measuring the subjective, perceptual uncertainty in areas such as customer potential, investment patterns and behavior of competitors.

Instability, measuring the subjective amount of change in the areas mentioned under uncertainty.

Income discrepancy, measuring the difference between expected and actual commission earned.

Informed about national competitors, consisting of one item tapping feeling of information about competitors having a national base.

Informed about local competitors, consisting of one item tapping the feeling of information about competitors having a local base.

Feedback specificity, measuring the degree of reliable knowledge about reasons for discrepancy between expected and actual behavior.

Complexity, consisting of the percentage estimate of seven sets of transactions (e.g. stocks, commodities, insurance).

The organization structure variables were limited to four scales. Although other relevant variables were measured they were excluded since they were based on a smaller subset of employees of each office; therefore they did not lend themselves to contextual analysis procedures. The variables that were included are:

Horizontal communication: the frequency of contact with fellow brokers weighted by importance ratings.

Vertical communication: the frequency of contact with Office Manager, weighted by importance ratings.

Centralization, consisting of two distinct scales: (1) slope of the power distribution derived from subtracting the brokers' influence from that of the Office Manager; and (2) total amount of power based on the average influence rating of brokers, operations personnel and Office Manager. The indices are due to Tannenbaum (1968).

For each environmental indicator the average or aggregate score of all 40 offices were computed. These were merged with the data matrix of the individually scored variables of the sample of brokers so that each employee was assigned a set of aggregate scores to conduct the analysis. Because of the volume of desired data it was necessary to have two waves of data collection, one in late 1968 and one early in 1969. Some of the organizational variables belonged to the first wave while the environmental variables were measured during the second wave.

RESULTS

An attempt was made to determine the degree to which an aggregate environmental indicator explains variance in perceived structure while controlling for individually reported perception on the same variable. The general regression model can be described as follows:

$$Y_{ij} = \alpha + \beta_i \, \text{EnvInd} + \beta_j \, \text{EnvAgg} + \varepsilon_{ij}$$

in which Y_{ij} is any of the perceived organizational attributes as explained by individual i individually (i.e. EnvInd) and by the same variable as an aggregate score (EnvAgg). α is the intercept and ε_{ij} are the residuals. With such a regression model it is possible to isolate the individual and structural effects. Regression was suggested as a useful technique by Tannenbaum and Bachman (1964). It allows for holding the scores of individuals within each organization constant while determining the co-variance of aggregate scores of indices such as environmental uncertainty with a number of structural variables. Blau (1962) was one of the first authors to suggest such a procedure by dichotomizing groups and the individuals belonging to these groups on some independent variable. Tannenbaum and Bachman (1964), however, suggested multiple regression techniques after having demonstrated that dichotomizing is a rather inadequate attempt to strictly control for individual and group differences. Even though the creation of such sets of variables results in multi-collinearity, they are preferable in detecting individual and structural effects. Also, the magnitude of the multi-collinearity is rather small.[1]

Table 1 gives the results of the multiple regression analysis to isolate individual and structural effects. The dependent variables are the total amount of power, the slope of the power distribution and horizontal and vertical communication. The number of cases varied from 685 to 790. The data involving the power variables are based on approximately 670 persons while the communication variables are based on approximately

Table 1

MULTIPLE REGRESSION ANALYSIS OF INDIVIDUAL AND STRUCTURAL EFFECTS OF ATTRIBUTES OF THE ORGANIZATIONAL ENVIRONMENT ON THE HORIZONTAL, VERTICAL COMMUNICATION, SLOPE OF POWER DISTRIBUTION AND TOTAL AMOUNT OF POWER

(beta weights)

Environmental variables	*Horizontal Communication*			*Vertical Communication*			*Slope of Power*			*Total Amount of Power*		
	Indiv.	*Struc.*	*R*	*Indiv.*	*Struc.*	*R*	*Indiv.*	*Struc.*	*R*	*Indiv.*	*Struc.*	*R*
Knowledge about competition	.07*	—.07*	.09*	—.05	.01	.06	.05	.07	.10*	.04	—.05	.05
Organizational intelligence	.06	—.06	.08*	—.02	.06	.06	.06	.07	.11*	.00	.02	.02
Uncertainty	.03	.00	.03	.05	.04	.07	.02	.07*	.08*	—.10*	—.04	.10*
Instability	—.01	.05	.05	.02	—.04	.05	.01	.11*	.11*	.03	—.07	.06
Income discrepancy	.02	.04	.05	—.16*	.09*	.17*	.03	.02	.03	.06	.04	.07
Information Nat. Comp.	.04	—.07*	.08	.04	.03	.05	.08*	.07	.09*	—.05	—.12*	.12*
Information Local Comp.	.01	—.12*	.12*	.02	.06	.05	.01	.08*	.08*	—.03	.04	.04
Feedback specificity	.00	.01	.00	—.01	.03	.03	.01	.02	.02	—.10*	—.03	.11*
Complexity (transaction)	—.04	—.05	.06	—.01	—.03	.04	—.07	—.06	.11*	—.03	.04	.06

