THE SCANLON PLAN PROFILE: CONSTRUCT VALIDATION AND TEST OF A MODEL OF SCANLON PLAN EFFECTIVENESS

Dissertation for the Degree of Ph. D.

MICHIGAN STATE UNIVERSITY

WILLIAM H. GREENWOOD, III

1977

This is to certify that the

thesis entitled

The Scanlon Plan Profile: Construct Validation and Test of a Model of Scanlon Plan Effectiveness

presented by

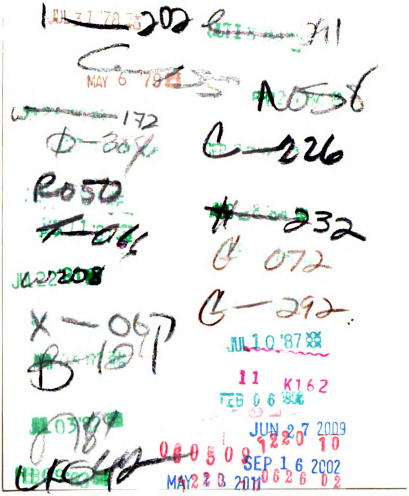
William H. Greenwood, III

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in **Psychology**

Major professor

Date **January 7, 1977**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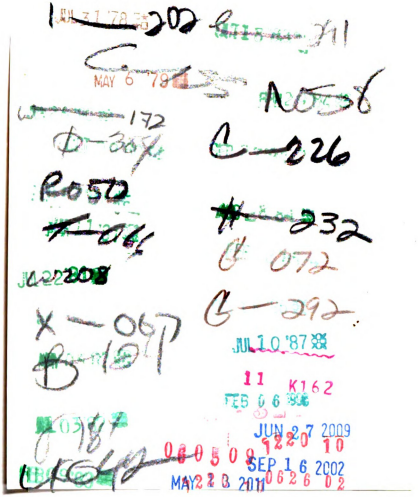
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ABSTRACT

THE SCANLON PLAN PROFILE:
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Practice of the Scanlon Plan (SP) as an organization development process has far surpassed its theoretical development. Anecdotal SP case studies continue to dominate the literature, but relatively little documentation exists to define its basic principles, substantiate its relationships with organizational effectiveness and health, or provide systematic data to differentiate among SP applications. The present study elaborated on a SP conceptual model developed by Frost (in Frost, Wakeley & Ruh, 1974) through development of instrumentation designed to measure four conditions of SP effectiveness: IDENTITY (identification of the organization and its employees); PARTICIPATION (the opportunity to participate and become responsible); EQUITY (the realization of financial and psychological equity); MANAGERIAL COMPETENCE (the ability of management to lead the organization and maximize productivity of all resources). Applying the open-systems model, it was hypothesized that SP companies could be differentiated along a "piecemeal-systems" continuum. Systems SPs are characterized by high levels of all conditions which are internally consistent in application. Piecemeal SPs elect to emphasize only a subset of conditions and are thus internally inconsistent.

Twenty-five scales were developed to operationalize the four

condition model in the form of an organizational climate questionnaire labelled the Scanlon Plan Profile (SPP). The SPP was then administered to all employees in two ongoing SP companies, called Systems Company and Piecemeal Company, subjectively judged by two consultants to lie at opposite ends of the theorized continuum. As tests of SPP construct validity, one set of hypotheses predicted intercompany differences. Another set of exploratory hypotheses investigated relationships between SPP scales and previously developed organizational and individual effectiveness scales, which were added as part of the research questionnaire.

The findings can be summarized as follows:

1. As predicted, Systems Company was significantly higher than Piecemeal Company in a multivariate test of SPP mean scale scores.

2. Unexpectedly, there was no difference between company SPPs on the systems measure of internal consistency, operationally defined as the variance of SPP mean scale scores. However, it was discovered that mean employee variance of SPP scale scores was significantly higher at Piecemeal Company.

3. There was no intercompany difference in the discrepancy of SPP scores between management and nonmanagement groups, thus rejecting the hypothesis that Systems Company would be characterized by significantly more consensus among its employees.

4. All SPP scales were significantly positively correlated with six previously developed scales of perceived organizational effectiveness and health employed in the study (Motivation to Achieve, Flexibility and Innovation, Intelligence, Future Orientation, Readiness to Innovate, Open-Mindedness).

5. All SPP scales were significantly negatively correlated with role ambiguity and significantly positively correlated with job satisfaction. Generally, SPP scales correlated higher with extrinsic job satisfaction than with intrinsic job satisfaction.

6. Individual employee SPP variance was significantly positively correlated with role ambiguity and significantly negatively correlated with job satisfaction.

7. Large intercorrelations among SPP scales suggested the influence of a "halo" effect on all scales. The predominant halo component was MANAGERIAL COMPETENCE, although residual variance measured by the other conditions was sufficient to account for significant intercompany differences.

Noting several methodological limitations, the implications of these findings are discussed leading to the conclusion that the results, although inconclusive, are sufficiently encouraging to continue the line of research initiated by this study. Recommendations are made concerning improvements in SPP psychometric quality, use of other data sources, development of causal models, and SP implementation programming.

Reference

Frost, C., Wakeley, J., & Ruh, R. The Scanlon Plan for organization development: Identity, participation and equity. East Lansing: Michigan State University Press, 1974.

THE SCANLON PLAN PROFILE: CONSTRUCT VALIDATION AND TEST OF A MODEL OF SCANLON PLAN EFFECTIVENESS

By

William H. Greenwood, III

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Psychology

1977

ACKNOWLEDGMENTS

Despite the Ph. D. candidate's inevitable thoughts to the contrary, the dissertation is anything but a lonely job. For, although I am formally designated as the author of this work, the final product clearly resulted from the combined efforts of many others who continually gave generously of their time, resources and support. It is with sincerest feelings of appreciation and affection that I acknowledge these contributions here.

Dr. Carl Frost was the single most significant influence and inspiration throughout my graduate experience. His stimulating intellect, personal sensitivity and intense commitment to serving students, clients, family and community served as a challenging model for personal and professional development. As dissertation committee chairman, he further enhanced my training through his encouragement, counsel and pursuit of field settings that would allow testing of meaningful research questions in ongoing organizations.

Other committee members were likewise critical to my research and academic experiences. Dr. John Wakeley helped me conduct research within the context of sound psychological theory and philosophy. I am also indebted to him for his assistance in locating an exciting post-graduation employment opportunity. Dr. Neal Schmitt made himself available to help whenever asked; his methodological expertise coupled with infinite patience was invaluable in facilitating the transition

from conceptualization to operationalization of the research. Dr. Michael Moore provided the perspective of his own excellent knowledge of the theoretical literature, OD consultation, and applied research. Perhaps even more significantly, he communicated the kind of contagious enthusiasm that helped keep the research on schedule and goal-directed.

The companies and people who are the Scanlon Plan Associates (SPA) offered countless real-life classrooms in their respective organizations in which I was encouraged to try out new ideas, take risks, make some mistakes and explore with them the frontiers and challenges of the Scanlon Plan. The SPA Board of Directors further demonstrated their support through substantial financial backing of the dissertation. The two companies that participated as research sites are to be particularly commended for their willingness to learn about themselves as Scanlon Plan practitioners.

Deserving of special mention are two other individuals. Tom Mitchell provided invaluable assistance at the latter stages of data analysis and feedback. He was a tireless and competent colleague in the face of tight time schedules and pressures for accuracy. Kathy Kohl was my "right arm" throughout the project. Not only did she meticulously labor through several manuscript drafts, but she willingly facilitated the many administrative details that, without her help, would have distracted me from the primary research tasks.

Finally, I am especially fortunate to be blessed with truly loving family and loyal friends. It was they who lived most closely to the "rough spots" and who never withheld their emotional support in time of need. I shall be forever grateful to all of them.

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CHAPTER I

INTRODUCTION

Organization Development in Perspective

If the field of organization development (OD) finds itself experiencing a credibility gap at this stage of its relatively brief existence, OD proponents need only examine the historical record to uncover a fundamental contradiction between the evolution of OD and its basic premise. Because despite OD's plea for systematic, planned change, much of the emerging OD technology has been the result of here-and-now, trial-and-error experimentation. As a result, a substantial portion of what is practiced under the rubric of "organization development" goes either unchallenged or, more seriously, undocumented. Practice of OD has far surpassed theory development and model building (Burke, 1976), thereby creating a situation in which the field is hard-pressed to assess its contribution, let alone qualify as behavioral science.

That OD should find itself with little established doctrine is not entirely surprising. One must examine the context in which it was nurtured to understand its origin and subsequent growth. Essentially, OD arose out of the need for organizations to discover new survival mechanisms given a rapidly changing set of operating conditions (Friedlander, 1976). Where once organizations existed in relatively stable environments, new realities dictated the need not only to become more aware of a whole host of change influences, but to actually build in an adaptation capability to provide the organization

with the flexibility to respond. Existing behavioral science technology proved inadequate in helping organizations to meet the changing demands of customers, labor, government, competition and economy. It was presumably out of this inadequacy of traditional theory and practice that OD has evolved.

OD is now used to describe literally hundreds of different programs ranging from sensitivity training to job enrichment efforts. Survey feedback, interpersonal skills building, laboratory education, organizational diagnosis, intergroup confrontation, leadership training, managerial labs, teambuilding and countless other "interventions" are billed as OD. OD "practitioners" come from the disciplines of psychology, management, education and theology, among others. A whole new vocabulary (e.g., client system, intervention, process, grid, OD contract) has been created in a wide range of organizations caught up in the almost faddish growth of OD. Any individual or organization with a mailbox can participate in some kind of OD activity.

Despite the proliferation of OD, there have been relatively few documented successes. In fact, some of the most noteworthy literature in the area has reported on the limitations, if not failures, of OD efforts. One well-known example has been the lackluster payoff of sensitivity training in organizational contexts. T group participants rarely have been able to apply their newfound interpersonal awareness to practical organizational problems, nor do they tend to find fellow workers particularly receptive to their changed orientation. Job enrichment, for a brief period considered a panacea for many organizational problems, has actually been resisted by some employees who much prefer a structured and predictable set of job activities.

Researchers' findings now suggest the consideration of other variables, e.g., individual needs and job complexity, before superimposing a program to enlarge employees' jobs.

A major criticism of a large portion of OD as currently practiced is that it has failed to answer the original need that spawned its growth. That is, rather than develop organizations that can more effectively survive in changing environments, OD programs for the most part have become ends in themselves. For example, organizations may strive to become more participative, increase the sensitivity of the workforce, enlarge jobs or change incentive systems without assessing the relationship of these changes to organizational effectiveness in meeting customer needs, providing attractive employment opportunities, or remaining competitive.

One reason for this misdirected activity is the application of old models to a new set of realities (Beer, 1976; Burke, 1976). Traditional organizational psychology grew out of a static, closed-system model that permitted a relatively simplistic view of organizational variables. With stable environment as a given, theoreticians defined small samples of variables without much concern for their interrelationships or interface with the "outside world." Given this orientation, it is not particularly surprising that initial OD efforts treated variables like job structure, interpersonal sensitivity, decision-making and leadership style in isolation. In such cases, the success of a venture became merely a matter of measuring change on a single target variable.

Realizing the deficiencies of these traditional models, modern

theorists (e.g., Katz & Kahn, 1966; Likert, 1967) have advocated sophisticated open-systems models. These models are differentiated from their closed-system predecessors in two ways: (1) the inclusion of an interface between environmental and organizational variables; (2) attention to complex interrelationships of systems variables. Unlike the earlier models, change is viewed as impacting throughout the system and thus affecting system "equilibrium." Whether or not an organization is able to recover from a change-induced disequilibrium (brought about by a change on any of its system variables) will determine its survival potential.

From the work on open systems models new ways of conceptualizing organizational efficiency, organizational effectiveness and organizational health (Beer, 1973) have evolved. Efficiency is generally defined as the extent to which internal organization subsystems are able to maintain equilibrium. For example, the addition of new machinery creates disequilibrium in the internal system if people are not adequately trained to operate it. However, if proper training is provided, equilibrium is restored and efficiency improved. Note that there is no need to consider the larger external environment in our definition of efficiency.

Despite the improved efficiency described in the example, it may very well be that the product produced by the man-machine combination cannot be sold in the marketplace because there is no consumer demand. This would result in organizational ineffectiveness, or a state in which the organization's internal subsystem is incompatible or "out of synch" with the external subsystem. The result is total system

disequilibrium; to become more "effective" the organization must either change consumer demand or make internal adjustments to be responsive to current market conditions. Note how an organization can be efficient without being effective. Drucker (1974) makes the distinction between the two by defining organizational efficiency as "doing things right" and organizational effectiveness as "doing the right things."

Use of the notion of equilibrium to discuss efficiency and effectiveness is critical to understanding the concept of organizational health. Organizational health can be defined as the ability of the system to respond to planned or unplanned disequilibrium by reaching new equilibrium at a higher, more effective level. That is, the healthy organization, when confronted with change-induced system disequilibrium, has learned how to react effectively. Lippitt (1969) labels this the organization's "renewing" capability; Katz and Kahn (1966) refer to it as a state of "dynamic homeostasis"; and Frost (in Frost, Wakeley & Ruh, 1974) discusses how an organization is in a constant "state of becoming." Unhealthy organizations are destined for obsolescence.

Open-systems models and the criteria of efficiency, effectiveness and health provide new challenges for the field of organization development. Some theorists and practitioners have begun to respond with expanded definitions of OD:

> A planned organization-wide effort, managed from the top to increase an organization's effectiveness and health through planned interventions in organizational processes using behavioral science knowledge. (Beckhard, 1969, p. 9, underlinings mine)

Yet there still remains the need to apply these definitions in OD field interventions. There are still too many reports of "piecemeal"

organization development wherein the practitioner focuses on a limited range of poorly defined variables with little concern for total organizational health. What is needed in their place is a systems approach that positions organizational effectiveness and health as ultimate "mandates" for OD. Beyond that, we need to clearly identify the target variables of OD efforts toward achieving those mandates. The purpose of the present research is to examine one promising approach to OD within this framework.

The Scanlon Plan

As a steelworkers union leader of the 1930s, Joseph N. Scanlon found himself in an industry severely threatened by the national depression. His own employer faced bankruptcy in the face of diminishing markets and profits coupled with rising costs. A progressive thinker who could speak the language of management and labor, Scanlon suggested that the two sides cooperatively direct their energies toward saving the company. This meant convincing management to share productivity increases with labor in return for labor's agreement to withhold immediate demands for wage increases. Central to Scanlon's concept was the potential for improved productivity through the cooperative efforts of all employees focused on the single objective of cutting costs. Both parties agreed to experiment, the company recovered dramatically, employees wages improved, and the basic principles of what was to become known as the Scanlon Plan were established.[1]

In the forty years since Scanlon's first experiment, the evolution

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[1]For a more thorough coverage of Joseph Scanlon's background, see Frost, Wakeley, & Ruh (1974), Golden (1958), and McGregor (1958a).

of the Plan has paralleled the maturation of OD in general, as described earlier. That is, the first Scanlon Plans arose out of basic survival needs of organizations faced with new realities. Organizations, often out of desperation, applied the Scanlon Plan to save themselves from impending financial disaster (Helfgott, 1962). And, despite more recent evidence to the contrary (National Commission on Productivity and Work Quality [NCPWQ], 1975), there is still a widely held belief that the Plan will be effective only under crisis conditions. Unfortunately, since most of the reported research to date on Scanlon Plans has been anecdotal (White, 1974), the controversy has yet to be resolved.

Although every Scanlon Plan is different in order that it meet the needs and structure of the organization, there are usually two "common denominators" of most Plan applications. The first of these is a formal committee structure superimposed on the line organization designed to encourage employee productivity improvement suggestions. Teams of elected rank and file representatives and appointed management employees on the committees assume responsibility for highlighting areas of cost reduction potential. These same individuals help employees write out their suggestions, see that suggestions are forwarded to appropriate decision makers, and feed back the status of suggestions to their authors. The basic principle behind a committee structure of this type is that employee potential of ideas, creativity and innovation is more likely to surface if provided a visible and responsive vehicle. In essence, it is one application of the now prevalent participative decision making (PDM) literature.

The second major Scanlon Plan component is a shared cash bonus paid to all organization employees whenever productivity is improved against an historically determined standard. The organization examines its past productivity performance in order to assess a level that will produce company security and profitability. Beyond this target, it agrees to share additional productivity dollars with employees, usually on an equal percentage of salary or wages basis. The actual standard, the portion of bonus shared with employees, and the factors to be included in the bonus "formula" vary from company to company and are influenced by product mix, labor-capital intensity, stability of industry, etc. Central to the bonus concept is the removal of individual incentives in favor of reinforcement for total team effort in implementing suggestions and cutting costs.

The committee structure and bonus systems, then, are two of the basic ingredients around which Scanlon Plans have traditionally been built. They are intuitively appealing to those who seek either to pursue participative management or some change in the reward system. In point of fact, the concepts and their applications sound rather simple to implement and, unlike other OD programs, conceivably have payoff for the individual and the organization. However, when viewed simplistically, the Scanlon Plan is as open to criticism as any "piecemeal" OD effort that ignores the systems implications of change.

After more than twenty years of consulting, Frost (Frost, Wakeley, & Ruh, 1974) offered the first comprehensive Scanlon Plan conceptual psychological framework. His experience suggested the importance of three critical principles, or conditions, to the successful

implementation of the Plan:

> The first condition is the clear identification of the organization by the documentation of its achievements, capabilities, potentials and objectives. An essential part of this organizational identification is the conspicuous identification of every employee and his role to assure his dignity and integrity within the system. Without this first condition, the organization has no substance or reason for being, and the employees have no reason for identifying, joining or remaining with the organization. It is also the beginning of a common identity of employees with the organization and of discovering that the employees are the organization.
>
> The second condition is the opportunity for employees to participate and to exercise responsibility. The participation must be obvious in developing the employee individually and as an important member of a disciplined organizational team. The employee must become increasingly aware of his responsibility for himself and to his fellow employees in helping to achieve a competitive and fiscally sound organization. The condition for participation and responsibility is essential for all corporate lives if the employees are to fulfill themselves and their potential in a working society. Participation increases the likelihood of an individual's commitment to and identification with the organization.
>
> The third condition is the assurance of equity. Unless there is a return for employees' participation and their exercise of responsibility perceived by them to be fair, the employees' organizational relationships deteriorate into armed truce, menial subjugation, or unpredictable behavior. An agreement on a formula for an equitable return on the employees' investments and commitment to the organization helps build sustained interest, reliable performance, and mutual trust. (pp. 52-53)

Since the time of that writing, Frost and his students have identified a fourth condition as necessary, but not sufficient to the other three--managerial competence. Unless management provides employees with the necessary data, technology, communication and support services, the Scanlon Plan will frustrate more than motivate employees. The Scanlon Plan challenges employees to ask "why"; management must not be defensive nor incompetent about providing answers.

As noted earlier, much of the Scanlon Plan literature to date is anecdotal. Beginning with the first reported case study, an early Plan at Lapointe Machine Tool Company (Davenport, 1950), there has been a spotty literature of individual Plan applications, their idiosyncracies, and successes or failures. Within the behavioral science realm, there have been efforts to examine social psychological variables in Scanlon contexts. These researches are generally concerned with variables like participation, job involvement, job satisfaction, personal need structures, motivation, etc. (See Frost, et al. (1974), Ruh (1972) or White (1974) for summaries of this research.) On the whole, the results of these studies have tended to confirm findings in more general organizational contexts, thus telling us little about the unique qualities of the Scanlon Plan per se. Two recently reported studies by White (1974) and Moore (NCPWQ, 1975) are notable exceptions.

Given the Scanlon Plan is purported to be organization development, it stands to reason that it be critically evaluated by the same criteria we applied to our earlier assessment of OD in general. First of all, there is the question of clear definition and documentation of the Scanlon Plan--what is it; what differentiates effective and ineffective implementation; are there, as hypothesized, underlying principles that characterize the Plan's various applications? Secondly, is the Scanlon Plan adaptable to the open-systems model of organizations or is it more focused on a relatively small set of narrowly defined variables? Does it make any difference, for example, if the Scanlon committee structure and bonus system operate independently of one another in piecemeal fashion? Or is it necessary to implement the Plan with simultaneous attention to the systems interrelationships of

these and other variables, e.g., the concepts of identity and managerial competence? Finally, what evidence do we have that the Scanlon Plan contributes to the organizational mandates of effectiveness, efficiency and health? Is the Scanlon Plan merely a packaged program superimposed on the organization as a paternalistic "gift" to employees, or does it strengthen the organization's competitive position while at the same time improving the welfare of its employees?

Outline of Research

The present research initiates exploration of these questions through development of instrumentation, the Scanlon Plan Profile, designed to document the existence of a set of dimensions which differentiate organizations practicing the Scanlon Plan. It is felt that present instruments are not sufficiently situation-specific to account for Scanlon Plan variance, thus an attempt will be made to study and limit generalization to this relatively small subset of organizations. A second part of the study seeks to relate these dimensions to known correlates of organizational effectiveness, particularly organizational "strain" (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964) and job satisfaction variables. Finally, it is an objective of the research to provide preliminary data on the distinction between "piecemeal" and "systems-oriented" applications of the Scanlon Plan.

At the outset it is important to emphasize the descriptive nature of the research. It involves the collection of data in two Scanlon Plan organizations at a single point in time, thus the primary intention is construct validation of a questionnaire sensitive to differences in theoretically developed Plan principles. No causal

hypotheses can be tested given the experimental design; however, it is hoped that a reliable and valid instrument, as developed in this study, will be used in future longitudinal research. Such uses of the instrument are discussed in more detail in later sections.

In the next section, literature relevant to the research is reviewed. We begin with a discussion of the general open-systems model which serves as a framework for the domain of variables. This is followed by a more detailed examination of the concept of organizational effectiveness, particularly as it relates to the open-systems model. Then the Scanlon Plan model is theoretically defined and evaluated against existing theory. Particular attention will be paid to the compatibility of the Scanlon Plan to the open-systems model and the criteria of effectiveness suggested by it.

Summarizing the literature review is a set of hypotheses developed to examine the distinction between systems and piecemeal application of the Scanlon Plan. Related to these are specific hypotheses to test the sensitivity of the Scanlon Plan Profile to these differences. A second set of hypotheses predicts relationships between the newly developed Scanlon Plan Profile scales and measures of organizational and individual effectiveness.

CHAPTER II

LITERATURE REVIEW

The Open-System Model

Failure of traditional models to accurately depict dynamic organizational realities has been cited as the impetus behind the development of open-systems models. Generally, these new models suggest an expansion of variables to include the larger environment within which the organization operates. In their classic book, Katz and Kahn (1966) conceptualize a dependency relationship based on "transactions" at the organization-environment interface. These transactions take place as the organization seeks "energic inputs" (e.g., customers, resources, labor) from the larger environment. As payment for these inputs, the organization provides its outputs (price, quality, service, wages). To the extent payment does not satisfy external needs, the environment may cease to provide inputs critical to organizational survival. Organizations which treat environment as "error variance" by focusing exclusively on internal subsystems are destined to inevitable entropy should the needed inputs (e.g., labor, employees, capital) be cut off. Conversely, open-systems organizations, by careful monitoring of external demands and needs, maintain good bargaining position for inputs. This provides them with the added potential of maximizing the ratio of imported to expended energies, thus creating "negative entropy," or growth. Whether or not the continuous input-energy transformation-output-input-cycle leads to growth or decay is a direct function of the organization's attention to total (internal and external) environment.

As noted by Katz and Kahn, a "public be damned" attitude is a death blow; enough organizational failures (e.g., the Nixon administration) provide convincing evidence.

Katz and Kahn point out that acceptance of the open-systems viewpoint by behavioral scientists will require changes in the ways they choose to study organizations. Where once we might have been content with organizational leaders' stated intended purposes and functions in the form of goals, an open-systems orientation requires assessment of what the organization actually does vis-a-vis its transactions. More specifically, the relevant questions become (1) What are the outputs of the system? (2) Do these outputs provide energic inputs to counter entropy? (3) How is energy transformed within the system to maximize input-output ratio? Note the importance of interrelationships among input, energy transformation and output variables:

> System theory is basically concerned with problems of relationships, of structure and of interdependence rather than with constant attributes of objects. (Katz and Kahn, 1966, p. 18)

Etzioni (1960) proposes the superiority of systems models over goal models. Goal models direct one to evaluate organizational effectiveness through a comparison of achievements against normative goal expectations. Only goal-directed activities are relevant to organizational analysis, thus there is no concern for whether goals and objectives enhance or deteriorate the organization's environmental interface. The results, according to Etzioni, are often unrealistic, arbitrarily defined goals which serve as poor standards against which to evaluate effectiveness.