*$p \leq .05$

775 cases. The reason for the difference between the two sets is primarily due to the turnover among brokers between the two phases of data collection.

All the independent variables have been scaled such that a low value implies a high degree of knowledge about competition, market trends and causes of past performance. A high value implies uncertainty, ignorance, lack of adequate feedback and ineffective intelligence. Complexity is a variant of the inverse of a variance score where a high value stands for high complexity. The dependent variables are scaled such that scores refer to steepness of the power distribution, total amount of power and frequency of contacts.

HORIZONTAL AND VERTICAL COMMUNICATION

Knowledge about competition has a weak but significant individual and structural effect on horizontal communication. The individual effect is positive, indicating that at the individual level reported knowledge about competition induces people to communicate laterally. No such relationship exists for vertical communication. In contrast, the structural effect on communication is negative. One must conclude that when a group as a whole feels informed about competition, there is a concomitant tendency in the group to communicate with peers; when there is uncertainty—as defined by lack of information—there is a tendency toward absence of lateral communication. For the sake of clarity, it should be reiterated that *all* variables descriptive of the environment have been scaled such that a high score implies high uncertainty, high complexity, and high competitiveness.

This negative structural effect is replicated by the other uncertainty variables which have an informational connotation. Uncertainty in all these cases refers to situations of lack of information and of a dearth of prior knowledge about relevant aspects of the environment. These results seem to suggest that those offices that are ill informed about their market behavior and competition tend to have employees who rarely communicate with their peers. The complement of this statement is that offices that on the aggregate level display a general aura of appropriate intelligence and information have intensively communicating employees.

One could argue that this finding merely demonstrates the utility of lateral communication as a coping mechanism against an uncertain environment, and that communication among peers enhances their information about the environment. If there is complete knowledge, then there is no uncertainty. Lateral communication alleviates the uncertainty and is instrumental in reducing the anxiety of employees. This latter expectation is weakly supported by the first two beta weights in the first two columns of Table 1 (.07 and .06). However, like all other beta weights in this table, the statistical relationship between the independent and dependent variables is very weak.

Vertical communication does not seem to be affected by any of the environmental contingencies, except for the derived variable of income discrepancy. Unfortunately, however, the variance of income discrepancy is negatively related to the average degree of vertical communication, a

clear violation of the assumptions of the general linear model. It is not hard to attribute a meaning to this phenomenon of heteroscedasticity: employees who interact frequently with their supervisor are fairly veridical with respect to the setting of their aspiration level. The Office Manager is, in a sense, instrumental in the development of realistic standards.

According to Table 1, there is a tendency not to communicate with the Office Manager if the discrepancy is large ($\beta = -.16$), at least at the individual level. At the office level, in contrast, the data show that the greater the discrepancy, the greater the communication with the supervisor ($\beta = .09$). Vertical communication is the response of an office to uncertainty as reflected by the income discrepancy measure.

CENTRALIZATION

The second half of Table 1 displays the results of a multiple regression analysis where the dependent variables are the difference in power between the Office Manager and the brokers and the total amount of power in the office. This latter score is based on the ratings of three levels: Office Manager, Operations Manager, and brokers.

Again the size of the beta weights is too small to signal major support for the structural contingency model. The multiple correlation coefficients can easily be transformed into the proportion of the variance explained (R^2); the ninth and twelfth columns of this table show unambiguously that the proportion of variance explained is extremely small. Furthermore, there is no differential superiority of the individual versus the office level variables, so that the contextual analysis does not seem to discriminate well. There is a tendency for the significant but weak results to be positive for the power-differences scores and negative for the total-amount-of-power scores. This apparent contradictory outcome, however, should not cause too much astonishment. The steepness of the slope, which is a function of the difference in power between the more powerful and the less powerful, is weakly but inversely related to the total amount of power. The steepness of the slope measure correlates more strongly and negatively with another centralization measure, i.e., participativeness ($r = .3$).