Like Katz and Kahn, Etzioni stresses the importance of evaluating

a system within an environmental context. Doing so permits the researcher to include nongoal-directed activities as part of his models. Such activities include those processes which maintain the system itself, e.g., environmental monitoring, control processes, subsystem integration. By this view, Etzioni defines effectiveness as the extent to which resources are optimally distributed among the organization's multiple needs. In reaching optimality, the goal directed model is too myopic:

> The goal approach sees assignment of means to goal activities as functional. The more means assigned to the goal activities, the more effective the organization is expected to be. In terms of the goal model, the fact that an organization can become more effective by allocating less means to goal activities is a paradox. The systems model, on the other hand, leads one to conclude that, just as there may be a dysfunction of underrecruitment, so there may be a dysfunction of overrecruitment to goal activities which is bound to lead to underrecruitment to other activities and to lack of coordination between the inflated goal activities and the depressed means activities or other nongoal activities. (p. 269)

Etzioni is not critical of goals in and of themselves, but questions a decision criterion that directs total resource allocation to goal attainment with no safeguard against establishing unrealistic or arbitrarily defined direction that is incompatible with environmental need.

Etzioni distinguishes between two classes of systems models. The first of these, labelled the "survival model," describes a situation whereby the removal of a single element would result in the cessation of system operation. Such would be the case when the flow of energic inputs, to use Katz and Kahn terminology, is stopped. The survival model is the fundamental building block to understanding any organization. The "effectiveness model" builds on the notion of interrelationships and represents the optimal configuration of systems variables.

This configuration will vary from organization to organization, depending on its complexity and environmental context. Both the survival and effectiveness models make challenging demands on behavioral scientists to carefully select the important systems variables and interrelationships we choose to observe.

One particularly impressive line of research that marks a significant advance in the operationalization of the systems concept has been reported by Likert (1961, 1967) at the University of Michigan. The approach he and his colleagues have taken involves the testing of a systems model of management against empirical evidence. Central to theoretical framework is the interrelationship among three main categories of organizational variables: causal, intervening and end result. Causal variables are those which can be directly manipulated by management, and include management's policies, decisions, leadership practices and other behaviors. Organization structure also falls under the rubric of causal variables since it can be voluntarily changed. Intervening variables are under less direct control, but follow theoretically from the causals. Included as intervening variables are the processes of decision-making, coordination, problem-solving, communication, etc., as well as individual members' motivation, expectations and perceptions. The third class of variables, or "end results," reflect the organization's achievements. Productivity, scrap, job satisfaction and employee mental health are all examples of end result variables.

Since the causal variables are theoretically the only ones directly manipulable, Likert places considerable emphasis on management's

responsibility to create a set of causal conditions, or context, that will positively impact on intervening processes and end result achievements. Likert calls the optimal set of conditions "System 4," characterized by supportive working relationships, group decision-making and supervision, and high performance goals. Scales have been constructed to tap these dimensions and applied to a cross section of organizations. Typically, organizational profiles are constructed based on the dimensions which categorize the organizations into one of four types:

System 1--EXPLOITIVE AUTHORITATIVE
System 2--BENEVOLENT AUTHORITATIVE
System 3--CONSULTATIVE
System 4--PARTICIPATIVE

Likert's model assumes both a descriptive as well as normative orientation. That is, not only is it a useful diagnostic technique for assessing an organization's current level of operation on causal variables, but it also defines rather specifically the levels required on each variable in order to reach Systems 4. (See Likert (1967), Appendix II for a complete description of Systems 1, 2, 3 and 4.)

Longitudinal research data on Likert's model have tended to confirm the beneficial consequences of Systems 4 management practices on intervening end result variables (Bowers, 1963; Iman, 1972; Marrow, Bowers, & Seashore, 1967). Summarizing much of this research, Likert (1967) reports the following:

> Those firms or plants where System 4 is used show high productivity, low scrap cost, low costs, favorable attitudes and excellent labor relations. The converse tends to be the case for companies or departments whose management system is well toward System 1. Corresponding relationships are also found with regard to any shifts in the management system. Shifts toward System 4 are accompanied by long

> range improvement in productivity, labor relations, costs and earnings. The long range consequences of shifts toward System 1 are unfavorable. (p. 46)

Furthermore, the longitudinal research demonstrates rather clearly the futility of directly impacting on intervening variables without first directing efforts toward causals.

Of particular importance to the present discussion is the consistent finding of high intercorrelations among variables in tests of the Likert model. That is, regardless of where on the Systems 1 through Systems 4 continuum an organization falls, the individual variables and scales composing the profile demonstrate high internal consistency. Moreover, inspection of the eight major scales would indicate no a priori reason to expect conceptual homogeneity:

1. Leadership processes used
2. Character of motivational forces
3. Character of communication process
4. Character of interaction-influence process
5. Character of decision-making process
6. Character of goal setting or ordering
7. Character of control processes
8. Performance goals and training

According to Likert (1967) these data indicate the maintenance of "system integrity" which acts as a stabilizing mechanism. Management systems in the real-world cannot operate very long when the various components are incompatible. Therefore, it is unlikely to find a profile of heterogeneous parts. For example, the model predicts an incompatibility between autocratic decision-making and group goal setting; in such a case, either decision making will become more participative (movement toward System 4 equilibrium) or goals will be dictated from the top (movement toward System 1 equilibrium). That the data consistently show high relationships among systems components would indicate

that these self-correcting mechanisms are operative. They also reinforce the general systems notion of the impact of change on one variable to other variables in the system.

The question remains whether Likert's work, despite his nomenclature, really meets the criteria for open-systems models developed by Katz and Kahn and Etzioni. Of particular concern is whether the System 1-4 model allows for the environmental interface deemed critical to organizational survival. It will be remembered that Likert places primary emphasis on management's responsibility to create the proper conditions for the organization to be effective. These conditions were conceptualized as causal variables directly under the influence of managerial control. The three major categories of causal variables are (1) supportive relationships, (2) group decision-making and supervision, and (3) high performance goals. On the surface at least, there is no obvious requirement of the model that awareness of and responsiveness to environment be included as a causal prerequisite of effectiveness.

Closer inspection of the theory and model reveal the inclusion of environmental influence. Termed situation requirements, "these are the hard facts of life which the firm must recognize and cope with if it is to survive in its present form" (Likert, 1967, p. 94). The combination of "high performance goals" and "group decision making" causal variables is argued to be reflective of the organization's open system orientation in System 4:

> System 4 organizations set objectives which represent an optimum integration of the needs and desires of the members of the organization, the shareholders, customers, suppliers, and others who have an interest in the enterprise or are

> served by it. Since economic and status needs are important to the members of an enterprise, the goal setting processes of System 4 necessarily lead to high performance goals for each unit and for the entire firm. Any time these high performance aspirations do not exist, there is a deficiency in the interaction processes of the organization and a failure to recognize the situational requirements. (pp. 51-52)

Beer (1973) conceptualizes an open-systems model that he uses to guide organization development efforts. His is an organizational social system comprised of individual inputs (abilities, motivations, expectations) interacting with internal environment (structure and policy) to create organizational processes (e.g., decision-making, leadership, planning) leading to social system outputs in the form of commitment, motivation, job satisfaction and the like. The state of these social system outputs determines the longer range performance of survival and growth in the external environment.

Aside from these individual components of the system, Beer (1971, 1973) also hypothesizes a perceptual synthesizing mechanism which he calls organizational "culture" or "climate."

> Organization culture is an additional variable which is both a function of all the previously mentioned organizational conditions and at the same time a cause of them. In the Gestalt sense it is more than the sum of its parts. Organizational members' view of the organization as open or closed has an incremental effect on their behavior not inherent in the conditions which have created the perception of culture. (Beer, 1973, pp. 6-7)

> Organizational climate is, I think, quite similar to "halo" in individual performance. Organizational members sum up organizational experiences and perceptions of stimuli and events. This sum forms the "organizational halo" which, in turn affects behavior, attitudes and perceptions of the organization. (Beer, 1971, pp. 1-2)

As an OD practitioner, the importance to Beer of climate is the role it plays in affecting change. It is his belief that unless an organization has a strong sense of climate, there is no common force that

serves as an unfreezing mechanism for change. Comparing it to self-image, Beer argues that the stronger the conception of climate, the more consistent will be its effects on behavior and ultimately organizational effectiveness.

Beer's introduction of the climate notion may help to more clearly understand Likert's emphasis on causal variables. Causal variables were viewed as those management sets as the fundamental conditions, or "culture," in which the intervening and end result variables operate. Poor conditions (System 1) yield inferior intervening processes and poor performance as end results. In other words, management "sets the stage" upon which the organizational actors will perform. For Likert the stage is the management system; for Beer it is the organization's climate. In both cases, the perception of system or climate represents an integration of multiple system inputs.

There are other parallels between the management system and climate concepts. As reported earlier, Likert argues, and his data confirm, the need for system integrity defined as the maintenance of compatibility among system components. This becomes particularly important if the organization desires to change:

> When change is desired, it should shift from one coordinated management system to another, maintaining all the while the integrity of the system and its component parts. If a company wishes to shift its [management system], it should plan to modify all of its operating procedures: leadership, decision-making, communication, coordination, evaluation, supervision, compensation, organizational structure, motivation, etc. The change should begin by altering first the most influential causal variables . . ., and there should be systematic plans to modify in coordinate steps all the operating procedures which now anchor the organization firmly to its present management system. (Likert, 1967, pp. 123-124)

For Beer, change efforts require a "point of climate emergence," described as the stage when organizational members begin to develop a strong sense of organizational identity:

> For example, people begin to talk about the organization as an OD organization, as open, as using team management, as participative, or as marketing oriented. There is clearly a perception of whole for which they are trying to find words. (Beer, 1971, p. 3)

To the extent an organization reaches the point of climate emergence, it can begin to consider its current state against some ideal. Thus, achieving a clear organizational identity serves as a fundamental unfreezing mechanism for change.

In order that the point of climate emergence be reached, each systems component must be "internally consistent," to use Beer's terminology. That is, if the individual input, internal environment, organizational processes, and external environment variables are congruent in the sense of reinforcing the organization's identity, point of climate emergence is strengthened. This means, for example, that the organization's decision-making process must be compatible with individual needs and internal structure. In turn, the internal structure should be designed to reinforce the decision making process as well as meet the external environmental demand. To the extent climate is internally inconsistent, the organization is not only ineffective, but its members are unable to develop a strong sense of organizational context. Without a consistent frame of reference, Beer predicts that employees will not know appropriate behavior and can be expected to withdraw.

It can be seen that the systems orientation to modelling has provided a much broader framework for conceptualizing organizational variables and their interrelationships. Two key contributions of

these models have vastly improved on earlier conceptualizations. First is the inclusion of environment as an extremely important variable impacting on the organization. Failure to realize the dependency of organizational survival on environmental inputs will destroy growth capacity and can ultimately lead to destruction. The second key insight provided by the models is their notion of system balance, integrity, equilibrium and internal consistency. The consensus is that organizations seek homeostasis as they operate under multiple internal and external influences. For that reason change influences on one system component are likely to be counterbalanced by system resistance unless there is simultaneous and consistent change system-wide.

We will continue to refer back to these important contributions of open systems theory throughout subsequent sections. Under the next heading, the systems implications on definitions of organizational effectiveness are examined. From there, we discuss the implications for organization development of these definitions. Specifically, the Scanlon Plan is hypothesized as theoretically providing a systems oriented approach to OD.

Organizational Effectiveness

Acceptance of open-systems models of organizations has increased the number and scope of organizational effectiveness criteria. Distinction between effectiveness and efficiency is the focus of many expanded definitions. For example, Katz and Kahn (1966) evaluate the efficiency of an organization's transactions with environment by the degree of "negentropy," or the excess of imported energic input over that which is returned to the environment as output. On the other

hand, organizational effectiveness adds to efficiency considerations the broader capability of the organization to obtain advantageous energic inputs in the first place. Without the availability of orders, labor, supplies and capital, there is little sense in discussing efficiency.

Writing to management audiences, Drucker (1974) cautions against a myopic focus on cost efficiencies and optimization of resource yields, noting the more important effectiveness issues of creating potential markets and sources of revenue. An organization must first be effective in order to create conditions under which efficiencies are optimalized. Erickson (1964), in his consideration of effectiveness criteria, seemingly agrees:

> It is possible . . . to conceive of an organization which is effective by internal criteria--it meets its objectives--and yet is not able to survive competition and keep pace with the growth of the nation's economy. So, a second set of criteria, external to the organization, should also be used in evaluating organizational performance to put effectiveness in its proper perspective. These criteria are set by the performance of competing organizations and of the economy as a whole, particularly regarding growth performance and the prognosis of survival of the organization. (p. 3)

In reading Erickson's words, one is reminded of Etzioni's (1960) distinction between goal models, which are efficiency oriented, and the systems model attention to the longer term maintenance mechanisms in his "effectiveness" and "survival" models, as described earlier. Survival is also a key ingredient of Drucker's (1974) conceptualization of effectiveness:

> (E)ven the most efficient business cannot survive, let alone succeed, if it is efficient in doing the wrong things, that is, if it lacks effectiveness. No amount of efficiency would have enabled the manufacturer of

> buggy whips to survive. Effectiveness is the foundation of success--efficiency is a minimum condition for survival after success has been achieved. (p. 45)

Beer's (1973) conceptualization of the effectiveness and efficiency notions is in keeping with the others. Efficiency is simply a function of the "internal consistency" of the organization's internal system components. Effectiveness expands the internal consistency criterion to evaluate the compatibility of internal systems components with the environment. Beer considers survival to be minimal evidence of effectiveness; longer term organizational effectiveness is reflected in growth and performance. As an added organizational criterion, Beer postulates the concept of organizational health, defined as the organization's capacity for self-renewal. Critical to renewal capability is the system's constructive response to the unstabilizing impact of change. Steers (1975), who reviewed seventeen popular definitions of effectiveness, found "flexibility" appeared in ten of them, thus suggesting rather substantial theoretical support for Beer's health criterion.

Aside from the previously reviewed effectiveness definitions, there are others which concern themselves more with the implications of effectiveness on individuals in the organization. Georgopoulos and Tannenbaum (1957), for example, consider effectiveness as the extent to which an organization fulfills its objectives without incapacitating its resources and without placing undue stress on its members. Just what this "stress" may encompass is the focus of Argyris's (1964) goal integration theory in which he argues the incongruency between the needs of individuals and the demands of traditional organizations. It is his contention that organizational members become frustrated,

hostile and unproductive when their natural inclinations toward independence, activity, growth and influence over work are thwarted by the control principles of formal organizations. In their frustration, employees frequently seek nonproductive outlets of expression in the form of sabotage, restriction of output, or withdrawal. The ideal situation from the point of view of organizational effectiveness becomes one in which the needs of individuals are integrated with organizational goals. Schneider (1975) argues that perhaps one of the best ways to achieve integration is through the creation of an organizational "climate" that encourages expression of the full range of individual difference behaviors inherent in the employee population.

As psychologists, Frost, et al. (1974) are very concerned with achieving compatibility between individual and organizational effectiveness. Organizational effectiveness is viewed as the optimization of present productivity while simultaneously assuring future survival. For the individual, effectiveness is the balance between his productivity and satisfaction with the job. To the extent a job fulfills an individual's needs, expectations and allows pursuit of personal goals, the conditions are created under which he may become productive. In achieving its intended effectiveness objective, the organization must be continuously aware of the costs incurred along the way. If the human costs of achieving organizational goals are excessive, e.g., heart attacks, ulcers, loss of dignity, lack of influence, Frost, et al. maintain that individuals may choose to make their employment investment elsewhere.

Likert (1967) advances the concept of human asset accounting to

sensitize managers to the human cost considerations of their management systems. He concedes that it may be possible for a System 1 manager to achieve short-term productivity through tighter controls, pressure for higher performance and unilateral decision making. However, the System 1 manager is doing so at the expense of what Likert calls a "liquidation of human inventories." This would be reflected in less favorable attitudes, decreased confidence and trust, lower performance goals, restricted output and other dysfunctional consequences within the "human organization." Likert suggests that the notions of earnings, assets and resources be expanded to include the human element:

> So long as no quantitative surveillance is maintained over a firm's human assets, its management can readily derive a substantial proportion of its earnings in any one year or even in several consecutive years from liquidating these human assets.
>
> It is now possible to develop procedures to appraise the current value of a firm's human organization and its customer goodwill. This requires extensive use of the measurement resources developed by the social sciences. For example, estimates of the current value of a firm's human enterprise will require the sophisticated measurement of the major causal and intervening variables. These variables, and apparently no other variables but these, correctly reflect the current status of the firm's human organization. End result variables measured at any one point in time or measurements of the trends of these variables do not and cannot yield a correct estimate of the current condition of the human organization. (pp. 104-105)

Likert's organizational profile has been one step in the direction of measuring the causal variables, but obviously much more work needs to be initiated to understand "strain," human resource liquidation, and their measurement.

Developing good measures of organizational effectiveness has continuously plagued social scientists. Steers' (1975) review of

seventeen models concludes that macro approaches, which seek some ultimate criterion of effectiveness (e.g., profit and productivity), are too simplistic, cannot be defended as comprehensive, and typically overlook the dynamic relationships between individual behavior and organizational effectiveness. In place of these macro models, Steers argues for a system approach, a la Katz and Kahn (1966), in which the focus would be on the relationships among important organizational variables. He advocates a multivariate effectiveness criterion of "goal sets" against which the organization is evaluated. The implication is that these goal sets would include maximizing return on human assets as well as the traditional profitability and productivity criteria.

Beer (1973), also an advocate of the systems orientation, assumes a somewhat different stance on the measurement question. He would prefer to develop contrasting output profiles of successful and unsuccessful organizations. This will require reliance on the expert judgment of consultants and researchers to differentiate organizations from a systems point of view. It is likely that such measurement strategies will require more clinical data gathering and integrating, as well as an increase in post hoc interpretation of data. Beer warns that we must be willing to try out these and other techniques that are more conducive to reality constraints:

> Traditional research approaches have tended to model themselves after the principles of experimental design derived from the natural sciences. Therefore, there has been a strong emphasis on isolating the effects of treatments through the use of control or comparison groups. For laboratory research or research on a relatively narrow subset of variables this may be appropriate, but for research surrounding systems wide [variables] it is not. <u>There are never any identical organizations which are undergoing similar events which can in fact serve as controls</u>. We must concentrate on using

> the organization as its own control by collecting in-depth data over a long period of time. The organization provides its own base lines. Naturally, an accumulation of in-depth case studies when put together can add to our understanding. (p. 8, underlining mine)

Beer appears to be calling for a strategy very similar to that provided by Likert's profile.

A pair of studies (Erickson, 1964; Silkiner, 1964) conducted at Michigan State University examined the general hypothesis that individuals in effective organizations will be more informed of the company's objectives, implementation strategies and performance data than their counterparts in ineffective companies. In order to test the hypothesis, profiles across nineteen criteria were developed which served to dichotomize two companies at opposite ends of the effectiveness continuum:

1. Specified Level of Profit and Rate of Growth
2. Dividends to Stockholders
3. Expansion from Internally Generated Capital, i.e., from Profits
4. Accurate Budgeting and Cost Control
5. Accurate Costing for Efficient Spread of Manpower
6. High Quality Production, Low Scrap, and Waste
7. Quality Engineering on New Products
8. Meeting Predicted Development Times on New Products
9. Confidence of Customers
10. Finding and Opening New Markets for Products
11. Meetings Held as Scheduled
12. Staff Meets to Plan as a Team
13. Feedback of Company Plans and Other Information
14. Steady Employment Through All Cycles of the Business Year
15. Paying Equitable Wages to Employees
16. High Continuous Bonus Under the Scanlon Plan
17. Effective Use of Suggestion System
18. Low Grievances
19. The Company as a Psychologically Sound Environment

There was no overall effectiveness criterion nor were the above nineteen criteria statistically combined as a composite. Rather, through a "clinical" comparison of the company profiles, one company was judged

"effective" and another "ineffective." Findings showed management employees of the effective organization to be significantly more informed of organizational objectives, implementations and performance, as measured by a questionnaire. In addition, these studies demonstrated the potential usefulness of clinically combined multiple effectiveness criteria.

Using the same employee knowledge questionnaire, Perez (1968) developed effectiveness criteria at the individual level. Specifically, he was concerned with the extent to which the levels of knowledge of objectives, implementations and performance were correlated with absenteeism, turnover and suggestion behavior. Selection of effectiveness measures was based on the Katz and Kahn (1966) assertion that individual behavior in effective organizations is characterized by (1) joining and staying, (2) dependable role performance, and (3) innovative behaviors beyond the job description. Perez's results were generally in hypothesized directions; that is, lower turnover and more suggestions were more characteristic of the knowledgable employees. No relationship between knowledge and absenteeism could be determined, however.

Taken together, the Erickson, Silkiner and Perez studies are significant not only for the suggestive evidence concerning the importance of employee knowledge, but for their systems-oriented approach to effectiveness criteria. Combining organizational and individual indicators provides an opportunity to assess the degree to which economic criteria are achieved at the expense of human resource liquidation. Absenteeism and turnover data offer one means of indirectly assessing strain on human resources. However, other more direct techniques have

been developed within the context of role theory. It is to these innovative measures that we now turn.

Kahn et al. (1964) seek to answer why over 80% of respondents in a national survey reported some degree of tension on the job. They suggest that employees, in their adjustment to work situations, develop an "occupational identity" which serves as a framework for perceiving their roles. Consequently, a person will tend to behave in ways which will affirm or enhance that identity. Tension in one of two forms will exist to the extent role clarification is blocked. Role conflict results when the individual perceives conflicting signals (e.g., from the environment, significant others, self-imposed values) concerning his appropriate role. The foreman as a "man in the middle" is a classic example. On the other hand, role ambiguity defines the condition where the job incumbent does not know what is expected of him nor is he aware of the consequences of his actions. In a survey conducted by the authors, 35% of the respondents indicated lack of clarity on the job. Kahn et al. associate this need with tension and anxiety. They constructed measures of role conflict and ambiguity and found them to be associated with job dissatisfaction, self-reported tension, reduced self-confidence and feelings of futility. Each of these latter variables is indicative of human resource strain.

Another line of research (House & Rizzo, 1972; Rizzo, House, & Lirtzman, 1970) conceptualizes role ambiguity and conflict as intervening variables which are influenced by leadership and organizational practices as independent variables, but which in turn are related to perceived organizational effectiveness, job satisfaction, anxiety and

propensity to leave the organization. The first phase of research (Rizzo et al., 1970) construct validated a thirty item questionaire based on the Kahn et al. (1964) definitions of role conflict and role ambiguity, as discussed above. A factor analysis of the items yielded the two definable, relatively independent scales accounting for 56% of the variance. Furthermore, the two variables generally related to other variables in the predicted ways:

> The specific organization practices which tend to be associated with high role conflict and role ambiguity are goal conflict and inconsistency, delay in decisions, distortion and suppression of information, and violations of the chain of command. The practices which tend to be associated with lower role conflict and role ambiguity are emphasis on personal development, formalization, adequacy of communication, planning, horizontal communication, top management receptiveness to ideas, coordination of workflow, adaptability to change and adequacy of authority. (Rizzo, House & Lirtzman, 1970, p. 161)

Expected relationships with other variables were generally higher with role ambiguity than with role conflict. This was particularly true with satisfaction measures (satisfaction with work, reward system, and social environment). Two puzzling findings to emerge concerned the only relatively slight positive relationships of the role measures with anxiety and propensity to leave variables.

In a subsequent application of their measure (House & Rizzo, 1972), role perceptions were treated as part of a larger model of relationships among formal and supportive organizational practices; leader behavior; and satisfaction and perceptions of organizational effectiveness. A consulting assignment provided the authors with a chance to examine role ambiguity and role conflict as intervening variables. In addition to hypothesized direct relationships with all dependent

variables--perceived organizational effectiveness, employee satisfaction, anxiety-stress, and propensity to stay--role perceptions were also expected to moderate the relationship between these dependent variables and two general classes of organizational variables, formalization practices and supportive leadership practices.

A lengthy questionaire incorporating all variables was administered to a 35% sample (N=200) of a large heavy equipment manufacturing firm. As in the earlier study, role ambiguity emerged as demonstrating stronger, more consistent relationships with other constructs than did role conflict; role ambiguity was strongly related to all independent variables and to organizational effectiveness and job satisfaction. Role conflict contributed most to the correlation between supportive leader behavior and perceived organizational effectiveness. Overall, the joint contribution of the two role perceptions tended to account for between one-third and one-half the relationships between independent and dependent variables.

Although the House and Rizzo studies offer rather convincing evidence of the relationship between role perceptions and effectiveness and satisfaction criteria, they fail to provide strong confirmation that actual manifestations of "strain" in the form of tension, anxiety or turnover behavior are associated with role conflict or role ambiguity. These findings appear contradictory to the earlier Kahn et al. (1964) data, as well as more recent research (O'Connell, Cummings, & Huber, 1976) in which very similar factor structures were found between the Rizzo et al. (1970) role perception scales and the Kahn et al. "felt tension" questionaire. O'Connell et al. feel that the difference may lie in the way anxiety or tension is measured. For

example, they note that House and Rizzo (1972) measured anxiety-stress in terms of actual physical symptoms and found it unrelated to their role conflict-role ambiguity measures. Kahn et al.'s tension measure, on the other hand, is more operationally similar to the role conflict-role ambiguity scales. These findings, therefore, rather than being contradictory, suggest the multi-dimensionality of organizational "strain." As a consequence, one must be careful to clearly define terms in operationalizing the concept.

Organizational strain theorists and researchers seem to be sensitive to the implications of an open-systems framework. For example, Kahn et al. hypothesize individual stress and anxiety to result under conditions where an organization's internal climate is incongruent with external environment. This might suggest that role conflict and ambiguity result from one's perception of organizational ineffectiveness in addition to contributing to it. If, for example, the individual perceives inappropriate or inconsistent organizational responses to environment, he may question what is correct role behavior for himself.

Other studies have looked at environmental influences on individuals which lead to stress. Miles (1976), for example, found that individuals in a research and development organization whose jobs included "boundary-spanning" activities were more likely to experience role conflict.

> Persons engaged in these activities must maintain a delicate system of linkages across differentiated systems or subsystems and this linking function is viewed as a major source of strain and conflict in complex organizations. (p. 173)

These results reinforce the Kahn et al. (1964) finding that role conflict was related to self-reported frequency of contacts outside the

organization. The implications from these two studies is that organizations must find ways to interface the environment without paying the price of role conflict strain for those it positions at those interfaces. Employees in functions like purchasing and sales would seem to be particularly vulnerable since they are simultaneously susceptible to internal and external influences. This would also be true for professional people, e.g., engineers and accountants, who may experience role conflict as they seek identities as both professionals and organizational members.[2]

The earlier cited O'Connell et al. (1976) study manipulated two external variables (information load, information specificity) and one internal variable (degree of bureaucratic formalization) to test the effects on individual felt tension. In a laboratory military gaming situation, the experimenters controlled the amount of data concerning the objective environment of the game, the specificity of that information, and the "tightness-looseness" of three man subject groups. Questionnaires were administered after the game to assess four kinds of tension based on the Kahn et al. research: generalized tension, role overload tension, information deprivation tension, and role ambiguity tension. It was hypothesized that information overload, low information specificity and loosely structured groups would independently contribute to greater felt tension. Findings revealed many interactions not only among the three independent variables, but as a function of the type of tension being measured. For example, "generalized

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[2]See Gouldner (1958a, 1958b) for a more detailed discussion of organizational versus professional commitment.

tension" was significantly higher only under the combined conditions of information overload and low information specificity. However, "role overload tension" resulted from information overload alone. These and other findings caused the researchers to conclude that environmental influences may affect tension differently and that those effects are moderated by group structure.[3]

For purposes of the present discussion, the importance of the O'Connell et al. study lies in its open system orientation. This is evident by the attention paid to two environmentally controlled variables, but also by a design which permitted assessment of interaction effects among environmental, internal and personal variables. Similar efforts beyond the laboratory setting used in this study are needed.

Our discussion of organizational effectiveness began by expanding the concept to incorporate broader systems variables and their interrelationships. We noted the clear distinction proposed by several authors between organizational efficiency and organizational effectiveness. The notion of internal consistency, following from the idea of systems integrity, was offered as a useful means of conceptualizing an efficient or effective organization. Beyond these two criteria was advanced the concept of organizational health, defined as the system's self-renewing capability. Flexibility in the face of umpredictable change appears to be a key component of organizational health.

Increasingly, organizational effectiveness definitions have focused on the individual. The importance to total effectiveness of integrating organizational and individual goals was discussed

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[3]On the whole, there was less reported tension in tightly structured, bureaucratic-type groups.

particularly as it relates to the "costs" involved in placing strain on human resources. Methods for measuring these costs have been proposed in the human asset accounting and role perception literature.

From the foregoing review of selected literature can be seen the futility of seeking a single overall index of organizational effectiveness. Rather, what is needed is a comprehensive set of criteria sensitive to the systems functioning of the organization. The ideas advanced by Likert, Erickson, Steers and Beer toward the development of profiles of effective and ineffective organizations offer exciting potential. Profiles are unlimited in scope, thus permitting the inclusion of a wide variety of systems variables. And, as Likert has demonstrated, profile construction does not preclude examination of interrelationships toward assessment of "systems integrity" or "internal consistency."

Of course, profiles require that one have a model to guide his selection of variables. The general open-systems model has guided our discussion thus far, but it remains now to put that model to work. In the next section, organization development is briefly discussed as an operational open-system model for improving organizational effectiveness. We then turn to a more detailed examination of the Scanlon Plan as one approach to OD. We shall be concerned with whether the Scanlon Plan theoretically meets the effectiveness criteria of open-systems models.

The Scanlon Plan as Organization Development

Criteria for OD

Although the major objective of the present research is to initiate documentation and evaluation of the Scanlon Plan as a specific organization development approach, considerable attention has been devoted thus far to the broader issues of open-systems models and organizational effectiveness criteria. This sequencing of the conceptual framework for research is based on a strong conviction that OD must be considered in light of its attention to organizational exigencies. For the most part, OD is deserving of much of the criticism directed its way for failure to build in accountability to organizational effectiveness and health objectives. An attempt will be made here to avoid this oversight by evaluating the Scanlon Plan in light of three specific criteria derived from the notions of effectiveness, efficiency and health:

1. The extent to which the organization-environment interface is improved through heightened awareness of and responsiveness to environmental demand without straining human resources (EFFECTIVENESS).

2. The extent to which organizational change (planned or unplanned) is considered from a systems point of view (EFFICIENCY).

3. The extent to which efforts are directed at the maintenance of a flexible, innovating, self-renewing organization (HEALTH).

These criteria follow directly from our previous discussion and will be expanded as the principles and mechanics of the Scanlon Plan are explored.

What is the Scanlon Plan?

Efforts to define the Scanlon Plan have typically been of three kinds. First are the primarily anecdotal accounts, beginning with Davenport's (1950) description of the Plan at LaPointe Machine Tool Company. White (1974) reviewed the Scanlon Plan case study literature in the hope of uncovering causes of success. After synthesizing almost thirty years of reported experiences, he was frustrated by the lack of empirical data, unknown generalizability of the findings and *a priori* biases for or against the Plan. For the most part, he attributes these deficiencies to the nonacademic interests of the writers and intended audiences of these articles.

Out of this case study literature, despite its distaste for behavioral scientists, has evolved some consensus on the fundamental components of the Scanlon Plan. One of these is a system of committees for motivating and soliciting employee cost savings suggestions; the other is the establishment of a productivity index of some kind that serves as a target above which cash bonuses are paid to employees. These are the rudimentary building blocks around which most case study accounts are written.

Aside from reinforcing the two features which characterize all Scanlon Plans, the other clear finding to emerge from the case literature is that there is no *one* Scanlon Plan applicable to all organizations. Every application of the Scanlon Plan to date possesses some unique feature which differentiates it from all others. Differences usually can be found in the computation of the productivity index for paying bonus; however, there are other idiosyncracies with respect to

suggestion processing, extent of employee participation, committee structures and other procedural matters. Each Scanlon Plan has been modified to fit the particular needs of the organization. And, although this makes the question of "What is the Scanlon Plan?" that much more difficult to answer, it also alludes to the Plan's flexibility and adaptability to a variety of situations.

A second category of attempts to determine characteristics of the Scanlon Plan subsumes a rather broad range of studies that investigate variables not unique to the Scanlon Plan, but which are obviously relevant, e.g., participative decision-making, reward systems, motivation, job involvement and the like. Very few researches, however, relate specifically to generalizable conclusions with regard to the Scanlon Plan itself. Ruh (in Frost et al., 1974) reviewed the Scanlon relevant literature in this area and concluded that although "(t)he surface of scientific knowledge about the Scanlon Plan has just been scratched" (p. 183), there were some consistent trends. Among these are the following:

1. The concept of participative decision-making (PDM) is central to the Scanlon Plan. Particularly important are management's attitudes toward PDM.

2. Employees' perceptions of the Scanlon Plan indicate the desire for even greater opportunities to influence decisions that affect their jobs.

Since Ruh's review, two significant additions to the Scanlon Plan empirical research have been made. In the first, White (1974) took on the ambitious task of investigating the key variables influencing Scanlon Plan success. He collected data over a five year period from twenty-one existing or former Scanlon Plan companies. Criteria for

"Scanlon Plan Success (SPS)" were developed at the intracompany (employee self-reported participation, perceived Scanlon Plan success) and intercompany (retention of the Plan, mean level of participation reported by employees, success of the Plan as judged by experts) levels. White concludes that his most meaningful results, despite the small sample size, were provided by intercompany comparisons.

1. SPS was positively related to the number of years a company had a Scanlon Plan, average managerial attitudes toward participative management policies, chief executive officer's attitudes toward participative management policies, workforce characteristics, and expected level of Scanlon Plan success measured four years earlier.

2. SPS was not related to company size (at least up to the maximum of 600 employees in one company that participated in the study).

Given the practical limitations hampering the opportunity to apply experimental method to intercompany research, White suggests more cross-sectional studies, ideally with all known Scanlon Plan companies.

Moore (NCPWQ, 1975) studied Scanlon Plan implementation over a four year period in four plants of a large paint and chemical coating manufacturer. Like many of the anecdotal accounts cited earlier, his description of the Plan itself centers on the committee structure and bonus calculation. However, his report provides longitudinal data on productivity, bonuses, quality of employee suggestions, extent of employee participation in making suggestions, perceived outcomes and job satisfaction. Based on these results and his own literature review of sixty citations, Moore adds to White's causal factors of success the following:

1. A bonus equitable for both employees and management.

2. Active leadership, support and participation by management.

3. A competent accounting function to provide employees with accurate and reliable data without "overloading the system."

4. Exposure of key people to the mechanics of the Plan early in its formulation.

5. Perception by employees of a clear relationship between behaviors and rewards.

6. Recognition that the process of participation is as important as the structure.

As one moves from the anecdotal to empirical literature, not only do the findings become more reliable and generalizable to other companies, but the concept of the Scanlon Plan has begun to accumulate certain consistent principles that appear to influence successful applications. It is clear particularly from the White data that merely implementing the mechanics is no guarantee of success. Rather, there appear to be more fundamental process issues that interact with the structural and reward interventions to play a critical role in defining "What is the Scanlon Plan?"

A third group of contributors to the Scanlon Plan literature seek to define its fundamental philosophy and conceptual framework. Interestingly, most of these efforts have been initiated by those who personally knew and worked with Joseph Scanlon. Each in his own words describes a man with remarkable vision, an abiding faith in the ability of man and an evangelistic zeal to create working environments that provide opportunities for employees to express their untapped potential, e.g.:

> Joe Scanlon was an American worker with a deeply rooted faith in democracy and democratic processes. He believed

> that democracy, while not perfect, is perfectible and that democratic processes should be extended beyond purely political governmental areas into industry and into all activities that will enable people to participate to the limit of their individual capabilities. In the workplace, he believed that every worker, no matter how humble and seemingly unimportant his task, is capable of making a contribution not only to the success of the enterprise, but to the happiness and well-being of his fellows. He believed that to the extent workers are encouraged and enabled to make such contributions they will acquire the self-respect and self-confidence, the personal recognition and dignity which all people normally seek. (Golden, 1958, pp. 5-6)

> Underlying Joseph Scanlon's efforts was a deep and fundamental belief in the worth of the human individual, in his capacity for growth and learning, in his ability to contribute significantly "with his head as well as his hands" to the success of the company which employs him. Scanlon, unlike many who make similar professions, really respected human beings. (McGregor, 1958b, p. 89)

McGregor was one of the first behavioral scientists to take note of Scanlon's ideas. From a purely professional viewpoint, McGregor's (1958a) interest was kindled by the parallels between evolving behavioral science theory and the experiences in early Scanlon Plan experiments. McGregor was impressed, for example, with Scanlon's insights with respect to downward delegation of decision-making, the importance of social motivators, job enlargement principles, and the natural human desire for self-direction, self-discipline and self-control. Furthermore, McGregor (1958b) no doubt found the Scanlon concepts very compatible with his own thinking that ultimately led to his classical "Theory X-Theory Y" distinction. For Scanlon and McGregor both, the key to a productive workplace is the creation of a totally different kind of environment than exists in most organizations:

> The Scanlon Plan is a philosophy of organization. It is not a program in the usual sense; it is a way of life--for

> the management, for the union, and for every individual employee. Because it is a way of life, it affects virtually every aspect of the operation of the organization. In this fact lies its real significance. (McGregor, 1958b, p. 89)

In the two key phrases "way of life" and "affects virtually every aspect of the operation of the organization" lies the distinction between this literature and the anecdotal or empirical. It is a search for conceptual understanding while at the same time an emphasis on total organization development.

Frederick Lesieur (1958) in his article, "What the Plan Isn't and What It Is," makes much the same point when he negates the idea of the Scanlon Plan as a simple formula, or gimmick, preferring instead to label it "a set of principles or ideas" (p. 34). Included in this set are principles concerning integration of team effort, the recognition that everyone in the organization has a contribution to make, the importance of managerial leadership, the significance of educating the total workforce in organizational performance data, the relationship of incentives to performance, and the demanding challenges of true participation. While Lesieur also discusses Scanlon Plan mechanics, he is careful to do so within the framework of sound conceptual thinking. For example, in discussing the mechanics of developing a bonus formula, he is mindful that the bonus does not exist in a vacuum:

> Even though the measurement is important, it is not nearly so important as the participation part of the Scanlon Plan. If you don't get participation, I don't care what measurement you have or how good it is, it just won't move. One strongly needs the other. (Lesieur, 1958, pp. 45-46)

The thrust of the writings of Golden, McGregor, Lesieur and others is that the Scanlon Plan is a sophisticated integration of accumulated

behavioral science knowledge. Moreover, the uniqueness of the Scanlon Plan derives from its innovative processes for operationalization of this knowledge.

It is unfortunate that these conceptual contributions have not had more of an influence on the empirical Scanlon Plan literature. Like other OD activities, Scanlon Plan application has run far ahead of theory building and documentation of principles. One likely explanation for this situation is that the theoreticians have not always clearly articulated their principles. Calling the Scanlon Plan "a philosophy of life" or "putting it all together" tells us something about the implications for total organization development, but it is not particularly helpful in clearly identifying the fundamental principles that would serve as guidelines for the researcher or practitioner.

To fill this void, Frost (Frost et al., 1974) combined his training as a clinical industrial psychologist with his twenty-five years experience as a Scanlon Plan consultant to define three "psychological conditions" for organizational effectiveness. These three principles serve for him as the fundamental building blocks for the Scanlon Plan: "identification of the company and the employees' roles within it; the opportunity for all employees to participate and become responsible; and the economic and psychological equity of all employees" (p. x). Rather than establishing the "final word" on the make-up of the Scanlon Plan, these concepts have stimulated further exploration. In fact, since writing the book, Frost has hypothesized managerial competence as a fourth condition. Taken together these four basic

principles have proven to be demanding criteria for the organizations who initiate Scanlon Plan exploration. Likewise, Frost's students are challenged by the deceptive simplicity of the labels, but amply rewarded upon discovering the meaningful framework provided for integrating their educational and field experiences.

It has been rather easy for those of us who find the Frost model useful in field consultation work to treat it as though we have truly captured the essence of the Scanlon Plan. Not only have we been influenced by an outstanding mentor in Frost, but we have been able to observe clear, albeit subjective, differences among Scanlon Plan companies on the four psychological conditions during the course of our training as graduate students. Although these experiences seemingly provide strong evidence for the validity of the model, we do an injustice to behavioral science and the Scanlon Plan if we fail to provide documentation of the principles in a scholarly manner. Thus, the focus of the present research is to initiate research on the model by attempting to demonstrate not only that the principles can be operationally defined, but that they differentiate among companies practicing the Scanlon Plan. The hope is that in doing so, the research will provide an adequate set of variables to guide future empirical and anecdotal studies.

In the remainder of this section, the Frost Scanlon Plan conceptual framework is summarized by presenting the four major principles in terms of a set of conditions that are hypothesized to characterize an effective Scanlon Plan. Existing psychological and organizational development theory is also examined to assess the compatibility of the

principles with state of the art literature. Finally, the four principles are viewed within the organizational effectiveness criteria suggested by the open-systems model.

The Scanlon Plan Conceptual Model: Identity, Participation, Equity and Managerial Competence

Identity. For a more complete description of the model from the viewpoint of its originator, the reader is referred to Frost et al. (1974, Chapters 3-5). There Frost integrates his clinical/industrial psychological orientation with experience as a Scanlon Plan consultant to postulate a set of three conditions that are critical to Scanlon Plan success. The conditions are simultaneously conceptual principles and Scanlon Plan intervention processes designed to move an organization from a basic identification of its fundamental purpose and mission to a continuing process of organizational and individual development.

The model begins with the assumption that for an organization to grow--to become more effective and healthy--it must clearly establish a discrepancy between its current performance level and some improved future state. Furthermore, this future state must not be arbitrarily determined, but rather should reflect the organization's best identification of the performance demands placed on it by the environment. As such, it is more than a simple objective--it is a clear and compelling mandate that the organization become more effective in serving its customers, employees, capital investors, etc. As a statement, the mandate should be convincing enough that every employee sees its rationality and is willing to subordinate himself to it. Within the

open systems context, it means defining the needed environmental energic inputs (employees, customers, capital, etc.), but even more clearly defining the level of organizational outputs (price, quality, service, wages) required to attract input flow.

Frost argues that mandate development is initiated through the first Scanlon Plan condition, identification of the organization and its employees (IDENTITY). The IDENTITY condition is concerned with a fundamental definition of "who is the organization?" Included within this framework is historical identity as documented in the organization's original purpose, its achievements over the years and its evolution. This reflection on the past provides a perspective on how the organization arrived at its present position and helps develop a reason for employees to choose to belong. In addition to its historical identity is the more important need to articulate for all employees the organization's current identity--its image as an employer, a supplier or competitor. Knowledge about how the various relevant publics perceive the organization is a major component in the determination of the mandate. That is, to the extent the organization is well aware of where it is and can assess where it wants to go, on the basis of objective date, there will exist a compelling reason to change. This may mean creating a more attractive employment opportunity, pricing more competitively, accelerating delivery time, generating more profitability for expansion, etc. Without this compelling reason, Frost warns that any change, particularly the Scanlon Plan, will be resisted for failure to address itself to a felt need.

Hand in hand with the importance of creating a discrepancy

between current and mandated performance is the development of a unique identity that differentiates the organization from all others. This places the organization in the desirable position of providing a product or service unmatched by competition. The customer is thus limited in his options and is given a good reason to do business with the organization. The organization satisfied with mediocrity will not be missed should it cease to exist.

As a final component of IDENTITY is the identification of employees as resources. This notion is derived from Joseph Scanlon's original philosophical assumption that employees, if given the basic facts of life (the mandate), will respond to the challenge with their ideas, creativity, skills and energies. As such, employees should be treated as the total beings they are, based on the belief that they have something significant to contribute:

> In any event, success can be achieved only if the employees . . . are taken into management's confidence. This is admittedly a broad statement; but let us consider its ramifications. What are the problems affecting the industry, the company, or the plan? The worker would like to know about them. He would like to contribute his know-how and intelligence in helping solve these problems. He is not, as a rule, the unthinking, selfish person many people would have us believe. He needs an outline and a proper sense of direction. (Scanlon, 1958, pp. 148-149)

The process of identification of individuals as resources is the realization that the organization <u>is</u> its people. That fundamental recognition implies the importance of seeking the best human resources, of investing in their training and development, and of providing an opportunity for them as responsible employees to contribute to mandate achievement.

The IDENTITY concept positions as a first priority the development of untapped potential through a more knowledgeable workforce. Ruh (1970), for example, labels management's sharing of goals, plans and problems "the first Scanlon Plan principle." Furthermore, he says employees will feel more trusted if management makes an effort to keep them informed (Ruh, 1971). Frost (1964) views the process as a reversal of current practice:

> Companies spend fortunes on their image in advertising and publicity to the general public. But most companies don't even bother to draw a picture of the company or its product for their employees or literally give them the time of day regarding their present responsibilities or their future security. (p. 1)

Erickson (1964) investigated the hypothesis that effective organizations are characterized by a knowledgeable workforce. He applied 19 organizational effectiveness criteria (reported in our earlier discussion) to two Scanlon Plan companies. He found the two to differ dramatically, thus he was able to label one an "effective organization," the other an "ineffective organization." Erickson then surveyed the managerial ranks to discover the level of awareness within the companies. From interviews and inspection of records, he constructed a questionnaire comprised of true-false statements concerning the company's objectives, programs and performance. Unlike most questionnaires, there were the right and wrong answers because the statements either confirmed or contradicted objective fact. His findings showed significantly more employee knowledge about the company in the effective organization. Erickson suggests that individual effectiveness is a function of situational awareness, arguing that an ill-defined perceived situation will lead to inappropriate behavioral response.

The development of IDENTITY is also basically a data-gathering and data refinement process. As such it is compatible with the emerging literature in organization development in the areas of diagnosis (Levinson, 1972), survey feedback (Mann, 1957), and the data-based action-research model (French & Bell, 1973). Each of these OD strategies argues the need for a strong data base as a foundation for change. Accurate, reliable data serve as a barometric reading of the state of the organization, highlight areas for improvement, and create a base line against which to monitor change. The IDENTITY orientation adds to this literature the idea that a primary focus of data collection be outward, i.e., that the organization take readings of its interface with the environment. Lawrence and Lorsch (1967, 1969) have developed an approach to OD in which the quality of this interface serves to define the necessary internal organizational changes.

Another key OD theoretical idea reflected in IDENTITY is the motivating impact of creating a discrepancy between the actual and organizational ideal state. This concept was pioneered by Kurt Lewin (1947) who describes the change process in three steps: unfreezing, moving to a new level, and refreezing. In the first of these, unfreezing, there must be an input to the system that dissolves current equilibrium so there is both the perceived need and the desire to change. In the case of an organization, this may be a recent price reduction announcement by the competition. If the organization is to continue to attract customers, it must somehow change--cut costs, manage more effectively, improve quality. That is, there is a discrepancy between actual and required performance. But theoretically at least, this change will not

come unless the total system is "unfrozen" through awareness of the threatening competitor. To the extent the performance discrepancy can be clearly articulated, Lewin would argue the system will be less resistant to change. In a classic application of the Lewinian model, Coch and French (1948) sought to investigate the effects of worker participation on resistance to change in work methods. As part of two participation conditions of their experimental study, they included a session with employees in which management communicated the "dramatic necessity" for cost reduction. Workers who were made aware of the need to change and given the opportunity to participate in implementing change were found to perform better than those who were merely told by management to follow new work methods.

In positioning the mandate as a "compelling reason to change," Frost is employing the fundamental Lewinian model; unless employees are given a very convincing rationale (discrepancy) there is no reason to expect them to perform differently. Helfgott (1962) maintains that Scanlon Plans have been most successful in companies facing impending financial disaster. In terms of the Lewinian and Frost concepts, this may very well be because of the clearer perception of discrepancy or compelling need during difficult economic times.