There is almost complete consistency across all independent variables as far as the direction of their relationship with power difference is concerned. Among those relationships that are significant, there is a clear tendency for uncertainty or instability to be positively related to difference in power. The greater the uncertainty and instability, the greater is the difference in power between the two hierarchical levels. It was expected that among such levels the inequality of the power distribution would be small if the office environment were uncertain, turbulent, ill-researched, and poorly understood. The results, however, do not support the hypothesis. It is also clear from the results that there are no pronounced differences between individual and structural effects, although the latter tend to be stronger. It is also disconcerting to observe that while most multiple correlation coefficients are significant, the individual beta weights are not—a result that is attributable to multicollinearity.

The weak relationship between power differences and environmental attributes is contrary to what had been anticipated. Further, the results in the last three columns do not provide support for the hypotheses. Some of the indicators of uncertainty and instability show a significant but negative relationship with the total amount of power. This is obviously incompatible with the assertions of contingency theorists that environmental conditions determine the constraints for viable organizational designs. For two variables there is a significant individual effect and for two variables there is a stronger and significant structural effect. Screening all the beta weights as well as the multiple correlation coefficients, however, the reader is compelled to argue with this author that the outcomes can hardly be brought forward in support of the structural contingency model. Furthermore, when there is a significant relationship, its direction is often negative rather than positive; for example, uncertainty, lack of knowledge about competition, and instability are associated with pronounced power differences between hierarchical levels and with low total amount of power.

ADDITIONAL ANALYSES

The above analysis has shown that environmental characteristics have little bearing on the perceived social structure of the brokerage office. The structural effects, however, may vary depending on whether the organizational context of an individual induces him to be more similar with others in perceiving organizational attributes. Cohesiveness or division of labor may be attributes which reinforce the impact of one's membership on organizational perceptions.

It was subsequently examined whether the strength of the structural effects would be stronger in highly cohesive offices or in offices with high degrees of division of labor. Cohesiveness was measured by a four item scale measuring the degree of team spirit and willingness to help each other on the job. Division of labor or specialization was measured by computing the average dissimilarity in skill-mixes among brokers; the degree of knowledge in 15 brokerage business areas for each broker was used to conduct a profile similarity analysis (Pennings, 1975). A covariance analysis was conducted to determine the differential structural effect among offices differing in these two moderator variables. The sample was split into three equal subsets (low, medium and high) in order to delineate the moderating effect.

The results of this analysis are very similar to those of Table 1 (tables are not presented but are available on request): if there are environmental effects on organizational structure, such effects have a tendency to be structural. However, the number of significant beta weights hardly exceeds chance level. From this result it can be inferred that these moderator variables do not affect the relative weights of the individual or office-level variables.

Altogether it can be concluded that there is only very weak support for the structural contingency model as tested on organizations with pooled interdependence. Naturally the generalizability of the results is limited to such organizations. They are even more limited because they belong to

the same corporation. On the other hand such limits have advantages in that they control for extraneous and irrelevant sources of variation such as charter, age, risk and market position. It also allows one to compare the units on pertinent and specific effectiveness indicators.

Unfortunately the contextual analysis cannot incorporate effectiveness variables as these exist only at the aggregate level. The effectiveness variables were measured at the aggregate level while the environmental and structural variables were measured at the individual level. Therefore it is not possible to conduct a moderator analysis at the individual level. That is, it cannot be determined whether the relationship between structural variables and effectiveness variables is contingent upon the magnitude of the environmental variables. If, however, the environmental and structural measures are aggregated and correlated we see a strong association between structural measures and effectiveness indicators. There exists no relationship between environmental measures and effectiveness indicators, nor is there an interaction effect of organizational and environmental variables on effectiveness (Pennings, 1975). Table 2 shows the product moment correlations between the organizational variables and selected effectiveness indicators.