Frost has included as a central component of the IDENTITY condition the recognition and identification of employees as resources. This emphasis is to reinforce the point that the organization <u>is</u> its people, that organizational change will come about only through individual change. But individuals will not change unless their own self-identities are enhanced. This is also the argument of Herrick and

Maccoby (1975) who label individuation as one of four principles of work humanization (along with security, equity and workplace democracy):

> Work should stimulate the development of unique abilities, craftsmanship, and the capacity for continued learning. The principles of individuation, once adopted can lead to a non-bureaucratic work environment in which workers are encouraged to develop themselves and learn as much as they wish about the organization as a whole. Individuation also involves bringing back the concept of craftsmanship, which means that workers have maximum autonomy in determining the rhythm of their work and in planning how it should be done.
>
> . . . The health of both the worker and the society we live in depends on putting into practice the principle of individuation at the workplace. (pp. 65-66)

Without using the IDENTITY or individuation nomenclature, McGregor (1960) argues along the same lines in his development of Theory Y as a more effective way to manage. In rejecting the prevailing notion that man must be coerced to work, McGregor suggests that employees will exercise self-direction and self-control in the service of objectives to which they are committed. Furthermore, commitment to objectives is a function of the rewards associated with their achievement; therefore, merely stressing objectives without attention to individual needs is ineffective. In Frost's terms, positioning the mandate without at the same time recognizing the importance of employee efforts in achieving it is self-defeating. The reality demands must not only be clear, but compatible with individual needs (Frost, 1967). This is the essence of the goal integration principle (McGregor, 1960), which states that the individual will strive toward organizational objectives if he can simultaneously achieve his own objectives in the process. Similarly, Argyris (1957) paraphrases Morse's definition of individual

productivity as partly a function of the need strengths for which productivity is a path. Theory Y would suggest that these needs include a responsible and challenging job, self-confidence, security, and an opportunity to influence one's own destiny--all the things Frost includes in the identification of employees as resources.

Participation. The opportunity to participate and become responsible describes the most familiar, yet most misunderstood condition of the Scanlon Plan. This misunderstanding is borne out of failure to recognize the importance of IDENTITY as a prerequisite for PARTICIPATION, as well as misinterpretation of the meaning of participative management in general. Often overlooked in definition of the term, for example, is the demand on the individual worker that he assume responsibility not only for his own work, but for the welfare of the company and coworkers. Participative management is not permissive, it does not allow management to surrender decision-making to workers, and does not make work easier. What it is, or should be, follows in discussion of the second Scanlon Plan condition.

Assuming the IDENTITY condition is met, the level of awareness throughout the organization has been heightened. Employees clearly understand the current performance demands on the company and are recognized as important resources toward mandate achievement. Note how this situation differs from traditional management practice in which organizational "facts of life" are the privied data of a select few. Normally under these circumstances, the informed managers assume full ownership of the planning, directing, control and evaluation functions. However, under the Scanlon Plan, a vehicle is provided

through which the resources of the entire organization are mobilized and channeled in the focused direction of the mandate. That is, the Plan formalizes a means through which all employees, within the limits of their capabilities, can constructively respond to current situational realities.

The Scanlon Plan is generally characterized by a two level committee system charged with the responsibility of stimulating and processing employee suggestions, as well as communicating current and required performance levels. At the lowest level is the Production Committee, usually one in each department, comprised of the departmental supervisor and one elected employee representative. This latter individual should be elected on the basis of ability and willingness to serve. His job requires that he be able to effectively communicate changing organizational conditions as articulated by management; furthermore, he must be able to act as a representative for his constituents in submitting and processing their suggestions.

Rather than the usual suggestion box procedure, employees are encouraged by their Production Committee to deal directly with the representative by submitting to him/her a dated, written and signed form on which the idea is recorded. Moreover, representatives should attempt to educate the organization concerning areas where suggestions will have the most impact. They should help employees understand the difference between personal grievances and cost or quality improvements that will directly affect productivity. Where a union exists, collective bargaining and the grievance procedure remain its exclusive domain. The Scanlon Committee system is concerned only with the issue

of improved productivity, as defined in the mandate.

On a monthly basis, the Production Committee meets to consider suggestions made in that period. If deemed worthy, a suggestion may be approved and implemented immediately. In most cases the Production Committee may take such action so long as expenditures to implement the suggestion do not exceed a fixed dollar amount, usually somewhere between $300 and $1,000. If the suggestion would require more than the budgeted amount, or if it affects more than one department, it is passed to the top level Screening Committee. A rejected suggestion is also forwarded to the Screening Committee if the person who made it so desires. In any event, it is the responsibility of the representative to keep the suggestion's author continually informed of its status.

Frequently, the content of a suggestion requires expertise beyond the capabilities of the two Production Committee members. Typically, for example, the input of an engineer or accountant is needed to more effectively evaluate the suggestion's potential in improving work method or reducing cost. Under these circumstances, the Committee requests that the appropriate "resource person" either attend the Production Committee meeting or that he assume responsibility for researching and reporting back his evaluation of the suggestion. This encourages wider participation in the Plan, as well as assigning decision-making to the most competent person.

The Screening Committee operates as the top-level Scanlon Committee. Chaired by the chief operating officer, it is made up of approximately equal numbers of appointed management personnel and elected employee representatives from throughout the company. From the

management sector are key functional people (e.g., accounting, production, sales, personnel) whose inputs serve to define and sharpen the current mandate for the organization. Thus a major agenda item at each month's Screening Committee meeting is a report on the previous month's performance, expected future performance requirements, and specific problems currently confronting the organization. This is to constantly maintain surveillance and to inform the organization of situational realities. Management plays a key role in providing the perspective of the larger issues of competition, economic conditions and other environmental demands.

Suggestions that have been forwarded by the Production Committees are also processed by the Screening Committee. These suggestions, either because of their complexity, cost implications, or breadth of impact, are often assigned to a specific individual whose expertise makes him most competent to monitor its evaluation. However, he is accountable to the Committee and the suggestor to make his recommendation within a specified time period. Furthermore, the suggestor's representative assumes responsibility for insuring prompt, conscientious processing of the suggestion. He is also charged with providing feedback to the suggestion author. Minutes are kept of meetings and suggestion status to further insure continual monitoring of suggestions.

It is important to note that the Screening Committee is <u>not</u> a decision-making body. Instead, it serves to integrate the inputs of a larger segment of the employee population than is typically the case. In other words, the Scanlon Plan provides the opportunity for employee influence, but in all cases management reserves the decision-making

responsibility for which it is hired. Participation under the Scanlon Plan does not mean staging votes among employees to involve them in all facets of decision making. To the contrary, it disciplines employees to exercise influence within the limited range of decisions for which they are competent enough to make inputs. Unfortunately, it is a widely misunderstood belief that participation connotes allowing employees to make management decisions. This paternalistic attitude is likely to create what Frost has labelled "an organization of delinquents" who are constantly testing the limits of their power and influence. Participation under the Scanlon Plan includes the responsibility of every employee for self-discipline. Furthermore, it requires that each individual recognize his responsibility to contribute his ideas when he has them, be receptive to other ideas, and work as effectively as he can toward the benefit of his coworkers and the company. It is the recognition that every employee is accountable to give a full day's work, both with his hands and his mind. Responsibility and accountability are the key words in the definition of Scanlon Plan PARTICIPATION.

One by-product of the PARTICIPATION system is the reinforcement of every individual as a valued resource who has a unique contribution to make. Heterogeneity of contribution is thus visible as employees discover through suggestion processing and serving on committees the inputs of various staff functions in obtaining orders, planning workflow, controlling quality, costing products, designing standards, providing customer service, and the like. No area is sacred and existing practices are open to question. The only requirement is that

the organizational mandate serve as the ultimate criterion against which challenges are evaluated. The establishment of this supraordinate goal and the rewards earned by accomplishing it (see next section on EQUITY) serve to motivate and integrate effort through an unprecedented cooperation across functions. The individual or department that chooses a self-serving course at the expense of the total organizational mission is thus readily visible and can be confronted directly. Differences are confronted (e.g., every Scanlon Plan suggestion is a challenge), not at the level of personalities, but in terms of overall effectiveness.

One of the intentions of the PARTICIPATION discussion thus far has been to differentiate the Scanlon Plan participative process from the more popular conceptualizations. White (1974) devoted much of his literature review to this distinction and specified four unique characteristics of Scanlon Plan PARTICIPATION: (1) the participative process is formalized; (2) unlike other approaches, the process is more than joint decision-making (e.g., MBO) between an employee and his supervisor; (3) participation has a company-wide focus; and (4) incentives exist to reward participation. In summary, White defines Scanlon Plan PDM (participative decision-making) as "the extent to which employees influence the methods and activities of their job, department and entire organization" (p. 38). From his survey of reported case studies, he concluded that PDM occupied a central role in "successful" Scanlon Plans. Furthermore, his own empirical study of the causes of Scanlon Plan success revealed the particular importance of managerial attitudes toward participative management.

The role of attitudes in the successful application of PDM is also the focus of Lowin's (1968) review and consolidation of existing theory. He describes traditional management practice as "hierarchical" in nature, differentiated from PDM by the extent to which the decision-making process is segregated from those who will ultimately execute the decisions. Moreover, he feels the heirarchical pattern is deeply ingrained as a management system, therefore, the full implications of moving in the direction of PDM should be fully understood:

> It follows that the deliberate induction of a PDM program . . . can be pictured as an attempt to shift a stable social system from one position to another. (p. 70)

It is Lowin's contention that attitudes, along with certain structural mechanisms, are the mediating influences controlling whether movement toward PDM will occur. Due to what he calls "hierarchical pattern maintenance mechanisms" there exists systematic antagonism to PDM that can only be counteracted if organizational members perceive it as fulfilling the needs of the organization and its employees. Like Frost, then, Lowin argues that PDM must emerge as an <u>appropriate</u> response to a clear need.

Lowin defines specific needs that must be satisfied for PDM to survive. For the individual, these include ego needs (achievement, autonomy, power and self-realization), financial incentives, and a sense of participation. At the organizational level, there must exist the need for better performance, improvements in decision-making, shared goals, and increased conformity to organizational commitments. These assertions parallel the IDENTITY components concerning goal integration and the need to establish a compelling reason for change. Participation therefore cannot exist in a vacuum, devoid of a felt

need of the organization and its employees. According to Lowin, it is a multiplicative function of the motive structure and the extent to which motives are better met by PDM than by the hierarchical system. Through the IDENTITY process, these motives are recognized; the PARTICIPATION process becomes a way of initiating the structure through which the organization and individual satisfy their needs (Frost, 1967).

Lowin (1968) describes the characteristics of the ideal case in which an organization has moved from a traditional hierarchical system to PDM: (1) participation is more frequent and constructive; (2) management is more willing to discuss relevant issues and to respect subordinate's suggestions; (3) there is continual feedback from decision loci; (4) employees are caught up in the subgoals of the organization; (5) recalcitrant individuals are pressured to accede to goals; (6) staff and management are under more pressure to be rational; (7) there is greater goal integration; (8) there are more pro-PDM attitudes. A careful rereading of these conditions will reveal the parallels between Lowin's ideal and the principles and mechanisms described in our discussion of the Scanlon Plan. If employees are to identify with organizational goals, they must be given the opportunity to contribute; however, this alone is not enough if management is not willing to be influenced (Ruh, 1970; 1971). In a survey of practicing Scanlon Plan companies, Goodman, Wakeley, and Ruh (1972) found most employee attitudes toward the Plan to be either "very positive" (improves financial position, encourages hard work) or "positive" (worthwhile to offer suggestions, helps employees do their jobs better, increases knowledge about the company, improves trust). However, with

respect to influence opportunities, there were disturbing "slightly negative" attitudes.

Much of the influence on employee perceptions of the Scanlon Plan is embedded in what McGregor (1960) labels the uniqueness of the Plan--a formal method whereby an employee can contribute his "brains and ingenuity." Just as a misunderstanding of the implications of PARTICIPATION at a conceptual level can render the Scanlon Plan ineffective, so too can inattention to the PARTICIPATION mechanisms. White (1974) lists several problems that may communicate the lack of total openness to influences: (1) little or no action on employee suggestions, (2)action on suggestions not fed back to their authors, (3) unnecessary delays in suggestion implementation, (4) focus on insignificant items, e.g., gripes, in committee meetings. Patchen (1965) provides data on the implications of some of these deficiencies in his study of a Scanlon-type Plan at the TVA. He found that employees' identification with organizational objectives was "strongly related" to their perceptions of whether suggestions were seriously considered, the amount of information received concerning the PDM program, their overall evaluation of the problem, and the percentage of employees serving on committees. Furthermore, where employees were able to participate and perceived their suggestions as seriously considered, they were more receptive to change. Patchen attributes this to:

> the perception that the changes introduced are, at least in part, not arbitrarily imposed by management at all. Those employees who are well informed about the cooperative program and who participate in it . . . should be more likely to see work changes as the product of joint consultation between management and employees . . . As such they would be viewed less as imposed and more as mutual decisions to common problems. (pp. 173-174)

Another potential pitfall in the operationalization of the PARTICIPATION principles is failure to include the total organization in the process. Following from the recognition of every individual as an important human resource is the need to encourage the involvement of all these resources (McGregor, 1960). Or, as Strauss and Sayles (1957) state it, a successful Scanlon Plan requires balanced interaction including all segments of the organization. This means everyone from the president of the company on down considering how he can contribute to the organizational mandate. Patchen (1965), in the TVA study referenced earlier, found professional people to be more involved in the participative process than nonprofessionals. This could be explained by lack of a mandate, misinterpretation of the PARTICIPATION concept, or poor maintenance of the suggestion mechanisms. Yet, Patchen chooses to offer another explanation:

> It seems likely . . . that professionals are more apt than skilled workers to view such participation as legitimate and for such participation to be more important to their self-images as first-rate members of their occupations. (p. 167)

Somehow this statement provides the stuff of which Theory X was made. The managerial assumption that lower level employees do not want or need participation will provide the death blow to the Scanlon Plan. Wallace (1971) found for example that organizations that had retained the Scanlon Plan could be differentiated from those who had abandoned it by the degree to which their managements' attitudes were consistent with the Theory Y "human resources" management philosophy. More will be said about this under discussion of the fourth Scanlon Plan condition, MANAGERIAL COMPETENCE.

As a final point of emphasis, the reader is reminded of the responsibility-accountability component of Scanlon Plan PARTICIPATION. Management does not paternalistically "give" participation to employees as a gift. Nor is participation arbitrarily imposed without first developing a convincing rationale to pursue a changed management system. As Lowin and Frost have said, it must be jointly accepted as a legitimate response to a compelling need. Furthermore, it has to be clearly understood that participation makes demands on everyone in the organization to change by contributing more than ever before toward the general welfare of the organization. Herrick and Maccoby (1975) consider participation as analogous to the principle of democracy. On the one hand, democracy grants the rights of citizenship--particularly the right of free speech and the opportunity to influence one's destiny. Yet these rights do not come without responsibilities to become active in serving the system:

> In its most fully developed form, democracy in the workplace means that workers also take responsibility for what is produced, how money is invested, and for the social consequences of production. (Herrick & Maccoby, 1975, p. 66)

Scanlon Plan PARTICIPATION is designed to make good organizational citizens of all employees through an expanded "Bill of Rights" that is only as good as their willingness to serve responsibly.

Equity. Like PARTICIPATION, the Scanlon Plan EQUITY concept is commonly misunderstood. For the uninformed manager, who is more attuned to the Plan's mechanics, EQUITY may mean little more than profit-sharing, a bonus incentive, or an alternative to piece-rate systems. Frost chooses not to use any of these labels for the third

condition, preferring to apply a broader term. EQUITY connotes a fair return on investment (ROI); the intelligent investor investigates his options, analyzes his resources and determines his best potential. Should ROI not be in accordance with expectations, he withdraws his capital and invests elsewhere. Frost expands the population of investors to include the customer, supplier and employee, all of whom possess some valued resource (e.g., Katz and Kahn's energic inputs) for which they seek an "investment opportunity." Like the capital investor, they can be expected to prefer a situation that provides the most EQUITY.

Employees are one focus of Frost's EQUITY condition. As investors, they control the amount of time, experience, education, energy, skills and creativity that they choose to expend in an organization. To the extent the expected ROI meets basic security needs and is more attractive than investments elsewhere, the employee is provided a legitimate rationale for joining and remaining with the organization. For this reason, Frost suggests an equitable wage and salary structure as the first EQUITY component. To be equitable, wages and salaries should be (1) better than the alternatives in the community, and (2) based on a sound job evaluation system. Wage and salary structure should reflect the reality that individuals make different investments; amount should be based on a fair assessment of one's contribution.

Herrick and Maccoby (1975) devote two of their four "humanization of the workplace" principles to EQUITY considerations. They stress strongly the need to provide the worker with security in order that he be free from fear and anxiety regarding health, safety and future

employment. Lacking security, the individual's preoccupation with losing income will limit his contribution of skills and ideas. Like Frost, Herrick and Maccoby's concept of equity argues that employees be compensated commensurately with their contribution to the value of the service or product. Increased responsibility and a heightened concern for fairness are seen as by-products of attention to the equity principle. Porter, Lawler, and Hackman (1975) remind us that, aside from reinforcing performance, one critical use of rewards in organizations is to attract and retain people. Moore (NCPWQ, 1975) agrees with the importance of the salary structure in attracting the best employees, noting that perceived inequity is one of the most common sources of Scanlon Plan failures. White (1974) adds the additional consideration that to the extent wages and salaries are inequitable, Scanlon bonuses which are determined on the basis of pay will further amplify the problem.

In our discussion of the IDENTITY and PARTICIPATION conditions, the emphasis was on the demand for change throughout the total organization. The Scanlon Plan in effect asks employees to become more aware, more active, more creative, more responsible. That is, they are asked to make a larger investment of themselves than ever before in making the organization more effective. It stands to reason, therefore, that it is only natural for them to expect an equitable ROI for the increased investment.

The Scanlon Plan is unique from other OD interventions in that it establishes a formal mechanism through which it ties participation to a cash incentive (White, 1974). An historical productivity index is

computed for the organization to provide some perspective on past performance. Typically, this index serves as a base-line target above which the organization agrees to share a cash bonus with employees in the future. The specific details of how the productivity index, or "formula" is developed varies from company to company; rarely are any two alike. It is not the intent of this discussion to review the mechanics of formulas; this subject has been adequately covered elsewhere (Frost et al., 1974; Puckett, 1958; Ross et al., 1975; White, 1974). However, there are some basic principles that Frost argues should be applied to any situation. In subsequent paragraphs, these principles are addressed under several headings.

1. Company equity. Employees should understand that the first priority rests with insuring the survival and success of the company. Unless the company is competitive and profitable, it will no longer offer employment opportunities, let alone bonuses. Therefore, in determining the "bogie" above which bonuses will be paid, adequate profitability should be factored in; otherwise, the inequitable situation may exist where the company pays bonus while losing money. In some situations, a substantial portion of the bonus pool is also retained by the company. This is particularly true in highly capital intensive organizations where ROI is extremely important. As a further protection of company equity, it is recommended that a certain percentage of the bonus pool be channeled to a "reserve deficit fund" as a safeguard for those bonus periods when performance falls below the productivity target. At year's end, accumulated funds in the account are distributed just like any other bonus. A loss is absorbed by the company and

the slate is wiped clean as of the new year. Of course, continued losses would require a thorough examination of the problem and may prompt formula revision.

The importance of company equity is not a new Scanlon Plan idea. To the contrary, it will be remembered that Joseph Scanlon's first experiment with labor-management cooperation was motivated by the impending demise of his employer's steel mill. Helfgott (1962) concluded his review of Scanlon Plan applications with the observation that economic difficulties continued to be a primary motivation for management consideration of the Plan. However, those who view the Scanlon Plan as a complex philosophy of work note that its likelihood of success is improved in relatively healthy organizations whose sophisticated managers do not perceive the Scanlon Plan as a giveaway to employees, but rather an opportunity to improve both company and individual equity (Frost et al., 1974; NCPWQ, 1975).

2. Bonus as a working tool. Merely computing formulas, creating reserve deficit funds and waving the banner for company equity is insufficient. The bonus system introduces a whole new potential for educating employees concerning the complexities of running a business. On the one hand, the bonus should serve as a target against which to monitor progress and direct effort (Helfgott, 1962). However, simultaneously it should encourage employees to learn more productive behavior (NCPWQ, 1975). When bonuses are good, employees should understand why they are good. When bonuses are bad, the data should be sharp enough to suggest where corrective action is necessary. If price adjustments, materials costs, returned goods, etc. affect company effectiveness, the

bonus system should help employees understand the impact of these basic facts of life (Puckett, 1958). The bonus formula thus becomes an educational tool which acts as a feedback mechanism, but which also teaches a basic lesson in economics so all organizational members can become more knowledgable and responsible citizens. White (1974), for example, has suggested the value of using the bonus as a means to initiate participation:

> If a SP [Scanlon Plan] is introduced into a situation which previously was characterized by little or no PDM, then it has to be developed. The bonus provides a good place to start . . . The initial attempts at participation may take place in the form of asking questions about the bonus, how it is determined, and what factors affect it. (p. 29)

One of the keys, then, to an effective bonus formula is that it be understood by most employees. This may require a simple calculation during the initial stages of the Plan. Perhaps only a small number of variables should be used in computing the productivity index. For example, the classical formula uses the ratio of sales value of production to payroll as the target. Adjustments for inventory change and returned goods are typically made to the production figure. In this case employees need understand only three or four numbers. As the Plan matures, and trust is improved, the formula can be expanded to include other costs (e.g., materials, energy, depreciation, etc.). It may even be necessary to change the index if company equity is jeopardized by holding to the prevailing standard. These changes are more easily made if employees have been educated along the way and if they perceive their efforts can influence the factors comprising the calculation. Always, the organization must maintain a balance of trust while at the

same time assuring that the formula is sensitive to major influences on the company's fiscal health.

3. Bonus as a reward for performance. This important principle of the EQUITY condition is derived from classical operant conditioning theory and research which has demonstrated the increased probability that behavior which is rewarded will recur. Porter et al., (1975) examine from a psychological perspective conditions under which rewards motivate performance within an organizational context:

1. Important rewards can be given.
2. Rewards can be varied widely depending upon performance.
3. Meaningful performance appraisals are conducted between supervisors and subordinates.
4. Performance can be objectively and inclusively measured.
5. Information can be made public about how rewards are given.
6. Trust is high.
7. Superiors are willing and able to explain the reward system.
8. Negative outcomes will not be tied to performance.

Three themes emerge from the Porter et al. list, all of which are emphasized by Frost as critical to an effective bonus equity system. The first two items, for example, require that significant rewards be both available and variable to reinforce performance. The EQUITY principle states that employees must truly believe that bonuses are possible and meaningful. This notion follows from the expectance theory model (Vroom, 1964) which characterizes performance as partly a function of the expectancy that it will lead to valued rewards. As for the variability of reward, the bonus must be a clear measure of performance; no limit should be placed on the level of bonus that can be earned if performance warrants it. At the same time, bonuses should never be guaranteed.

A second theme in the Porter et al. list concerns the need for

continual public evaluation of performance based on good measurement (items 3, 4 and 5). The Scanlon bonus will be only as good a motivator as the accuracy and reliability of the data entering the computation. Realizing that it may be far from perfect as a working tool, it should represent the organization's best overall indicator of performance. Furthermore, it should be a conspicuous reminder to all employees of where performance needs improvement.

The third and probably most important theme (items 6 and 7) concerns the need for a bonus system based on trust and a willingness among managers to be open to questions about the performance-reward contingency. To the extent employees are distrustful of the computation or management's reluctance to discuss it, it matters little that the bonus is an accurate performance indicator. The critical point appears to be in the early stages of determining the mechanics of the formula. Moore (NCPWQ, 1975) describes several Scanlon Plan failures that resulted from employee distrust fueled by misunderstanding of the formula. To counteract this possibility, Moore offers his advice:

> Key people in managerial ranks who understand the formula act as filters of trust for others in the organization. Key people must be identified and exposed to the mechanics of the formula very early in its formulation or installation. Good distribution and circulation of these individuals enhance acceptance of the [Scanlon] Plan. (pp. 25-26)

Of obvious particular importance is the controller who must become more than the traditional "bean counter," and in its place assume the role of a recognized resource and educator who makes the accounting system useful in reacting to the needs of the organization in providing employees with the data they need to know to become more effective.

There are three additional issues not addressed by Porter et al., but which are also instrumental to strengthening the performance-reward relationship under the Scanlon Plan. And, although they are posited as fundamental EQUITY principles by Frost, field observations by this author and others indicate less than unanimous acceptance. The specific issues concern (1) whether bonus should be paid on individual or group performance, (2) how the bonus pool should be divided among participating employees, (3) how frequently the bonus should be paid.

On the issue of group versus individual incentives, Frost believes strongly that since only total organizational participation will achieve the mandated objective, it is inconsistent to reward bonuses on an individual basis. The process objective of the Scanlon Plan is cooperation and integration of effort, not fragmentation and competition among employees. Paying only suggestion authors, for example, has its problems:

> When management singles out the employee and his suggestion as being outstanding, his fellow employees often recognize their own ideas and experience given informally at coffee breaks and lunch time into that particular suggestion. They also recognize the extra effort and cooperation that will be required of them to make the suggestion work. Inasmuch as the employees see that their fellow employee has already received direct reward from management, the fellow employees feel little responsibility to second the recognition, or to support the suggestions. (Frost et al., 1974, p. 114)

Moore (NCPWQ, 1975) investigated 200 firms with individual incentive suggestion systems and found that on the average less than 30% of employees became involved. This he contrasts with reported Scanlon Plan experiences which average between 50-80% involvement.

In addition to Frost, others who have been close to Scanlon Plans are strong advocates of abandoning individual in favor of group

incentives. McGregor (1958B, 1960) argues that unity of purpose will be achieved through "a closely knit group" and believes that the organization-wide bonus reinforces "the proper perception of 'sharing' in a common endeavor." Likewise, Puckett (1958) views the group bonus as placing "everyone on the same team," noting, "Joe Scanlon used to say that most companies have too much competition on the outside to foster competition from within" (p. 73). Finally, White (1974) quotes nine disadvantages of individual incentives as reported by McKersie and then adds eight more of his own including restricted output, reduced quality, decreased workforce mobility, and expense. However, despite this evidence to the contrary, managers and employees alike continue to resist movement away from individual incentives. Presumably this resistance is motivated by fears that pay, especially among senior experienced employees, will be reduced upon switching to group bonus. Therefore, in order to protect individual equity, Frost recommends that each employee be guaranteed no less than his pre-Scanlon Plan pay. However, it should also be made clear that some jobs may be "red-circled" to assure company and peer equities.

Related to the individual versus group incentive issue is the perennial question of how the bonus pool should be divided. Uppermost is the matter of whether everyone in the organization should be included. The inclusion of top-level executives is frequently queried, either because it is felt they earn adequate salaries in the first place, or because they are already recipients of special executive bonuses. Frost emphatically argues the need to avoid creation of "two classes of citizens" by treating executives any differently than anyone else. To

do so rather dramatically counteracts the ideas of teamwork and every individual as a valued resource. Although it is true that top executives are expected to contribute more than lower level employees, this should be reflected in the basic wage and salary structure. It will also be reinforced by a bonus system that pays every employee an equal percentage of gross pay rather than an equal dollar amount. To do otherwise negates the important recognition that every employee makes a different investment. Payment on an equal dollar basis creates the kind of distortion whereby the janitor might find his salary doubled by bonus while the president's portion is reduced to relatively small significance. Of course, if wages and salaries are inequitable, paying on a percentage basis only exascerbates discontent. Therefore, as argued earlier, the first EQUITY condition is satisfied only by a thorough job evaluation.

A final EQUITY consideration returns us to a basic psychological principle of learning: to reinforce behavior, rewards should be closely tied in time to that behavior. Bonuses that are delayed until long after they are earned do not serve as immediate reinforcement for productive behaviors. This is the problem with most annual profit sharing plans which are too broad in their time span to allow employees to understand those productive behaviors that have contributed to profitability (McGregor, 1958b; Schultz, 1958). Consequently, where possible the bonus should be calculated on a monthly basis; thirty days is not too long a period to remember. A monthly time frame also allows for corrective action in those areas that can be identified as a drain on productivity and bonus. Companies who decide to implement the

Scanlon Plan frequently discover the inadequacies of their current data processing systems as they attempt to prepare twelve bonus calculations a year. The monthly commitment, however, motivates more efficient, reliable accounting and control systems that they soon find are absolutely essential to running the business.

In summary, several elements of the EQUITY condition have been identified: (1) an equitable wage and salary system, (2) company equity, (3) bonus as a working tool, and (4) bonus as a reward for performance. Each of these headings has been discussed in detail to present the underlying principles and their applications. Frost (Frost et al., 1974) once labeled EQUITY the "capstone" of Scanlon Plan psychological conditions; yet since that writing, a fourth important condition has become clearer, largely through its absence among those companies whose Scanlon Plans and corporate performance have become increasingly ineffective. It is to this final condition that we now turn.

Managerial Competence. This fourth and more recently articulated Scanlon Plan condition is difficult to discuss independent of the other three. For in many ways the successful implementation of IDENTITY, PARTICIPATION, and EQUITY principles is dependent on management's assumptions about people, their communication behaviors, individual job competencies and ability to facilitate employees' work. Frost considers these Scanlon Plan demands on MANAGERIAL COMPETENCE to be greater than under any other system:

> The Scanlon Plan puts tremendous pressure for leadership performance at every level and especially at the top executive echelon. The direction and momentum developed at the lower echelons seem to bring geometrically

> increasing demands for leadership in conceptual planning and integration of the entire operation. Momentarily, executives may rue the day they inaugurated this accelerated demand for competitive performance and leadership. (Frost et al., 1974, p. 88)

Beginning with IDENTITY, top management is positioned most appropriately to assume responsibility for clearly stating the organization's mandate as a compelling reason to change. This requires the company president and other executives to maintain continuous surveillance of the larger environment and to offer an accurate perspective on markets, competitors, social responsibilities and other external influences on the organization. Moreover, management must then translate these situational realities into a compelling performance mandate for the organization. Frost suggests this responsibility casts the executive in the role of "educator par excellence."

Katz and Kahn (1966), in support of the open-systems model, are strong advocates of a managerial function characterized by attention to "environmental signals." Furthermore, they consider it a management responsibility to determine the organization's "degree of permeability," i.e., through a screening and filtering process to selectively choose those environmental signals that are permitted to penetrate organizational boundaries. Some environmental pressures are more important than others; management must be competent enough to assess and "integrate" (Lawrence & Lorsch, 1961, 1967) those which are most compelling in defining the organization's mandate. Deciding whan an organization will <u>not</u> do is an important mandate component (Drucker, 1974).

The importance of environmental scanning is also a focus of Porter

et al.'s (1975) leadership model. Labelling the process "diagnosis," they consider monitoring the environment and definition of task execution to be fundamental prerequisites to decision making and task execution. Similarly, Argyris (1957) espouses the virtues of reality-centered leadership which requires a comprehensive situational diagnosis in the determination of leadership style. He laments that some managers are so enamored with the "human relations approach" that they lose sight of production, decisions and tasks:

> The choice of leadership pattern should be based upon an accurate diagnosis of the reality of the situation in which the leader is embedded. (p. 207)

Simultaneous with identification of the mandate is recognition that the resources of every employee will be required to meet it. Management must truly believe in the desire of employees for self-dignity as fulfilled through challenging, productive work. It is a continuing responsibility of management to maintain a total organizational focus on the corporate need while at the same time expressing to each employee, "We need your help." In other words, it means the belief in and operationalization of McGregor's (1960) Theory Y which recognizes work as a natural human endeavor that can serve in and of itself as challenge to stimulate a wide range of behaviors: the taking of responsibility, self-direction, commitment to objectives, and creativity. McGregor (1958b) dispels any notion that the Scanlon Plan is either Theory X oriented or permissive:

> The management task in Scanlon Plan companies becomes one of genuine leadership. The manager who is primarily a power seeker and a protector of management's right to be arbitrary finds little satisfaction in such a situation. The pattern of managerial behavior which tends to emerge is remarkably close to that of the "democratic" leader in

> the classic Lewin and Lippitt research. However, this term "democratic" does not mean abdication; it does not imply that "everyone decides everything." Its essence is that it makes effective use of human resources through participation; it provides general rather than close supervision; it is "employee-centered"; it encourages responsible behavior and tough-minded self-control rather than reliance on external authority. (pp. 92-93)

Documentation for the criticality of a Theory Y perspective is provided by Wallace (1971) who surveyed managerial attitudes in 18 organizations that had either abandoned or retained the Scanlon Plan. Although causality could not be unequivocally determined, he found that managers in abandoned Scanlon Plan companies perceived rank and file employees to demonstrate less judgment, creativity, responsibility, dependability, pride in performance, alertness, initiative, self-confidence, long-range perspective and willingness to change than peer level managers in corresponding retained Scanlon Plan companies. Wallace's data may provide preliminary support for McGregor's classic assertion that employees' behavior is a consequence of how they are treated. If management practice conveys the perception that employees are indeed not valued resources, it should not be surprising when they live up to that expectation.

Once the process of IDENTITY is in place, Frost then calls on management to initiate the structure for employee PARTICIPATION. This means not only creating a work climate in which employees become more aware and knowledgable, but also providing them a vehicle through which they can respond to existing challenge. Opportunities for influence must be real and continually reinforced through delegation of responsibility and sharing of leadership. Management's formalization of the Scanlon committee structure is but one way of facilitating the

the participative process. Far more important are management obligations to maintain open communication channels, implement employee suggestions, provide performance feedback and insure challenging work opportunity. Communications should be two-way: directional statements from the top and influence attempts from lower levels. Moore (NCPWQ, 1975) quotes an experienced Scanlon Plan plant manager who comments on the potential advantages the Scanlon process provides for communicating to employees:

> Scanlon is an excellent means for management to meet and discuss future plans with all employees. If used correctly, it can force lines of communication, up and down, to remain open at all times. It is also a means for management to meet and discuss points with problem employees. (p. 20)

Similarly, Shultz (1958) provides examples to substantiate his point that the encouragement of upward directed communication pays off in more and better operational data upon which to base managerial actions.

Managerial job competence becomes increasingly important as employees begin through the participative process to question the data or existing practice. The willingness and ability of management to respond undefensively will serve to reinforce influence attempts. Incompetent management is conspicuous under the Scanlon Plan as employees are able to clearly identify the source of their frustration when suggestions are not processed, poor maintenance halts production, objectives are unclear, scheduling is uneven, or purchasing fails to provide the necessary material. They also become resentful of paternalistic managers who, in attempts to keep employees "happy," neglect to provide them the tools they need to be more productive and earn bonus. If management is to truly lead the organization, employees must perceive them as the best means possible to get them where they

want to go at that particular time (Frost et al., 1974, p. 85). From his Scanlon Experience, Moore (NCPWQ, 1975) is convinced that managerial leadership is the key to the continued success of any Scanlon Plan. However, as Lesieur (1958) notes, it must be a competency-based leadership so that employees perceive management as functionally necessary to getting the job done:

> I would like to emphasize that the Scanlon Plan is not a substitute for leadership; it is something that will thrive on good leadership. The better leadership on the part of management, the better it can work. It means the foreman doing his job, not that of a clerk, but his job of foreman--working with people, planning the work, seeing that schedules are met, having jobs ready so that when workers complete their job there is another waiting. The foreman under the Scanlon Plan is not a traffic cop trying to chase people out of the rest rooms and walking up and down the floor to make sure they are at their machines. This relationship calls for an entirely new approach--it calls for the foreman to sit down with his people and give them the help that he can by leading them. (p. 38, underlining mine)

The managerial responsibilities to (1) clearly state the organizational mandate, (2) recognize the importance of human resources, and (3) facilitate the influence process receive some support from the leadership literature. Researchers at Ohio State University, a longtime center for leadership research, have spent years trying to define the fundamental behaviors of leaders. From many empirical studies (see Fleishman, 1971, for a review), they have concluded that significant variance is accounted for by two definable factors: initiating structure and consideration. Initiating structure is the task-oriented behavioral component, including organization of work and direction of work activities. Consideration, on the other hand, reflects the extent to which the leader trusts his subordinates, is willing to listen,

explains his actions, and aims for warm personal relationships. Other researchers have discovered similar factor structures; for example, Katz, Maccoby and Morse (1950) distinguish between "employee oriented" versus "production oriented" dimensions of leadership. Blake and Mouton (1964) have developed the vastly successful "managerial grid" in which they sensitize managers to the effectiveness of the "9,9 managerial style" characterized by equally high "concern for production" and "concern for people."

Bowers and Seashore (1964, 1966) attempted to integrate the various dimensional approaches to leadership and produced a four dimensional model that they feel comprises the basic structure of leadership:

1. Support--leadership behavior that reinforces the individual's feeling of self-worth and importance to the group.

2. Interaction facilitation--behavior that creates conditions for satisfying interpersonal relationships.

3. Goal emphasis--behaviors which seek to state, clarify, change, attain or seek member acceptance of goals.

4. Work facilitation--behaviors that provide effective methods, programs, facilities and technology for group goal attainment.

Hill (1976), after a thorough literature review in the leadership area, concluded of the Bowers and Seashore model "that in loose terms some agreement has been reached on what leadership is and how it can be measured" (p. 13). It will also be noted that the model closely approximates the Scanlon Plan leadership demands for clear directional statements (goal emphasis), recognition of the individual as important (support), and the facilitation of work (work facilitation) and

communication (interaction facilitation). Yet what appears to be lacking is the additional Scanlon Plan requirement that management "initiate the structure for participation," particularly through their openness to influence. Both theory (Lowin, 1971) and research (Patchen, 1965; Ruh, 1972; Wallace, 1971; White, 1974) signal the importance of the managerial role in the implementation of participation.

Johnson (1973) investigated the hypothesis that leadership behavior includes a participation dimension that is conceptually and empirically distinct from initiating structure and consideration. Participation was defined as those supervisory behaviors which allow or encourage subordinates to influence matters and decisions related to their jobs. Through multidimensional scaling methodology, he confirmed the conceptual distinction of participation and found low positive intercorrelations among the three dimensions. Vroom and Yetton (1973) have since developed a normative leadership model which they claim can be helpful in assessing and creating those conditions under which leaders should initiate participatory decision making activities to favorably affect organizational outcomes. Similar to Argyris' (1957) reality-oriented diagnostic procedure, Vroom and Yetton suggest that the leader assess, among other things, the degree of subordinate acceptance required to implement the decision, the amount of information in the hands of subordinates needed to make a quality decision, and the extent to which subordinates can be trusted to base decision-making on organizational considerations. As with other contingency models (e.g., Fiedler & Chemers, 1974), participation in which subordinates actually make the decision is not called for in every

situation. This is completely consistent with Scanlon Plan principles; in fact, most Scanlon Plan proponents emphasize the managerial prerogative and responsibility for decision making:

> Under the Scanlon Plan, all we are talking about is providing the opportunity for people to say in an adult society how they think the job might be best done. It's up to management to take it from there. (Lesieur, 1958, p. 39)

> [Participation] does not mean that management need give up its decision-making authority to the vote of a group of workers. But it must be willing to discuss relevant problems and decisions and to accept with good grace, at least, suggestions which promise to be productive. (Shultz, 1958, p. 53)

> The Screening Committee is not a management decision-making body. It is a fact-gathering, consulting, evaluative body that works toward problem elimination and resolution. The president is president. If the Screening Committee has functioned correctly, then the president is well informed, he assimilates and integrates facts, and he makes prudent decisions which he can promote and defend with accurate and complete facts and with conviction and commitment. (Frost et al., 1974, p. 82)

As the sheer quantity of leadership literature suggests, the components of managerial competence are complex and somewhat elusive. Thus far, the most promising research approach has been launched by the contingency theorists who contend that leadership behavior does not exist in a vacuum and is in large part a function of the situation. This becomes an extremely important point if one accepts the premise that the Scanlon Plan creates what McGregor (1958b) earlier labelled a "way of life . . . [which] affects virtually every aspect of the operation of the organization" (p. 89). The Scanlon Plan is both <u>the</u> situation as well as a determinant of it. Therefore, in exercising leadership, management faces the dualistic responsibility to accurately assess situational contingencies as well as creating the conditions

under which, through participation, the organization can change increasingly more effective. This is the essence of MANAGERIAL COMPETENCE under the Scanlon Plan.

The Scanlon Plan as an Integrated System

In reviewing the four Scanlon Plan conditions, the strategy has been to treat each one individually by defining its basic principles accompanied by supporting Scanlon Plan and psychological literature. This style of presentation, while it addresses the issues of clarity and economy, leaves this writer frustrated in two related ways. First, each of the four conditions encompasses a broad range of theory and literature. IDENTITY, for example, draws from the clinical work on ego development and self-image, as well as several popular themes in the industrial/organizational psychology literature: management by objectives, organizational diagnosis, organizational change, motivation theory, and the like. PARTICIPATION spans several topical areas as well, including the influence process, power distribution, group dynamics, organization structure, staff-line relations, etc. EQUITY benefits from the accumulated knowledge in the learning literature in addition to the obvious parallel with equity and exchange social psychological theories. Finally, MANAGERIAL COMPETENCE is a synthesis of work being done in the voluminous leadership and management sciences literature.

Clearly, the foregoing coverage of the Scanlon Plan conditions did not provide an exhaustive review of the relevant literature. Not only would it be a tedious and ambitious task, but the return to the reader in Scanlon Plan understanding would be slight. For one reason, this

information, although scattered, is available elsewhere. For another, the end result would likely be a rather disjointed array of topical content that would be more useful to the editor of a psychological encyclopedia than anyone else.

The second frustration relates to the first. It stems from the difficulty one has in discussing the Scanlon Plan in "piecemeal" fashion. As noted in the last section, MANAGERIAL COMPETENCE cannot be discussed independent of other conditions. Management's difinition of the mandate (IDENTITY), initiation of the participative structure (PARTICIPATION), and development of an equitable formula (EQUITY) are major components of MANAGERIAL COMPETENCE. Likewise the other Scanlon Plan conditions should be closely tied together. PARTICIPATION without the directional thrust of a clear IDENTITY is aimless and may result in little more than a grievance channel. And, unless there is some EQUITY for employees' increased PARTICIPATION investment, there is little likelihood of continued influence attempts. Furthermore, the feedback mechanisms provided through the EQUITY system should continually shape the organization's IDENTITY, particularly with respect to areas where there is a compelling need to change. In sum, the uniqueness of the Scanlon Plan lies not only in the operationalization of four psychological conditions, but in their integration to form a total organization development system. Those who perceive the Scanlon Plan as a suggestion box procedure, a committee structure or an incentive plan have grossly misinterpreted the Plan's scope and systems implications:

> (T)he Scanlon Plan is defined as a system. This is just a shorthand way of saying that the Scanlon Plan is a set of interdependent elements, all of which are essential for the

> effective functioning of the total plan. Probably the most frequent misconception of the Scanlon Plan is that is is a formula or set of mechanical procedures with no major implications for managerial policy or managerial behavior. Nothing could be further from the truth. In fact, any attempt to simply adopt the "mechanics" of the Scanlon Plan without a firm commitment to the assumptions and principles of the Plan is doomed to failure. (Ruh, 1971, p.1)

Literature and field experience seem to confirm Ruh's systems viewpoint. Reacting to the typical misperception that Scanlon is no more than a financial incentive and committee structure, Puckett (1958) similarly provides a broader perspective:

> Without . . . discussion and participation the [bonus] measurement would be just another standard for providing an "incentive" for speed-up. Without good leadership in using the measurement as a focal point of discussion and decision-making, the committee meeting would be just another bull session without objectives, orientation or guidance. Thus it can be seen that the Scanlon Plan ratio is an integral part of a program that is much broader than the typical incentive system, whether individual or group. (p. 79, underlinings mine)

Underlinings in the quoted paragraph exemplify how all four Scanlon conditions are required. Whyte (1955) argues a similar case when he concludes that plant-wide incentives (EQUITY) act as motivators "only when the incentive formula is backed by a pattern of interaction [PARTICIPATION] that involves the individual and his work group in the goals of the whole organization [IDENTITY]" (p. 248). Porter et al. (1975) are concerned with the style implications of MANAGERIAL COMPETENCE on reward systems; their findings suggest that Scanlon-type reward systems, which emphasize intrinsic motivators, are incompatible with authoritatively-oriented managements. Moore (NCPWQ, 1975) pursues the style issue a bit further, particularly as it relates to the process of participation:

> All too frequently the Plan is presented as a structure or formula which will produce greater cooperation and productivity. This emphasis ignores the process of participation in favor of the structure. Basic human values and attitudes about work, coworkers, the organization and our economic system are at stake. There is no substitute for organizational policies built on trust and mutual dependence. (p. 53)

Despite labelling it "(t)he boldest attempt at participation in American industry" (p. 381), Katz and Kahn (1966) are more impressed with the systems impact of the Scanlon Plan than with the participation component per se. Applying their open-systems model, they describe how the Plan requires major changes in the power, reward, communications, policy-making, decision-making and management subsystems. Their view of the key to Scanlon Plan success is the internalization of organizational objectives among all employees. The conditions they describe under which this internalization will take place include the opportunity to participate in decision-making, the close linkage of reward to employee contributions, the recognition and encouragement of innovative inputs and a "model of leadership . . . much closer to the values of democratic practice as they exist in our culture and institutions outside industry" (p. 388).

Each of the above writers negates the depiction of the Scanlon Plan as a "cookbook" or "piecemeal" approach to OD. Many so-called OD interventions isolate their efforts on only one of the major conditions: MBO programs as an approach to IDENTITY; increasing PARTICIPATION through the inclusion of rank and file on management committees; incentive programs to improve employee EQUITY; or training to heighten MANAGERIAL COMPETENCE. In each of these cases, organization development is a misnomer for there is frequently no attention

whatsoever to the effects on the total system of these interventions, as the number of "OD" failures attests. Herrick (1975) describes the consequences of piecemeal approaches:

> In a social system every factor is related to every other factor. If you change one factor, others tend to be affected. It is well to note that changing one principle without paying attention to others might lead to results that are very different from the ones we envisage (i.e., healthy and productive workers). For example, a system of total security and certain equity [EQUITY] without individuation [IDENTITY] or democracy [PARTICIPATION] might result in dependent and fearful workers. Similarly, a system of democratic decision-making [PARTICIPATION] which requires responsibility and achievements without security or equity [EQUITY] becomes exploitative as workers are asked to give more of themselves without proper guarantees and rewards. Even forms of security [EQUITY], democracy [PARTICIPATION] and equity without individuation [IDENTITY] may be experienced as alienation as has been reported in some Yugoslavian worker-managed industries. (p. 5)

Although Herrick is not specifically discussing the Scanlon Plan, the parallels are obvious.

At this point the reader is reminded of the earlier discussion of Beer's (1973) "internal consistency" and Likert's (1971) "management system integrity" notions. Both of these writers proposed the maintenance of equilibrium as critical to organizational effectiveness and change. Equilibrium was defined as the degree to which the various subsystem elements are characterized by a high degree of fit through mutual reinforcement. Likert theorizes a self-correcting mechanism through which the system will resist change unless it is focused on all subsystems in mutually supportive ways. The Frost Scanlon Plan model attempts to reduce this resistance through a total organization development perspective that simultaneously influences the IDENTITY, PARTICIPATION, EQUITY and MANAGERIAL COMPETENCE subsystems.

General Theoretical Hypotheses

Referring to a question posed many pages earlier, "What is the Scanlon Plan?" we discover that the answer lies in whose interpretation we choose to accept. Many organizations say they have a Scanlon Plan,[4] yet it has become clear that this may mean nothing more than setting up a suggestion box and including employees in profit sharing. Or there may be a serious attempt to structure the Scanlon Committees and develop an equitable bonus formula, but without the corresponding leadership to define the mandate and facilitate work. These we shall label "Piecemeal Scanlon Plans" because they fail to recognize the importance of all four conditions, i.e., they are internally inconsistent in application. Conversely, other organizations have adopted the sophisticated view of the "System Scanlon Plan," characterized by simultaneous attention to effecting change on all four conditions while preserving an internally consistent equilibrium.

Hypothesis 1: Organizations practicing the Scanlon Plan can be differentiated along a continuum ranging from Piecemeal Scanlon Plan companies to Systems Scanlon Plan companies.

Hypothesis 1A: Systems Scanlon Plan companies demonstrate significantly higher levels of the four Scanlon Plan conditions than Piecemeal Scanlon Plan companies.

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[4] In fact, White (1974, p. 32) includes this pronouncement as part of his Scanlon Plan definition: "The [Scanlon Plan] is a system whereby there is a company-wide structure for employee participation in improving the organization's effectiveness and sharing in cost reductions and where the members of the organization purport to have a Scanlon Plan."

Hypothesis 1B: Systems Scanlon Plan companies demonstrate simultaneous attention to all four conditions whereas Piecemeal Scanlon Plan companies limit their attention to a subset of conditions.

In an earlier section, criticism was levelled at OD for its lack of accountability to organizational effectiveness, efficiency and health. It was further stated that the Scanlon Plan, as a purported OD program, is not immune from these criteria. Therefore, in setting out to evaluate the Scanlon Plan, the following yardsticks were proposed:

1. EFFECTIVENESS--the extent to which the organization-environment interface is improved through heightened awareness of and responsiveness to environmental demand without straining human resources.