The two performance measures are archival and were collected during 1967–1969. They are adjusted for office size (amount of sales). The outcomes of Table 2 show that the centralization measures are associated with performance while the communication measures are not or only weakly associated. While the performance does not appear to depend on the design being contingent on environmental factors, the centralization aspect of the structural design in itself is highly relevant. If the difference in power between Office Manager and brokers is small or if the total amount of power is high the office tends to perform exceptionally well. Thus, it is evident that the degree of centralization is important for effectiveness in spite of the earlier statements on the absence of the need for specific structural arrangements in organizations with pooled interdependence. Even in organizations whose quasi-isolated and solitary members allegedly resemble unrelated trees in the

Table 2

PRODUCT MOMENT CORRELATIONS BETWEEN ORGANIZATIONAL STRUCTURE VARIABLES AND PERFORMANCE INDICATORS (N = 39)

	Centralization		*Communication*	
Performance variables +	*Slope of the power distribution*	*Total amount of power*	*Horizontal contracts*	*Vertical contracts*
1. Total production (1969)	—.22	.39*	.24	.23
2. Decline (1967–1969) in production	.31*	—.37*	—.20	—.20

+ for complete description of variables see Pennings (1975).
* $p \leq .05$.

forest, we detect the association of structural characteristics with organizational effectiveness. In contrast, the absence of the effect of communication on effectiveness may be explained by the preponderance of pooled interdependence. If interdependence among brokers is small or if the total amount of power is high the office tends to perform exceptionally well. Thus it is evident that the degree of centralization is important for effectiveness in spite of earlier statements on the absence of the need for specific structural arrangements in organizations with pooled interdependence. Even in organizations whose quasi-isolated and solitary members allegedly resemble unrelated trees in the forest, we detect the association of structural characteristics with organizational effectiveness. In contrast, the absence of the effect of communication on effectiveness may be explained by the preponderance of pooled interdependence. If interdependence among brokers is small there is little need for horizontal and vertical contacts. It is difficult however to interpret results which conform to the null-hypothesis.

IMPLICATIONS FOR ORGANIZATIONAL DESIGN

The analysis of the brokerage data has clearly shown that pertinent environmental characteristics have little relevance for the structure of brokerage offices. The generalizability of the results is obviously restricted to organizations with pooled interdependence. Environment could have had structural correlates if there was task or functional interdependence having a reciprocal or sequential nature. In that case interdependence might have reinforced the structural correlates of the environment. Under such conditions people are placed in an organizational space and may reinforce each other in perceiving the environment and structure with a common frame of reference. Assuming that structural design precedes performance there could be consequences for effectiveness.

Naturally, the utilization of cross-sectional data represents a major limitation of the present study. The regression analysis of this study does not allow for strict testing of causal relationships. Causality unfolds over time and relationships found longitudinally may be at variance with relationships found cross-sectionally. In spite of this limitation, as well as the pooled interdependence of brokerage offices, the outcomes support that this effectiveness can be enhanced if the decision structure is decentralized.

In brokerage offices where environment is not related to effectiveness and whose hardware technology is very limited, the human production factor is relatively more important than in some other types of organization. Therefore, it is obvious that psychological and sociological mechanisms are potentially the most critical in improving the organizational antecedents of effectiveness. The mechanisms may either focus on changing people or on changing their organizational structure. The psychological approaches (Katz and Kahn, 1966) such as "survey feedback," sensitivity training and "group therapy" do not attempt to change the structure but instead aim at modifying the psychological attributes of employees such as attitudes, cognitions and behavioral tendencies. The sociologically flavored approaches such as linking pin and matrix organization are attempts to change the

structural design of the organization. While both sets of approaches have shown to be useful in decentralizing decision making structures the latter ones are assumed to be superior. In brokerage offices the managers may have too great an impact on the decision making structure design so that it seems risky to rely exclusively on indoctrination or re-socialization to induce decentralization. Rather it is preferable to induce decentralization by making structural changes. This requires the direct manipulation of organizational variables. Procedures analogous to the Morse and Reimer (1956) or Coch and French (1948) experiments would manipulate the relevant design characteristics—for example by creating group discussion structures and by legitimizing increased participation from above (Katz and Kahn, 1966).

CONCLUSION

On the basis of the contextual analysis we have to conclude that there is only very weak support for the structural contingency theory. The study failed to demonstrate that variables such as environmental uncertainty and complexity act in a contingent way with respect to the association between organizational variables and organizational effectiveness. The degree of centralization itself however is a rather strong correlate of performance. This suggests that the design of such brokerage offices is superior if it induces the brokers and their managers to decentralize decision making.

NOTE

1. The correlations between the individually and aggregatedly scored independent variables ranged from .24 to .35.

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