2. EFFICIENCY--the extent to which organizational change is considered from a systems perspective.

3. HEALTH--the extent to which efforts are directed at the maintenance of a flexible, innovating, self-renewing organization.

Theoretically at least the "Systems Scanlon Plan," rather than serving as an end in itself, is an OD tool toward reaching these demanding criteria. Effectiveness is enhanced through the IDENTITY and MANAGERIAL COMPETENCE interaction to develop an accurate diagnosis of the organizational-environment interface. Management's clear articulation of the needed "energic inputs" and required performance in the form of a mandate remind the organization of its dependency on external influence. Furthermore, the EQUITY system, to the extent it measures productivity, acts as an indicator of the organization's ability to provide competitive outputs to the environment. The wage and salary

component of EQUITY further influences environmental inputs of talented manpower. PARTICIPATION is the vehicle through which the organization responds to environment by mobilizing all its resources. Moreover, human resource strain is minimized under the Systems Scanlon Plan. Role ambiguity is reduced, not only because situational realities are more clearly articulated, but appropriate responses in the form of influence and responsibility are reinforced. Job satisfaction is heightened due to the individual and organization goal integration opportunities that exist under a Theory Y management system.

The normative Systems Scanlon Plan model, having developed out of the systems framework, facilitates efficiency through maintenance of internal consistency among variables. For example, stress on the PARTICIPATION-EQUITY contingency is a consistent theme in the theoretical Scanlon Plan literature. The bonus acts as a target and educational tool for directing participative effort. Furthermore, MANAGERIAL COMPETENCE is both a cause and effect of responsiveness to the demands of a PDM system. However, the Systems Scanlon Plan realizes that neither PARTICIPATION nor MANAGERIAL COMPETENCE will be upgraded without an equitable return. The Systems Scanlon Plan, therefore meets the efficiency criterion, through continual maintenance of high levels of IDENTITY, PARTICIPATION, EQUITY and COMPETENCE.

To meet the health criterion an organization must be capable of change while at the same time increasing its effectiveness. Prompt responsiveness to environmental demand is required. The Scanlon Plan, through its IDENTITY and PARTICIPATION systems, mobilizes the efforts of the entire organization toward meeting the mandate. The suggestion system, for example, is used to provide a vehicle for an appropriate

response to an educated analysis of need. Resistance to change is lessened, not only because organizational members are involved in the decision-making process, but also because there are rewards for implementing change. Over time change becomes a planned, controlled organizational process, consistent with most definitions of OD. Change is the name of the game; everyone is asked to become increasingly more effective. The Systems Scanlon Plan provides a rationale, mechanism and reinforcement for constant improvement in organization health.

Hypothesis 2: The four conditions comprising the Scanlon Plan model are strongly related to measures of organizational effectiveness and health.

Hypothesis 2A: Systems Scanlon Plan companies are signigicantly higher on organizational effectiveness variables which emphasize the quality of the organization-environment interface and the capacity to change than Piecemeal Scanlon Plan companies.

Hypothesis 2B: The four Scanlon Plan conditions are strongly positively related to measures of organizational effectiveness which emphasize the quality of the organization-environment interface (effectiveness) and the capacity to change (health).

In addition to the emphasis on organizational effectiveness in the literature review, considerable attention was also devoted to <u>individual</u> effectiveness measures, particularly as related to the concept of organizational strain. Studies were cited there which offer preliminary evidence that the effects of "human resource liquidation" are manifested in long-term decreases in productivity, job satisfaction and

employee tension. Wakeley (Frost et al., 1974, Chapter 2) differentiates individual from organizational effectiveness:

> The individual does, of course, have an existence apart from the organization, and he can survive even if the total organization fails. He is interested in his total effectiveness as a person which is different from, but no doubt related to, his more limited effectiveness with a particular organization. If he is not effective now, efficient and satisfied now he will go elsewhere if he can. (pp. 33-34)

Wakeley continues by discussing the importance of one's satisfaction with the job as a key effectiveness component. Satisfaction is viewed as a function of perceptions that current job behaviors will lead to valued goals. This is consistent with the goal integration hypothesis (Argyris, 1957; McGregor, 1960) which considers individual effectiveness to be enhanced by work that permits simultaneous achievement of organizational and individual objectives.

There currently exists in the literature a controversy concerning the relationship of organizational climate and job satisfaction constructs. Guion (1973), for example, labels climate "one of the fuzziest concepts to come along in some time" (p. 121), suggesting that it is perhaps nothing more than a "reinvention of the job satisfaction wheel." And in fact, data from a few studies (e.g., James & Jones, 1974; LaFollette & Sims, 1975) demonstrate strong relationships between the constructs. However, even those whose data suggest redundancy offer plausible hypotheses to preserve conceptual differentiation. Despite strong climate-satisfaction correlations in their study, LaFollette and Sims (1975) point to discrepant patterns of correlations with other variables, particularly job performance, as evidence that acceptance of a redundancy hypothesis is "premature and

judgmental." Others (Guion, 1973; James & Jones, 1974) think the problem may lie in a tendency of climate researchers to borrow items from job satisfaction scales. Schneider (1975) represents those who define a conceptual distinction in terms of the degree of affect:

> Job satisfaction may concern the same structural work world involved in climate research but job satisfaction implies an evaluation of structure in terms of some personal system of needs or values. For climate, perceptions of practices and procedures may be organized into a theme characterizing the organization; the organization's order is apprehended. (p. 462)

Schneider also provides a rationale that satisfaction and climate measures will differ in variability within an organization. Climate measures, since they represent a descriptive state of the organization will result in relatively low variance. Job satisfaction, on the other hand, is more influenced by individual differences and will thus vary unless all employees have similar needs and value systems and therefore evaluate the work environment similarly.

The organizational strain variable, role ambiguity (and to a lesser extent role conflict) also emerged from the literature review as a correlate of individual effectiveness. Role ambiguity is defined by House and Rizzo (1972) as "the lack of clarity and predictability of the outcomes of one's behavior" (p. 474). Kahn et al. (1964) characterize the employee experiencing role ambiguity as possessing little understanding either of the expectations or evaluation of his work by others. Furthermore, he lacks an awareness of the consequences of his actions.

As stated several times previously, central to the Scanlon Plan is the clear identification for every employee of the job to be done, the expectation that each person exercise responsibility, and constant

feedback through the suggestion and equity systems. The individual who is experiencing role ambiguity should have little difficulty alleviating the problem if the data are clear, communications are uncluttered and management is responsive. At the individual level, therefore, the expectation is that there would be relatively less role ambiguity to the extent the employee perceives high levels of the Scanlon conditions, particularly those that relate to employee understanding of goals, expectations, responsibilities and behavioral consequences.

Hypothesis 3: The four conditions comprising the Scanlon Plan model are strongly related to measures of individual effectiveness and human resource strain.

Hypothesis 3A: Systems Scanlon Plan companies are significantly higher in overall employee job satisfaction than Piecemeal Scanlon Plan companies.

Hypothesis 3B: The four Scanlon Plan conditions are strongly positively related to employee job satisfaction (individual effectiveness).

Hypothesis 3C: Systems Scanlon Plan companies are significantly lower in overall employee role ambiguity than Piecemeal Scanlon Plan companies.

Hypothesis 3D: The four Scanlon Plan conditions are strongly negatively related to employee role ambiguity (human resource strain).

Schneider (1975) argues that employees are influenced by two important needs in perceiving their environments: (1) the need to order cues into a perceptual "whole," and (2) the need to adapt behavior in

a "way that fits." To the extent implementation of OD, e.g., the Scanlon Plan, is piecemeal the environment is perceived as inconsistent and employees are frustrated in their efforts to determine appropriate behavior. In an empirical test of the effects of consistent versus inconsistent environments Frederiksen, Hensen and Beaton (1972) experimentally manipulated the "climate" for subjects performing an "In-Basket" exercise. The two climate components manipulated were Administrative Procedures (to Be Innovative versus to Follow Rules) and Supervisory Style (Global versus Detailed). The researchers found that scores on the In-Basket were significantly higher in consistent (Be Innovative/Global or Follow Rules/Detailed) than in inconsistent (Be Innovative/Detailed or Follow Rules/Global) climates.

Hypothesis 4: On the whole, employees in Systems Scanlon Plan companies perceive more internal consistency among the four Scanlon Plan conditions than employees in Piecemeal Scanlon Plan companies.

Hypothesis 5: Employee perceptions of organizational efficiency, as reflected in the perceived consistency of the four Scanlon Plan conditions, are strongly related to individual effectiveness and human resource strain.

Hypothesis 5A: Employee perceptions of internal consistency are strongly positively related to job satisfaction.

Hypothesis 5B: Employee perceptions of internal consistency are strongly negatively related to role ambiguity.

A final hypothesis, which does not fit conveniently under any of the effectiveness, health, or efficiency criteria (but rather influences and is influenced by all three), addresses perceptual discrepancy, an issue that frequently surfaces in the organizational climate literature. In most of these studies, responses are averaged across all respondents to achieve a scale score for each climate dimension. Schneider (1975) provides a rationale for this approach and indeed it has been used by other climate researchers (e.g. Litwin & Stringer, 1968). Payne and Pheysey (1971) were concerned whether this aggregate score was an accurate measure of managers at different levels, therefore a simple analysis of variance compared scores of top management with those in other managerial groups for each dimension. Of the 48 tests conducted (24 for each company), only one climate dimension showed a significant between group difference. This provided rather convincing evidence that management at least perceived organizational climate with a strong degree of consensus. Taking a slightly different slant, Pritchard and Karasick (1973) investigated differences in climate perceptions among geographically separate regional management groups. Despite the different locations, there were no significant differences on six of their eleven scales. This was offered by the researchers as support for their hypothesis that climate perceptions have both an overall and local determinant.

Because only managerial employees served as subjects, a weakness of both studies is the absence of data from non-managerial ranks. It is difficult to agree that either study truly measures <u>organizational</u> climate given that more than half the organization is omitted in both cases! Burns (1967) notes that discrepancies, particularly with

respect to goals, exist in all organizations, making it important to assess where and why they occur. Likewise, Evan (1968) finds that the greater the number of perceptual discrepancies, the more resistant the organization as a whole will be to change. A strong case is made by James and Jones (1974) for the importance of consensus in defining the situation and governing behaviors. Guion (1973) and Schneider (1975) go so far as to say that perhaps the only good measures of "organizational climate" are those on which people agree. In Silkiner's (1968) earlier cited study of an effective versus an ineffective organization, he discovered that the latter was characterized by significantly less consensus about the company's objectives, programs and performance.

The thrust of this literature is the important role of consensus in reality definition, behavior and change. As an OD program with strong emphasis on clear definition of identity and a similarly strong change focus, the Systems Scanlon Plan seemingly demands consensus as another condition of success. Thus, it seems important to assess the extent of perceptual discrepancy as it relates to the Systems-Piecemeal continuum, particularly between management and nonmanagement employees. It is theorized that managers in Piecemeal Scanlon Plan companies perceive the Scanlon Plan conditions at higher levels than nonmanagers for several reasons. First, management typically initiates the Scanlon Plan and is therefore in a position to be more attuned to the necessary conditions and mechanics. Second, most information concerning the organization's objectives, programs and performance is controlled by management. Silkiner (1964) demonstrated how an ineffective organization is characterized by a management that withholds much of the data that would serve to establish identity, stimulate participation or

provide equity feedback. Third, it has been this author's observation that managers of ineffective, piecemeal Scanlon Plans frequently choose not to admit that their Plans are failing. This is usually because they had assumed exclusive ownership of it in the first place. Nonmanagement employees in these organizations, on the other hand, seem to "tell it like it is."

Hypothesis 6: The discrepancy between management and nonmanagement employees' perceptions of the four Scanlon Plan conditions is significantly greater in a Piecemeal Scanlon Plan company than in a Systems Scanlon Plan company.

Plan of Study

Admittedly, much of the literature review, as well as the hypotheses which emerge from it, has assumed a theoretical perspective. Its intent has been (1) to develop the Scanlon Plan within the framework of systems theory and organizational effectiveness criteria, and (2) to define and evaluate the Scanlon Plan in normative terms in the hope of strengthening the conceptual framework from which more empirical documentation might emerge. The long-term objective should be to demonstrate the direct contribution of the Scanlon Plan to total organizational effectiveness, efficiency and health. It is likely that a comprehensive, longitudinal research design employing substantial numbers of Scanlon and non-Scanlon companies would be required for such a study. However, before that work can begin, there is a need for clarification and operationalization of variables, particularly the four Scanlon Plan conditions. A major objective of the present research,

therefore, was the development and construct validation of a questionnaire measure of these conditions, to be known as the Scanlon Plan Profile (SPP). Once accomplished, the research then set out to operationalize and test the research hypotheses outlined in earlier discussion.

CHAPTER III

METHODOLOGY

The consideration of appropriate research methodology required attention to two general types of hypotheses: (1) those which relate to construct validation of the SPP, and (2) those which examine relationships between SPP constructs and other theoretically relevant variables. Tests of the second set of hypotheses were largely contingent on successful development of a good SPP measure; therefore, construct validation became the primary research task.

Development of the Scanlon Plan Profile

As a first step in construct validation procedure, the instrument developer must clearly define the conceptual domain he chooses to measure. For the present study, the domain of interest was limited to the Scanlon Plan four condition model developed by Frost and described in earlier discussion. This decision reflected the author's desire to empirically document the model, as well as a belief that previous instrumentation did not address issues of a Scanlon-specific nature. Furthermore, the development of scales was aimed at capturing organizational members' perceptions of the situational realities related to the four conditions and their components. In this respect much of the methodology and orientation from "organizational climate" research was borrowed. Climate is distinguished from the objective environment in that it results from a perceptual process that serves to define the working environment for employees so that they may ascertain

appropriate behaviors (Campbell & Beaty, 1971; Schneider, 1975). Or, as Schneider (1975) argues, all humans seek order in their surroundings so they can "behave in way that fits" (p. 449). One major implication of the climate concept is that employee perceptions of environment define reality for them, regardless of what the hard "objective" environment might suggest. Furthermore, employees also seek to "order" these perceptions by integrating various environmental cues into a meaningful whole (James & Jones, 1974; Schneider, 1975). Thus perceptions are in a sense the result of a systems view of the organization since the meaning assigned one cue is influenced by others. Perceptions, to some extent, act as a "halo effect" (Beer, 1971) mechanism for defining the work environment. This may help to explain Likert's findings of high correlations among the variables in his systems measurement.

In development of the SPP, the present research attempted to develop a set of descriptive scales made up of statements indicating the presence or absence of the Scanlon Plan conditions in an organization. Furthermore, the responses sought were employee perceptions concerning the degree to which each statement characterized his/her organization. Attitudes toward the organization, while important, were not intended as the focus because they are evaluative in nature and do not unequivocally provide evidence that the condition is in fact perceived to exist.

Given the conceptual and perceptual domains, the author reviewed the Frost model and related literature (summarized in Chapter II) in search of a comprehensive list of dimensions under each of the four conditions to serve as a guide for item writing. It became clear that each condition is in fact multidimensional; the literature survey

resulted in the compilation of twenty-five dimensions--seven under IDENTITY (Historical Identity, Company Image, Uniqueness, Awareness of External Environment, Knowledge of Objectives, Identification of Employees as Resources, Perceived Need to Change), eight under PARTICIPATION (Suggestion Stimulation, Opportunity to Influence, Quality of Representation, Extent of Involvement, Scanlon Committee Activities, Suggestion Processing, Integration of Effort), six under EQUITY (Wage and Salary System, Company Equity, Group Incentive, Performance-Bonus Contingency, Bonus as a Working Tool, Perceived Fairness of Bonus Computation), and four under MANAGERIAL COMPETENCE (Managerial Style, Quality of Communication, Managerial Job Competence, Work Facilitation). Each dimension appeared to be conceptually distinct, yet clearly related to others within the same condition and to a lesser extent related to dimensions listed under one of the other conditions. Definitions of the dimensions led to the construction of 172 items, averaging about six per dimension.

As a refinement step, Frost and five others who have worked with him in Scanlon Plan field experiences, were recruited to review the dimensions and items. Each item was typed on a separate index card without any dimensional label. The cards were then randomized through repeated shuffles. Each Scanlon "expert" was asked to sort the deck, first into the broad IDENTITY, PARTICIPATION, EQUITY and MANAGERIAL COMPETENCE conditions, then into the dimensions within conditions. Dimensions had been defined by the author to guide sortings. Roughly 1½ hours was required to complete the sorting tasks.

The sorting placements were examined to determine the degree of agreement among experts, as well as to discover those items or scales

that proved to be ambiguous. Those items on which there was little or no agreement were rejected. Others which post-sort interviews indicated were ambiguous were reworded. Still other items were added based on suggestions from the experts. The resulting changes maintained the total number of scales (N=25), although some were renamed. The number of items was reduced from 172 to 129. These 25 scales, defined as follows, represented the final a priori scales for the research (see Appendix for a complete listing of items):

IDENTITY

1. Historical Perspective--the level of understanding and perceived importance of the company history.

2. Perceived Company Image to Outsiders--the image of the organization by significant outsiders (customers, investors, suppliers, community) and the pride employees take in that image.

3. Product and Service Uniqueness--the extent to which the organization is uniquely different from the competition in its services or products.

4. Company Awareness of External Environment--the extent to which the company is sensitive to and informed of the larger world of market, competitors and the economy.

5. Knowledge of Company Objectives--the existence, awareness and perceived importance of organizational goals and objectives.

6. Recognition of Employees as Resources--the degree to which employees are identified and respected as important resources worthy of company investment.

7. Perceived Need to Change--extent to which the need to continually improve in order to remain competitive is realized.

PARTICIPATION

8. Acceptance of Responsibility to Participate--the recognition of the accountability employees have to one another in contributing their work, ideas and support.

9. Quality of Scanlon Representation--visibility of Scanlon Committee representatives as the best qualified people in carrying out their assigned duties.

10. Extent of Employee Involvement in Scanlon Plan--degree to which everyone in the organization is involved in the Scanlon process.

11. Quality of Scanlon Committee Meetings--frequency, focus and perceived importance of Scanlon Committee activities.

12. Quality of Suggestion Processing System--quality of steps and decision-making processes through which Scanlon suggestions proceed.

13. Suggestion Quality--the general quality level of Scanlon suggestions, particularly the awareness of the distinction between productivity improvement suggestions and grievances.

14. Level of Cooperation--the extent to which the organization is characterized by integration of effort and teamwork.

EQUITY

15. Wage and Salary Equity--the attractiveness and fairness of employee wages and salaries.

16. Company Equity--the extent to which the company's fiscal health is a first priority.

17. Group Incentive--rejection of individual bonus incentives by legitimately including all employees in bonus.

18. Perceived Performance-Bonus Relationship--perception of the relationship between suggestions or improved work and the bonus reward.

19. Use of Bonus as a Working Tool--the extent to which bonus and related data serve to educate the organization about performance and its determinants.

20. Perceived Fairness and Understanding of Bonus Calculations--the level of understanding and trust of the bonus computation.

MANAGERIAL COMPETENCE

21. Managerial Style--the behaviors and attitudes of management that indicate their assumptions about human behavior on the job.

22. Management Receptivity to Employee Influence--the extent to which management appears to be open to employee participation in the decision-making process.

23. Quality of Communication--the extent to which management-employee communication is reliable, accurate, trustworthy and two-way.

24. Managerial and Supervisory Job Competence--the competence level of management to lead the company and do their jobs.

25. Facilitation of Work by Management--the extent to which management is helpful rather than an interference in creating a productive workplace.

To finalize this "first draft" of the Scanlon Plan Profile, a Likert-type response format was chosen which asks the respondent to consider the extent to which each descriptive statement is true of his/her company along the following continuum:

1. DEFINITELY FALSE
2. MOSTLY FALSE
3. SLIGHTLY FALSE
4. SLIGHTLY TRUE
5. MOSTLY TRUE
6. DEFINITELY TRUE

A six point response format was chosen in order to avoid the extreme central tendency problems made possible with an odd number of choices. Another common source of bias, response set, was countered by negatively wording roughly half the SPP items. Finally, item ordering was randomized to conceal scale breakdowns.

Selection of Instrumentation to Measure Organizational and Individual Effectiveness Variables

The reader will recall that the research hypotheses require measures of organizational effectiveness (quality of organization-environment interface; capacity to change) and individual effectiveness (job satisfaction; role ambiguity). In search of organizational effectiveness instrumentation, we turned to the organizational climate literature, particularly to those studies which have studied employee

perceptions of organizational effectiveness in field studies. The rationale for emphasizing employee perceptions remained consistent with our earlier comments concerning the SPP: perceptions not only are reality for those who hold them, but they also serve as powerful stimuli for behavior.

Two previous organizational climate studies were discovered, both of which construct validated scales of perceived organizational effectiveness and health by comparing scores of two qualitatively distinct "known groups." In the first, Pritchard and Karasick (1973) used the judgments of two organizational consultants to characterize "one organization (Company A) as dynamic, democratic, skilled in handling operating problems, aggressive and highly achievement-oriented. Company B was seen as centralized, static, conservative, and paternalistic in nature" (p. 130). Based on these descriptions, they hypothesized differences on seven of eleven theoretically derived climate scales (descriptive statements) which had been developed similarly to our SPP a priori scales. Managers from the two companies were asked to indicate the extent to which each statement was true of their organization on a six-point scale. Five of the seven directional hypotheses reached significance at the .05 level. Internal consistency reliabilities also reached respectable levels, ranging from .66 to .81 across the eleven scales. Two of Pritchard and Karasick's scales were particularly interesting because they relate to our effectiveness and health criteria, especially the capacity to change (internal consistency reliabilities in parentheses):

> Motivation to Achieve (.79): degree to which the organization attempts to excel; the strength of its desire to be number one. A high rating reflects the lack of complacency

even in the face of good profits, growth, etc. (Sample item: "This organization has a real drive to be number one.")

Flexibility and Innovation (.73): willingness to try new procedures and experiment with change which is not really necessary due to some potential crisis situation but rather to improve a situation or process which may currently be working satisfactorily. (Sample item: "In this organization changes are made with a great deal of flexibility and speed.")

A third scale, for which no data are reported is also relevant to effectiveness and health, particularly our concern for the quality of the organization-environment interface:

Intelligence: ability of the organization to deal with changes and pressures outside the system, namely, from the environment; ability to foresee and adapt to changes, e.g., in the market, consumers, the parent organization, attitudes of the public, etc., and to adapt to these changes before they become critical problems. In essence, how "smart" is this organization? (Sample item: "This organization is very alert to changes in customer demands and attitudes.")

In a similar study, Payne and Pheysey (1971) defined two "known organizations" to test the construct validation of their "Business Organization Climate Index (BOCI)." The distinction between the companies was made on the basis of structural differences: "Aston had many rules, regulations and standard procedures and a more centralized authority structure, whereas Brum had very few rules, regulations or standard procedures, and operated a very decentralized authority structure" (p. 87). Some of these differences were quantified, using a system developed by Pugh, Hickson, Hinings, and Turner (1968, 1969). Hypotheses were developed to predict differences on some of the researchers' 24 BOCI scales and on two general factors which had earlier emerged from the scales. As with the Pritchard and Karasick study, two of the scales which showed hypothesized and significant

differences between the companies are relevant to the proposed research (no definitions are provided by the authors and therefore are my own; internal consistency reliabilities in parentheses):

> Future Orientation (.86): items in this scale measure the extent to which planning is valued and the organization takes a long-term view. (Sample item: "The ability to plan ahead is highly valued here.")
>
> Readiness to Innovate (.80): items in this scale measure the extent to which new or unusual ideas are encouraged or tried out. (Sample item: "Programs here are quickly changed to meet new conditions.")

Again, there was a third scale that was not sensitive to the companies' structural differences, but which seems from a content point of view to be characteristic of a healthy organization:

> Open-Mindedness (.82): items in this scale measure the extent to which people speak out openly and are not afraid to express their views. (Sample item: "No one needs to be afraid of expressing extreme or unpopular viewpoints here.")

All six of the scales extracted from the Pritchard-Karasick and Payne-Pheysey studies were incorporated in the present study.[5] Slight modifications were made in some items where wording in the original items was more uniquely suited to the samples studied in those researches. Response formats were also adjusted to conform to the same six-point Likert-type scale developed for the SPP. This was done to allow the interspersing of these previously developed scales with our own.

Guiding the selection of a measure of the job satisfaction

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[5]The author wishes to thank Dr. Diana C. Pheysey (University of Aston Management Centre, Birmingham, England) and Dr. Robert D. Pritchard (Purdue University, West Lafayette, Indiana) for granting the necessary permission.

component of individual effectiveness were issues beyond those expressed in the formal research hypotheses. Of special theoretical concern, for example, was the relationship between specific SPP scales and intrinsic versus extrinsic factors of job satisfaction. Since the Scanlon Plan is theoretically designed to develop intrinsic (knowledge of objectives, identification of employee resources, perceived need to change, responsibility to participate, receptivity to employee influence) as well as extrinsic (wage and salary system, performance-bonus relationship) motivators, we were particularly interested in the extent to which satisfied workers also report high levels on these SPP scales, should they in fact be validated. Also of interest was the satisfaction level of employees who perceive management to frustrate their attainment of these rewards (job competence, work facilitation).

The instrument chosen was the short-form of the Minnesota Satisfaction Questionnaire [MSQ] (Weiss, Dawis, England, & Lofquist, 1967)[6] because of its focus on the job incumbent's satisfaction with a variety of different reinforcers. In that connection, the MSQ is designed to tap intrinsic, extrinsic and general job satisfaction. Median internal consistency reliabilities over repeated applications in a variety of settings, as reported in the manual, have been high: .86 (intrinsic), .80 (extrinsic), .90 (general). Furthermore, construct validation studies on known occupational groups have tended to be consistent with expected differences among these groups. Another attractive feature of the MSQ is its length--only twenty items are presented, each of

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[6]The author wishes to thank Dr. René V. Dawis (University of Minnesota, Minneapolis, Minnesota) for granting the necessary permission.

which asks the respondent to indicate his degree of satisfaction with a given reinforcer on a five point, Likert-type scale.

Chosen to measure the role ambiguity component of individual effectiveness was an adaptation of an instrument developed by Rizzo, House and Lirtzman (1970) and further documented in House and Rizzo (1972). Their original role ambiguity scale was comprised of fourteen statements that an individual might make about his/her job, e.g., "I know what my responsibilities are," and "I have to work under vague directives or orders." The respondent is asked to describe the degree to which each statement is characteristic of his/her job. In their two studies, the authors report internal consistency reliabilities (.78 and .81 for two samples) on only a subset (N = 6) of the original fourteen items due to their self-imposed criterion that role ambiguity be independent of role conflict, for which they developed another scale. Since this independence is not as crucial to the present research, and because an examination of the fourteen item set suggests a Scanlon Plan domain of interest incorporating all items, the decision was made to retain the original scale intact. To facilitate instructions, respondents were asked to employ the same response format used for the SPP and climate items: a six point continuum ranging from DEFINITELY FALSE to DEFINITELY TRUE.

With the development of the SPP a priori scales and items, as well as the selection of organizational and individual effectiveness measures, our search for research instrumentation was complete. Table 1 summarizes information concerning the names, sources, number of items and reported reliabilities of the various scales included in the

Table 1

Information on Scales Incorporated in Research Questionnaire

Scale	Number of Items	Reliability	Source
SPP Scales			
Historical Identity	5	Unknown	Literature Review
Company Image	5	Unknown	Literature Review
Company Uniqueness	5	Unknown	Literature Review
Awareness of External Environment	5	Unknown	Literature Review
Knowledge of Objectives	5	Unknown	Literature Review
Identification of Employees as Resources	6	Unknown	Literature Review
Perceived Need to Change	5	Unknown	Literature Review
Responsibility to Participate	5	Unknown	Literature Review
Quality of Representation	5	Unknown	Literature Review
Extent of Involvement	5	Unknown	Literature Review
Quality of Scanlon Committee Meetings	5	Unknown	Literature Review
Quality of Suggestion Processing System	9	Unknown	Literature Review
Suggestion Quality	5	Unknown	Literature Review
Level of Cooperation	5	Unknown	Literature Review
Wage and Salary System	5	Unknown	Literature Review
Company Equity	5	Unknown	Literature Review
Group Incentive	5	Unknown	Literature Review

Table 1 (cont'd.)

Scale	Number of Items	Reliability	Source
Relationship of Bonus to Performance	5	Unknown	Literature Review
Bonus as a Working Tool	5	Unknown	Literature Review
Perceived Fairness of Bonus Computation	5	Unknown	Literature Review
Managerial Style	4	Unknown	Literature Review
Receptivity to Employee Influence	5	Unknown	Literature Review
Quality of Communication	5	Unknown	Literature Review
Managerial Job Competence	5	Unknown	Literature Review
Work Facilitation	5	Unknown	Literature Review
Organizational Effectiveness and Health Scales			
Motivation to Achieve	5	.79	Pritchard & Karasick (1973)
Flexibility and Innovation	4	.73	Pritchard & Karasick (1973)
Intelligence	6	Unknown	Pritchard & Karasick (1973)
Future Orientation	4	.86	Payne & Pheysey (1971)
Readiness to Innovate	4	.80	Payne & Pheysey (1971)
Open-mindedness	4	.82	Payne & Pheysey (1971)

Table 1 (cont'd.)

Scale	Number of Items	Reliability	Source
Individual Effectiveness Scales			
Job Satisfaction [MSQ]			Weiss, Dawis, England & Lofquist (1967)
General Satisfaction	20	.90	
Intrinsic Satisfaction	12	.86	
Extrinsic Satisfaction	8	.80	
Role Ambiguity	14	.78	Rizzo, House & Lirtzman (1970)

research. These scales were combined into a single, four part questionnaire as follows:

Part I	159 items made up of all SPP and organizational climate scales; randomized order; 6 point response format ranging from DEFINITELY FALSE to DEFINITELY TRUE.
Part II	14 Role Ambiguity items; same 6 point response format used for SPP and climate items.
Part III	20 MSQ (short form) items; 5 point response format ranging from NOT SATISFIED to EXTREMELY SATISFIED.
Part IV	5 items which were used to identify the respondent's hierarchical level, supervisory status, work location and job tenure.

Specific instructions were written for each part of the questionnaire as well as a general rationale and set of instructions. Arrangements were made to have the questionnaire printed on special computerized sense sheets in order to increase the speed and accuracy of data coding and processing.[7]

Data Sources

In earlier discussion of the two studies (Payne & Pheysey, 1971; Pritchard & Karasick, 1973) which provided our perceived organizational effectiveness scales, it was noted that the construct validation design in both cases involved the use of two qualitatively different "known groups" against which to test the discriminating power of newly developed climate scales. In both instances, researchers concluded scale validity to the extent the direction and magnitude of hypothesized differences in the two groups were upheld. Obviously, this kind of

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[7]The author is indebted to the Scanlon Plan Associates for providing the financing and support for this and other phases of the research.

research methodology suffers several shortcomings, not the least of which is the small sample size (N = 2). Furthermore, there is absolutely no way to infer causality from an experiment that applies none of the matching standards normally characteristic of laboratory work. Despite these methodological weaknesses, however, the design seemingly has value in the early stages of research efforts, particularly where the primary emphasis lies in obtaining suggestive data toward the refinement of instrumentation. It is unrealistic to assume that large numbers of real-life organizations will cooperate in such basic research where measurement yardsticks are uncalibrated and results therefore unpredictable at best.

Given the basic research nature of the present study, as well as the small number of available organizations, it was decided to employ the two group design. Two organizations, judged on the basis of expert[8] opinion to differ significantly in their practice of the Scanlon Plan, were approached as research data sources. Guiding our selection of target companies was the need to test the discriminating power of the SPP on "known groups" which represented close approximations to the contrasting "systems" and "piecemeal" approaches to the Plan. Specifically, one organization was judged to be a Systems Scanlon Plan whose employees were expected to perceive high levels on almost all conditions. The second organization was labelled a Piecemeal Scanlon Plan due to an expectation that its employees would perceive an inconsistent set of conditions characterized by an assortment of perceived highs and lows.

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[8]Frost and the author.

As a preface to our description of the two companies, it is important to note at the outset that the realities of field research forced relaxation of the usual matching standards characteristic of laboratory experimentation. For example, the two companies differ rather significantly in their size and length of experience with the Scanlon Plan. However, these and other differences (e.g., sales volume, market, ratio of direct to indirect labor) were not viewed as detrimental given the descriptive nature of the research. That is, rather than attempting to isolate the causes of results on SPP scales, the research objective was limited to development of an instrument sensitive to perceived levels of the Scanlon Plan conditions, regardless of cause. It therefore remains for future research to examine causal relationships. With that qualifier, then, we turn now to a description of the research sites.

Piecemeal Scanlon Plan Company ("Piecemeal Company")

Piecemeal Company is a 225 employee, midwestern manufacturer of a specialized line of furniture products serving primarily small entrepreneurs. It produces a high quality product, however, for years now the company has maintained a sporadic level of sales and profitability. By its own admission, deliveries to customers have frequently been slow, thus allowing a lower-priced foreign competitor to threaten business. Product design and development is clearly the company's future, yet much of that function has been retained by only one or two individuals.

A recognized leader in community affairs, Piecemeal Company is nonetheless located in a small town dominated by two other employers whose reputations for higher paying jobs have caused some discontent among employees. At least three union votes have been held, the last of which just barely defeated the certification attempt.

Piecemeal Company started the Scanlon Plan in the early 1960s at a time when the organization was anticipating a good growth period. Unlike most other applications, no employee vote to install the Plan was held. Rather management commenced the Plan by establishing a bonus formula and organizing the Scanlon Committee structure. Since that time, ownership of the company has changed two times and is currently in the hands of local investors who also occupy key management positions. This group retains exclusive control over major product development, finance and sales functions, occasionally making sales commitments to customers with minimal input from the larger manufacturing organization. Because of this and other practices, some employees have begun to question the extent to which they truly have influence on the

management process. Suggestion behavior has certainly been adversely affected; from a previous high of close to 600 suggestions per year, the current annual rate has fallen to under 150. And, many of the more recent suggestions fall more into the category of grievances than productivity improvements. The Scanlon Committee system has likewise been weakened. At present, only a single management person attends Screening Committee sessions. The others are all elected employee representatives whose terms run concurrently, thus each year an entirely new group of largely inexperienced representatives is convened. Formal production committees exist in only a few departments. Others rely on a suggestion box, while still others meet as a total department from time to time to "brainstorm." As a result, little uniformity or knowledge exists as to proper suggestion procedure.

Twice each year voluntary employee meetings are held at which time management reports on performance over the last six months, as well as projections for the coming year. A major agenda item at these meetings has traditionally been a reminder to employees of the attractiveness of their wage and salary package. However, this author's interviews with Piecemeal Company employees indicated widespread dissatisfaction with wages coupled with an attitude that the Scanlon Plan bonus system is at fault. This view is reinforced annually by a company policy which makes the general wage increase contingent not only on profitability, but on earning bonus in a single month! Furthermore, employee productivity improvements which might contribute to sustained bonuses over time are erased each year through standards changes. Moreover, standards changes to reflect wage increases lag two to three months behind

the actual payroll increase, thus making bonus even more difficult to earn in that period. All of these factors have contributed to a highly erratic bonus record and the feeling among employees that they have little control over it. A recent change in formula, without the corresponding education program to explain its rationale, has only further exacerbated the problem. It has reached the point where employee distrust has significantly reduced any interest in trying to understand it. Requests continue to be made that the Scanlon Plan be abandoned in favor of a guaranteed wage increase.

Piecemeal Company represents a good example of a company that initiated the Scanlon Plan in piecemeal fashion with limited awareness of the increased demands made on the organization to maintain its process and mechanics. Currently, the participative and bonus structures exist in very skeletal form, but without the direction of a mandate or attention to the level of management expertise required of a participative system. Data which would serve to sharpen situational reality are either unreliable or unavailable. Moreover, those in a position to share it either do not recognize or do not care to involve the resources of the larger organization. Piecemeal Company has met Beer's (1973) minimal effectiveness criterion--survival--and sales presently have kept the organization at close to full capacity. Yet one must question long-term effectiveness and health, particularly at what point the company's limited resources will be taxed beyond their means.

Systems Scanlon Plan Company ("Systems Company")

Like Piecemeal Company, Systems Company is a midwestern furniture manufacturer with a well-known reputation for quality among its

specialized market segment. Under the same family leadership for the last 50 years, the company credits much of its consistent sales and earnings growth to capitalization on a wide variety of resources. Early on, management recognized the important inputs to be made from the design and development community. That tradition continues to this day as evidenced by the heavy reliance on outside design consultants, an active product development group, and an independent research organization established several years ago to anticipate the long-term needs of the marketplace. Design is not the only competitive weapon in the company arsenal. A surprise price decrease in the face of competitors' recently announced increases was largely the result of innovative sales and finance teamwork in addition to a company-wide cost reduction program. Significantly, many of these cost reductions came directly from employee Scanlon suggestions.

Systems Company's primary manufacturing and headquarters facility is located in a small town some 300 miles from Piecemeal Company. Its 600+ employees work in highly attractive facilities which drew large numbers to a recent public open house. The company is well known in the community as a secure company and fair employer. Large employment application backlogs attest to the attractiveness of the company as a workplace. There has never been a serious unionization attempt, even when layoffs have been necessitated by recessionary periods.

The company maintains one of the longest running Scanlon Plans on record, dating back over 25 years. At that time, it was installed after an education program explaining the program's rationale, demands and mechanics. Up until last year, the company provided an orientation program for new employees to acquaint them with company history,

products, customers and the Scanlon Plan. Recently, a major investment was made to produce a film to supplement that program once it is resumed.

Recognizing the need to continually monitor the external environment, the company president some years ago committed to visit the five major accounts of Systems Company. He returned from these visits to sharpen the mandate for the company with a series of "quality seminars" in which he more clearly defined current customer needs. A similar reading of the environment resulted in the cost reduction program alluded to earlier; once defined, the cost reduction target mobilized the entire organization to participate. One off-site management conference resulted in 599 suggestions for product improvement on three products alone in a single two hour period! Across the organization, the cost benefits derived from Scanlon suggestions far exceeded goal. Much credit is due management in these efforts for positioning the need, or mandate, as a common target and then facilitating employee participation in meeting it.

The involvement and participation of large numbers of employees in meeting organizational objectives has been reinforced by the Scanlon Committee structure and suggestion system. For example, Scanlon Committee representatives are offered a formal training program which covers subjects like assisting employees with writing suggestions, the steps through which suggestions flow and the responsibility representatives have for monitoring suggestions and seeing that they receive attention from appropriate decision makers. Outstanding suggestions are highlighted each month to serve as models for other employees.

Only rarely do Scanlon suggestions fall into the grievance category. The number of suggestions has increased annually, reaching a level of over 500 last year.

Further testimonials to the Systems Company Scanlon Plan are the frequent visitations from other Scanlon and non-Scanlon companies who come to observe the Screening Committee each month. These visitors are consistently impressed with the level of sophistication they witness among committee members as management and employee representatives review performance indicators and trends in the areas of sales, production, productivity, service, absenteeism, quality, safety, etc. The bonus figure itself is used as another indicator which is used as a working tool to more accurately assess strengths and weaknesses. Each meeting is used as an opportunity to further educate the organization. Throughout the plant, these performance indicators are graphically depicted in numerous charts. Also posted are pictures of Scanlon representatives so every employee knows who to go to with a question or suggestion. Terms of these representatives are staggered to insure continuity of experience among representatives.

The effort that has gone into maintaining the identity and participation systems has reaped benefits for the company and its employees. On almost every criterion of effectiveness (e.g., sales, earnings, return on investment, etc.), the company exhibits a growth trend. Furthermore, Scanlon bonuses have been earned in every month spanning a period of over 3 1/2 years! Admittedly, the bonus during these periods has not always been high; the author remembers one month when a 1% bonus prompted consideration of postponing payment until the next

month. The Screening Committee vetoed the recommendation, noting that all employees should be reminded by the small bonus checks that their collective efforts were less than spectacular. The company used that datum to stimulate exploration of areas which needed improvement. (Two months later, the company earned a 19% bonus.)

Rounding out its systems orientation to the Scanlon Plan, Systems Company's management has invested substantially in the upgrading of managerial competence. Annually, the sales and manufacturing management groups conduct two to three day off-site conferences. Typically, these conferences have combined a restatement of the company's mandate with the development of programming to define and achieve operational objectives. Included in past conferences have been seminars on product quality, service performance, communication, personal development, cost improvement and leadership. To monitor the effectiveness of these sessions, a program has been initiated to keep a record of the number of suggestions and cost benefits derived directly from each conference. Thousands of dollars have already been credited to a conference staged just last spring.

The rationale behind our selections of Piecemeal Company and Systems Company should now be clear to the reader. Piecemeal Company, no doubt with good intentions, embarked upon the Scanlon Plan without careful attention to effectiveness, efficiency, and health criteria through integration of the identity, participation, equity and managerial competence conditions. Consequently, the program's mechanics, e.g., the bonus, have been a constant source of frustration and resentment in the absence of strong leadership and the recognition of

employees as resources. Conversely, Systems Company is never content with its current level of performance and challenges its employees to participate in making the business successful. Employees there have been educated to view bonus as the result of good performance, rather than as a guarantee of the Scanlon Plan.

Questionnaire Administration

A major issue in preparation for administration of the questionnaire was the desirability of integrating it with ongoing OD activity within the two organizations. It was felt that the project would provide more meaningful results if perceived to have mutual benefit to the companies themselves as well as to us researchers. Therefore, at each location we met first with top management to explain questionnaire content, but also to explore potential uses for the kinds of data the instrument could be expected to generate. We were careful not to promise too much, particularly in light of the untested validity of the SPP, yet in both organizations we found management able to identify a felt need which they thought the questionnaire could address. Piecemeal Company was in the process of organizing an in-house Scanlon Plan workshop and viewed the SPP as providing data to guide planning. Systems Company, on the other hand, hoped to launch a program of periodic assessment of their Scanlon Plan to supplement other performance data. Furthermore, both companies saw the opportunity through the SPP to establish base line data against which to monitor change over time.

With identification of need in place, we then assisted a key manager (Executive Vice President at Systems Company; President at Piecemeal Company) in drafting a letter to all employees in which he

announced the project. These letters varied somewhat to reflect the unique characteristics of the writers and companies, yet several basic points were common to both:

1. The need for periodic self-examination of the Scanlon Plan to insure that it continues to serve as a tool toward meeting organizational objectives.

2. An invitation to all employees to participate in the project on a voluntary basis by completing the questionnaire on their own time away from the job.

3. Emphasis on the confidentiality of results and assurance that no names would be required.

4. Mention of the resources of the university and their role in developing and analyzing the questionnaire.

5. A commitment to feed back the results when made available by the university.

6. Announcement of questionnaire distribution and collection dates.

Prior to release of the letter, management called a special session of the Screening Committee to explain its contents and to solicit representatives' cooperation in communicating and administering the survey. Specifically, representatives were asked to complete the questionnaire in advance (over a one night period), then to report back any difficulties or problems (e.g., with instructions) they anticipated. They were also requested to serve as distribution agents by holding fifteen minute meetings with their constituent groups to review the rationale, mechanics and commitment to feedback contained in the letter, which by the date of the meeting would be released.

On the prearranged date, questionnaires were delivered prior to employee meetings to each Screening Committee member for later distribution to people in his/her zone. Each questionnaire was inserted

along with a special scoring pencil in an envelope stamped "CONFIDENTIAL" and addressed to the university. At the zone meetings, representatives instructed employees to complete, seal and return the questionnaires within a prescribed time period.[9] Employees were given the option of returning it either to the representative or directly to university personnel. In either case, employees were promised that all envelopes would be unsealed at the university and that no individual responses would be revealed.

The questionnaire was administered first to the 619 employees at Systems Company, followed seven weeks later by distribution of 225 questionnaires to employees at Piecemeal Company. Provisions were made to allow for acceptance of late returns. Due to its close proximity to the university, late returns at Systems Company were picked up personally by the researcher when other business brought him to the area. Distance to Piecemeal Company is substantially greater, thus late returns there were forwarded by mail.

Data Analysis

Data Coding

The use of computerized sense sheets on which subjects recorded their responses offered several advantages: (1) machine scoring speeded the preparation of data for analysis; (2) human coding errors were virtually eliminated, and (3) printing costs were far less than the estimated labor required to code and keypunch data. Upon receipt

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[9]Systems Company employees were permitted one week; however, logistics required shortening the period to two days at Piecemeal Company.

of a questionnaire, it was scanned to determine if it had been completed according to instructions. Where necessary, responses were darkened to insure detection by the scoring machine; stray marks were erased. Any questionnaire which contained more than two (out of nine) blank pages was discarded as incomplete. Usable questionnaires were assigned a subject and company code, checked for correct page ordering and submitted to an automatic scanner. Usually by the next day, punched cards were available for computer analysis.

SPP Psychometric Analysis

Before SPP construct validity could be assessed in terms of the instrument's discriminating power (Hypothesis 1) or its relationships with other variables (e.g., Hypotheses 2 and 3), it was necessary to examine the scale structure itself. Certainly it was recognized that some scales would need revision, especially where specific items reduced reliability. In search of a strategy for assessing the a priori SPP scales, the author's preferences were clearly in the direction of cluster analysis (Tyron & Bailey, 1970), particularly given the limiting and often unrealistic orthogonality criterion of traditional factor analysis. Statistical independence, although mathematically elegant, did not seem a particularly relevant criterion for ordering employees' real-world perceptions of systems-oriented variables. This judgment was largely confirmed; the few factor analysis routines that were performed on the data yielded largely uninterpretable results, thus they were discontinued at the early stages of analysis.

Cluster analysis suggests three criteria which guided our decisions concerning scale quality and revisions:

1. Internal consistency--the degree of relationship among items within scales (reliability)

2. Content--the degree of conceptual homogeneity among items within scales

3. External validity--the degree to which items within scales demonstrate consistent patterns of relationships with other scales.

Given its relatively larger size, as well as its earlier availability as a research site, Systems Company served as the primary data base for assessing these psychometric characteristics of the SPP. Then, when Piecemeal Company data had been collected, they were used to test in a cross-validation sense the scale revisions made on the basis of Systems Company analyses.

The first step was to compute internal consistency reliabilities (Coefficient Alpha) for each of the a priori SPP scales. Then each scale's item intercorrelation matrix was examined to determine where removal or reassignment of certain items might increase reliability. This process was repeated through several iterations until reliabilities were considered sufficiently high (criterion 1) without sacrificing interpretation of content (criterion 2) or external validity (criterion 3). The reliabilities achieved from Systems Company were then checked against Piecemeal Company to assess how well internal consistency held up from one sample to the other.

As a next step, the scale intercorrelation matrices for both samples were generated. Using the reliability estimates computed in the earlier analysis all coefficients were corrected for attenuation. Of particular interest was whether scales within each of the four conditions tended to "cluster together" as predicted. Although statistical

independence had not been theorized, scale intercorrelations were expected to be relatively larger within conditions than between them. As will be discussed further in Chapter IV, statistical partialing of the matrices was required in order to get a truer picture of this scale structure. To test whether the underlying scale structures in the two samples were reasonably comparable, SPP scale scores were computed for all subjects and averaged to yield a set of mean scale scores, or profile, for each company. (See example in Figure 1.) Then the correlation between profiles was computed as a test of pattern similarity (Nunnally, 1967); the higher the correlation, the more similar the pattern of scale interrelationships was considered to be in the two samples.

Operationalization and Tests of Research Hypotheses

The theoretical research hypotheses outlines in Chapter II served to guide the selection of research variables and the subsequent decision to employ the two group experimental design. However, tests of these broad hypotheses are well beyond the scope of the present research. Furthermore, in their present form, they are not sufficiently operational to allow empirical test. Therefore, in the following discussion of the data analysis procedure, each hypothesis is operationally defined followed by the statistical procedure chosen to test it.

Hypothesis 1: Systems Company and Piecemeal Company will be differentiated by their Scanlon Plan Profiles.

Hypothesis 1A: Systems Company will demonstrate a significantly higher SPP than Piecemeal Company.

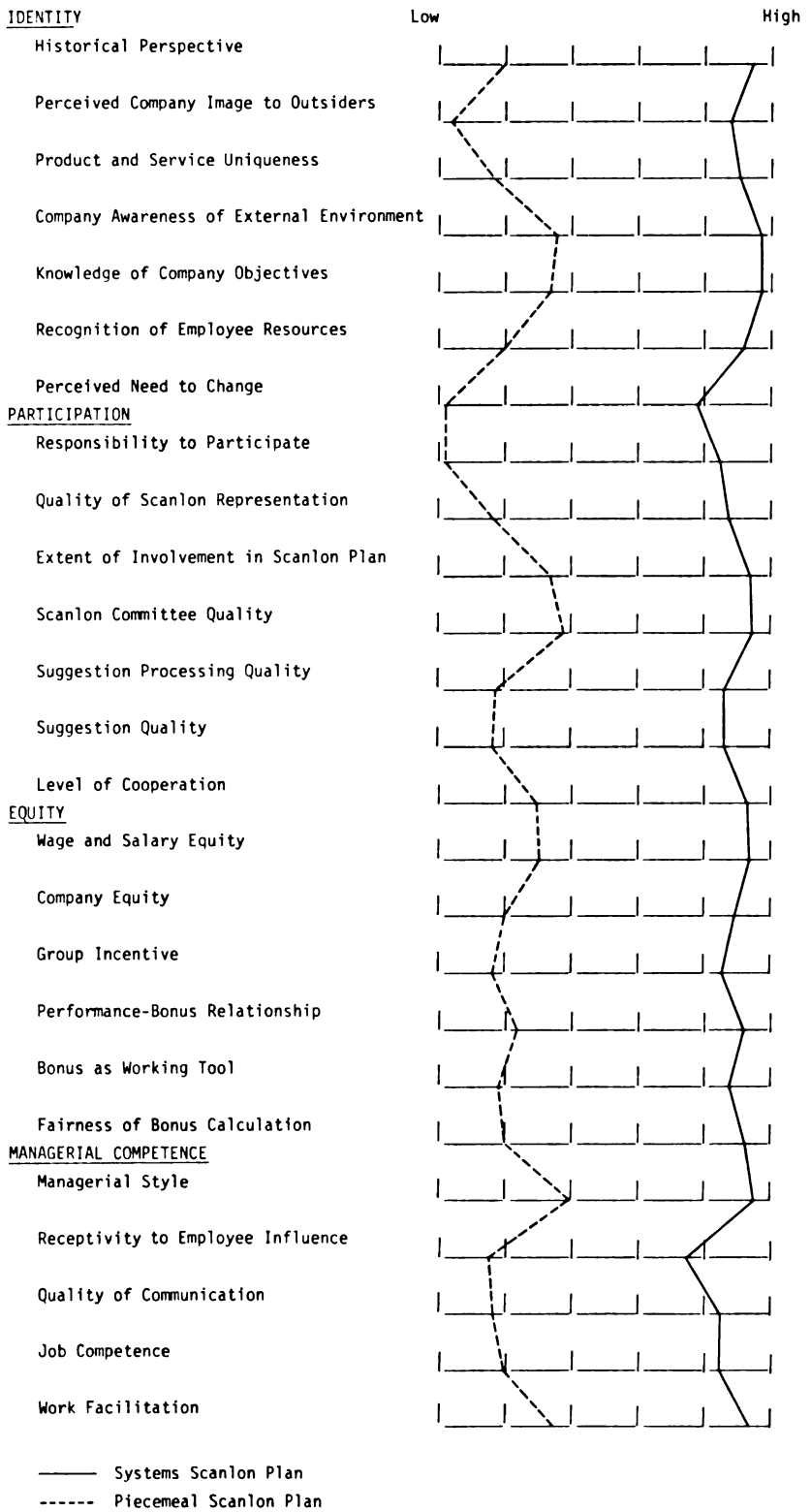

Figure 1. Sample Profiles for Systems and Piecemeal Scanlon Plans

Hypothesis 1B: Systems Company will be characterized by less variance among scale scores making up the SPP than Piecemeal Company.

Hypothesis 1 is essentially a test of SPP construct validity. What was sought was an instrument that would be sensitive to perceived differences on the dimensions comprising the Scanlon Plan conditions. These differences were hypothesized to be of two types: (1) differences in absolute level of scales defining the SPP (Hypothesis 1A), and (2) differences in perceived consistency, operationally defined as variance across profile scales, between the two companies (Hypothesis 1B).

Figure 1, referred to earlier, has been drawn to dramatically depict the differences hypothesized by the research. Each point represents the mean of all employees' scale scores within the company specified by the line connecting that point with other points. Hypothesis 1A predicts that Systems Company will display a significantly higher SPP profile level than Piecemeal Company. To test the hypothesis, a one-way multivariate analysis of variance (MANOVA) was performed with the companies defined as factor levels and the scale scores treated as multiple dependent variables. This method is superior to the one employed by both climate studies cited earlier (Payne & Pheysey, 1970; Pritchard & Karasick, 1973) in which repeated *t* tests were conducted on multiple scales. That procedure is statistically incorrect unless scales are independent, a condition which did not hold true in their studies and which was certainly not expected in this one. MANOVA has the desirable feature of treating dependent variables simultaneously;

the significance of multivariate F determines actual differences between levels when dependent variable intercorrelations are considered.

To facilitate interpretation of the MANOVA, two additional analyses were run. First, a step-wise discriminant function analysis (Nie et al., 1975, p. 434) was performed to determine which scales provided the greatest discrimination between companies. A step-wise criterion was selected to maximize the mean difference between companies on the discriminant function. Secondly, standard errors were computed for each scale (based on scale reliability and variance) to explore whether inter-company scale differences could be explained on the basis of measurement error alone.

Inspection of Figure 1 will also facilitate understanding of Hypothesis 1B. In Figure 1, the Systems Company SPP is essentially a straight line to reflect its simultaneous attention to all Scanlon Plan dimensions. Piecemeal Company, on the other hand, displays the variation in pattern which would be expected of a company that emphasizes certain dimensions at the expense of others. Statistically this difference in profile patterns can be tested by a simple homogeneity of variance comparison (Hays, 1963, p. 351) which uses the F distribution to assess significance. A one-tailed test was used in our analysis, given the directionality of the hypothesis.

Hypothesis 2: The SPP scales will be strongly related to measures of organizational effectiveness and health.

Hypothesis 2A: Systems Company will be significantly higher than Piecemeal Company on the six climate scales (Motivation to Achieve, Flexibility and Innovation,

Intelligence, Future Orientation, Readiness to Innovate, Open-Mindedness) chosen to measure perceived organizational effectiveness and health.

Hypothesis 2B (Exploratory hypothesis): SPP scales will be significantly positively related to the six perceived effectiveness and health scales.

Hypothesis 2A could be considered a manipulation check to determine whether the two "known groups" do in fact differ on at least some measures of organizational effectiveness and health. Since evidence from the previous studies in which the scales were developed suggested substantial intercorrelations among scales, the MANOVA technique was applied to test the significance of the difference between companies with all climate scales considered simultaneously.

Hypothesis 2B was considered to be exploratory in nature given the uncertainty of the composition of the final SPP instrument. This made the prediction of relationships between specific SPP scales and one or more of the climate scales impossible. However, it was felt given the emphasis of the climate scales on Scanlon-related foci, e.g., organization-environment interface and capacity to change, a number of significant relationships should be expected. Specifically, issues of IDENTITY (Motivation to Achieve, Intelligence, Future Orientation), PARTICIPATION (Flexibility and Innovation, Readiness to Innovate, Open-Mindedness) and MANAGERIAL COMPETENCE (all climate scales) are suggested by the item content of the six climate scales. Failure to find significant relationships of SPP scales with scales in these areas would necessitate serious questioning of SPP construct validity.

A correlational analysis on the pooled Piecemeal and Systems Company data was run on all retained SPP scales and the six climate scales. To assess true relationships, correlation coefficients were corrected for attenuation based on the reliabilities determined on our pooled sample. The decision to combine the two companies was made to increase variance and sample size on all variables. Furthermore, there was no obvious advantage to performing and/or comparing separate analyses.

Hypothesis 3: The SPP scales will be strongly related to measures of individual effectiveness and human resource strain.

Hypothesis 3A: Systems Company will be significantly higher in all types of job satisfaction (intrinsic, extrinsic, general) than Piecemeal Company.

Hypothesis 3B (Exploratory hypothesis): SPP scales will be significantly positively related to all types of job satisfaction (intrinsic, extrinsic, general).

Hypothesis 3C: Systems Company will be significantly lower in employee role ambiguity than Piecemeal Company.

Hypothesis 3D (Exploratory hypothesis): SPP scales will be significantly negatively related to role ambiguity.

As with Hypothesis 2A, Hypotheses 3A and 3C tell us more about the success with which we achieved discrimination in our choice of the two companies. For reasons argued in the literature review (Chapter II), Systems Scanlon Plan companies provide employees with greater opportunity for satisfying jobs while also counteracting those conditions which lead to role ambiguity. Piecemeal Scanlon Plan Companies, on the other hand, primarily through frustrating attempts for satisfaction and

clarity of the working environment, suffer from correspondingly lower levels of job satisfaction and high role ambiguity among employees. Separate one-way analyses of variance (ANOVA) were run to test the significance of the mean difference between companies on role ambiguity and for each type of job satisfaction.

Hypotheses 3B and 3D parallel Hypothesis 2B due to the absence of a priori knowledge concerning final SPP scale make-up, therefore it was necessary to consider these hypotheses exploratory as well. However, speculation was made concerning the relationships we might expect. For example, intrinsic satisfaction should be highly related to SPP scales concerning knowledge of objectives, identification of employees as resources, acceptance of responsibility to participate, and management receptivity to employee influence. Extrinsic satisfaction should strongly relate to equity (wages and salaries), working conditions (e.g., company image) and characteristics of supervision (e.g., management style). Role ambiguity, which is influenced by how well the employee knows what is expected of him and the feedback he receives, seems a particularly strong correlate of several of the IDENTITY (knowledge of objectives, perceived need to change), PARTICIPATION (responsibility to participate), EQUITY (performance-bonus relationship, bonus as a working tool), and MANAGERIAL COMPETENCE (quality of communication) dimensions. Correlational analysis, on pooled data and corrected for attenuation, was used to explore these relationships.

Hypothesis 4: On the whole, employees in Systems Company will perceive more "internal consistency" (less variance) among the SPP scales than employees in Piecemeal Company.

The reader should note carefully the distinction between this hypothesis and Hypothesis 1B. In the earlier hypothesis, our concern was with comparing the variances of company profiles. Hypothesis 4, on the other hand, directs attention to comparing the means of subject profile variances. The two are not the same. It is conceivable, for example, that employees could be highly variable in their perceptions of profile scales, i.e., the mean subject profile variance would be high, yet when summed together the subject profiles could yield a company profile with very little variance.[10] The purpose of Hypothesis 4, therefore, was to test the hypothesis that employees in Systems Company are characterized by individual profiles of significantly less variance than their counterparts at Piecemeal Company. Theoretically, this hypothesis is a more important and powerful test of the internal consistency notion than Hypothesis 1B given the mathematical distortion that can occur in the latter.

Individual profile variances were computed and summed within each company to yield the two profile variance means. A one-way ANOVA tested the significance of the difference between the two companies.

Hypothesis 5: Employee perceptions of "consistency" (SPP variance will be strongly related to individual effectiveness and human resource strain.

Hypothesis 5A: SPP variance computed at the individual level, will be significantly negatively related to job satisfaction.

Hypothesis 5B: SPP variance computed at the individual level, will be significantly positively related to role

ambiguity.

Hypotheses 5A and 5B required the computation of correlation coefficients between individual profile variances and four individual effectiveness variables: intrinsic satisfaction, extrinsic satisfaction, general satisfaction and role ambiguity. As in the other correlational analyses, all coefficients were computed on the pooled sample and corrected for attenuation.

Hypothesis 6: The difference in level between the SPP's of management and nonmanagement employees will be larger at Piecemeal Company than at Systems Company.

Employees were classified as management or nonmanagement on the basis of their self-reported status as "exempt" or "nonexempt" for payroll purposes. This created a 2 x 2 factorial MANOVA with company (Systems, Piecemeal) and pay status (exempt, nonexempt) as factors and the SPP scales as multiple dependent variables. The hypothesis predicts a company by pay status interaction such that the SPP difference between exempt and nonexempt groups will be significantly greater at Piecemeal Company than at Systems Company.

CHAPTER IV

RESULTS AND DISCUSSION

Return Rate

Of the 619 questionnaires distributed to employees at Systems Company, 374 (60%) were returned in usable form. This was in contrast to the higher (77%) return rate at Piecemeal Company, where 182 usable questionnaires were returned of the 237 handed out. Just why a difference of this magnitude would occur is unclear, but could perhaps be explained by the difference in size of the two companies. At Systems Company, the logistics and communications required to administer the questionnaire to over 600 people were more involved than at Piecemeal Company. Given the comparable size of the two companies' Screening Committees, each representative at Systems Company was responsible for explaining, promoting and collecting questionnaires from many more employees than representatives at Piecemeal Company. The results might also be explained by the difference in time lag between questionnaire distribution and collection. At Piecemeal Company, the project was conducted within a concentrated time frame; employees were requested to return the questionnaire two days after receiving it. Moreover, the researcher was on-site and visible throughout the period. Conversely, employees at Systems Company were granted an entire week to complete the task without the constant presence of the researcher, who appeared only on the distribution and collection dates.

Psychometric Analysis of SPP Scales

Reliability

Based on the Systems Company sample (N = 374), internal consistency reliabilities were computed on the twenty-five *a priori* SPP scales appearing in the Appendix. Inspection of these reliability coefficients, which can be found in Table 2, reveals that most of them reached acceptable levels; nineteen were at the .60 level or above, eleven were at or above .70. Nevertheless, some scales, particularly Company Equity (.22) and Group Incentive (.21) were disappointingly low due largely to some negative item intercorrelations in those scales. Others falling in the .40s and low .50s (Extent of Employee Involvement in Scanlon Plan and Suggestion Quality) were also considered unacceptable.

In an effort to improve these reliabilities, items with low or negative correlations with other items in a scale were removed and their intercorrelations with other scales checked to see if they could be reassigned. Where an item did in fact demonstrate strong relationships with other scales, its compatibility with the contents of those scales was considered. After several rearrangements of items, and corresponding reliability computations at each stage, the final result was an overall reduction from the original 128 items set to 108 items. In no case did an item dropped from one scale end up as part of another. Therefore, the effect was a net decrease in items for twelve of the twenty-five *a priori* scales.[11] One scale, Company Equity, was reduced to a single item. The new reliabilities (along with a revised label

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[11] In the Appendix, those items which were dropped by the reliability analysis have been bracketed.

Table 2

Reliabilities[a] of A Priori SPP Scales--Systems Company

Scale Label[b]	N of Items	Reliability (α)
Historical Perspective	5	.65
Perceived Company Image to Outsiders	5	.73
Product and Service Uniqueness	5	.67
Awareness of External Environment	5	.58
Knowledge of Company Objectives	5	.68
Recognition of Employees as Resources	5	.81
Perceived Need to Change	5	.60
Acceptance of Responsibility to Participate	5	.58
Quality of Scanlon Representation	5	.70
Extent of Involvement in Scanlon Plan	5	.52
Quality of Scanlon Committee Meetings	5	.66
Quality of Suggestion Processing System	9	.78
Suggestion Quality	5	.49
Level of Cooperation	5	.74
Wage and Salary Equity	5	.69
Company Equity	5	.22
Group Incentive	5	.21
Perceived Performance-Bonus Relationship	5	.72
Use of Bonus as a Working Tool	5	.62
Perceived Fairness and Understanding of Bonus Calculation	5	.80
Managerial Style	4	.74

Table 2 (cont'd.)

Scale Label[b]	N of Items	Reliability (∝)
Management Receptivity to Employee Influence	5	.74
Quality of Communication	5	.69
Managerial and Supervisory Job Competence	5	.76
Facilitation of Work by Management	5	.71

[a]Internal consistency reliability (Coefficient Alpha)

[b]See Appendix for complete listing of items

for the Group Incentive scale which was necessitated by the change in its item content) appear in Table 3. As shown there, reliabilities were improved for nine of the twelve scales in which items were dropped. These increases ranged from only .01 (Acceptance of Responsibility to Participate) to as much as .47 (Acceptance of Management/Office Participation in Bonus). Only three scales (Acceptance of Responsibility to Participate, Extent of Employee Involvement in Scanlon Plan, and Suggestion Quality) remained below the .60 level after the revisions. Despite some reservations concerning the qualities of these three scales, as well as the single-item Company Equity scale, the entire twenty-five revised scales were retained for further analyses. This decision was made given the exploratory nature of the study, as well as the availability of methodology to correct for unreliability in several of the analyses. Certainly, future researchers will want to improve the content and reliabilities of these scales by writing and testing new items.

Table 4 gives the SPP reliabilities (revised scales) for the Piecemeal Company sample. These coefficients can be compared with those in Table 3 as a test of scale durability across samples. This comparison reveals that of the twenty-five alphas, fourteen deviated by no more than $\pm$.05 from the Systems Company reliabilities, two increased by more than .05, and nine were more than .05 lower. Four more scales (Historical Perspective, Company Awareness of External Involvement, Perceived Need to Change, and Acceptance of Management/Office Participation of the Bonus) fell below the .60 alpha level, bringing to seven the number of suspect scales. However, the other eighteen

Table 3

Reliabilities[a] of Revised SPP Scales--Systems Company

Revised Scale Label	N of Items	Reliability (∝)
Historical Perspective	5	.65
Perceived Company Image to Outsiders	5	.73
Product and Service Uniqueness	5	.67
Company Awareness of External Environment	3	.61
Knowledge of Company Objectives	4	.71
Recognition of Employees as Resources	5	.81
Perceived Need to Change	5	.60
Acceptance of Responsibility to Participate	3	.59
Quality of Scanlon Representation	4	.70
Extent of Involvement in Scanlon Plan	4	.52
Quality of Scanlon Committee Meetings	4	.73
Quality of Suggestion Processing System	9	.78
Suggestion Quality	3	.56
Level of Cooperation	5	.74
Wage and Salary Equity	5	.69
Company Equity	1	1.0
Acceptance of Management/Office Participation in Bonus[b]	2	.68
Perceived Performance-Bonus Relationship	5	.72
Use of Bonus as a Working Tool	5	.62
Perceived Fairness and Understanding of Bonus Calculation	4	.80

Table 3 (cont'd.)

Revised Scale Label	N of Items	Reliability (∝)
Managerial Style	3	.78
Management Receptivity to Employee Influence	5	.74
Quality of Communication	4	.78
Managerial and Supervisory Job Competence	5	.76
Facilitation of Work by Management	5	.71

[a]Internal consistency reliability (Coefficient Alpha)

[b]Revised scale label

Table 4

Reliabilities[a] of Revised SPP Scales--Piecemeal Company

Revised Scale Label	N of Items	Reliability (α)
Historical Perspective	5	.57
Perceived Company Image to Outsiders	5	.67
Product and Service Uniqueness	5	.63
Company Awareness of External Environment	3	.57
Knowledge of Company Objectives	4	.60
Recognition of Employees as Resources	5	.80
Perceived Need to Change	5	.52
Acceptance of Responsibility to Participate	3	.54
Quality of Scanlon Representation	4	.62
Extent of Involvement in Scanlon Plan	4	.40
Quality of Scanlon Committee Meetings	4	.74
Quality of Suggestion Processing System	9	.76
Suggestion Quality	3	.50
Level of Cooperation	5	.75
Wage and Salary Equity	5	.75
Company Equity	1	1.0
Acceptance of Management/Office Participation in Bonus	2	.53
Perceived Performance-Bonus Relationship	5	.68
Use of Bonus as a Working Tool	5	.74
Perceived Fairness and Understanding of Bonus Calculation	4	.76

Table 4 (cont'd.)

Revised Scale Label	N of Items	Reliability (∝)
Managerial Style	3	.72
Management Receptivity to Employee Influence	5	.74
Quality of Communication	4	.78
Managerial and Supervisory Job Competence	5	.66
Facilitation of Work by Management	5	.69

[a]Internal consistency reliability (Coefficient Alpha).

remained at high or moderately high levels. Some drop in reliability had been expected since our choice of scale content had relied exclusively on Systems Company inter-item correlations. In doing so, we to some extent capitalized on measurement error in that sample to inflate reliabilities. This is a common problem in scale construction; unfortunately too many studies fail to cross-validate. For example, had our scale composition been determined on the basis of the combined Systems Company-Piecemeal Company sample, our reported reliabilities would no doubt be higher. Yet there would be no way to test the freedom from measurement error in our decision. Given the Systems-Piecemeal comparison, however, future researchers are now better equipped to revise those scales which require the most improvement.

Scale Intercorrelations

In Table 5 the matrix of scale intercorrelations for the Systems Company sample is presented. All coefficients have been corrected for attenuation using the reliability estimates which are placed in the diagonal. Furthermore, scales have been grouped according to the now familiar four condition model. Probably the most obvious characteristic of the matrix is the generally high level of intercorrelation overall. Not only do strong relationships exist between scales within conditions, but common variance is seemingly shared by all scales. This should not be surprising, particularly given Likert's (1967) consistent findings of high positive intercorrelations among the components which he uses to define an organization's management system. It will be remembered that he posited the concept of "systems integrity" to explain the natural tendency of an organization to maintain

Table 5

SPP Scale Intercorrelation Matrix[a] -- Systems Company (N = 374)

	IDENTITY							PARTICIPATION							EQUITY						MANAGERIAL COMPETENCE				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
(1) Historical Perspective	(.65)																								
(2) Perceived Company Image to Outsiders	.57	(.73)																							
(3) Product & Service Uniqueness	.73	.63	(.67)																						
(4) Company Awareness of External Environment	.61	.77	.49	(.61)																					
(5) Knowledge of Company Objectives	.68	.57	.50	.73	(.71)																				
(6) Recognition of Employees as Resources	.77	.60	.63	.61	.70	(.81)																			
(7) Perceived Need to Change	.65	.71	.61	.82	.65	.79	(.60)																		
(8) Acceptance of Responsibility to Participate	.56	.46	.46	.60	.68	.79	.73	(.59)																	
(9) Quality of Scanlon Representation	.65	.51	.59	.62	.69	.74	.70	.78	(.70)																
(10) Extent of Involvement in Scanlon Plan	.52	.52	.40	.69	.71	.73	.72	.85	.84	(.52)															
(11) Quality of Scanlon Committee Meetings	.68	.60	.62	.61	.70	.80	.72	.79	.94	.75	(.73)														
(12) Quality of Suggestion Processing System	.66	.72	.58	.65	.70	.77	.74	.75	.65	.82	.75	(.78)													
(13) Suggestion Quality	.68	.60	.53	.71	.71	.60	.75	.63	.64	.71	.56	.73	(.56)												
(14) Level of Cooperation	.73	.62	.64	.58	.71	.92	.79	.86	.73	.70	.78	.73	.70	(.74)											
(15) Wage and Salary Equity	.63	.58	.58	.48	.63	.84	.64	.77	.68	.62	.79	.75	.63	.81	(.69)										
(16) Company Equity	.51	.54	.42	.51	.54	.62	.49	.47	.51	.45	.65	.56	.46	.55	.62	(1.0)									
(17) Acceptance of Mgt/Office Participation in Bonus	.36	.29	.37	.18	.47	.54	.35	.55	.52	.54	.60	.60	.38	.59	.65	.41	(.68)								
(18) Perceived Performance-Bonus Relationship	.59	.57	.57	.66	.78	.75	.74	.86	.76	.82	.82	.70	.64	.78	.74	.52	.49	(.72)							
(19) Bonus as a Working Tool	.63	.47	.48	.62	.68	.59	.59	.74	.72	.58	.81	.49	.56	.62	.64	.59	.43	.81	(.62)						
(20) Perceived Fairness & Understanding of Bonus Calc.	.66	.40	.52	.43	.67	.70	.57	.72	.68	.63	.73	.69	.52	.73	.68	.44	.67	.75	.63	(.80)					
(21) Managerial Style	.64	.59	.57	.45	.65	.83	.59	.64	.60	.59	.69	.74	.60	.81	.88	.55	.57	.64	.41	.68	(.78)				
(22) Management Receptivity to Influence	.76	.59	.63	.54	.71	.90	.71	.83	.76	.70	.84	.76	.52	.85	.87	.62	.57	.77	.65	.74	.81	(.74)			
(23) Quality of Communication	.70	.68	.64	.67	.75	.91	.75	.74	.73	.79	.79	.87	.66	.90	.84	.59	.55	.74	.55	.71	.87	.89	(.78)		
(24) Managerial & Supervisory Job Competence	.73	.63	.70	.57	.73	.93	.68	.80	.75	.74	.84	.82	.67	.96	.90	.62	.66	.77	.64	.72	.86	.89	1.0	(.76)	
(25) Management Work Facilitation	.79	.80	.73	.69	.77	.93	.79	.74	.70	.75	.79	.92	.73	.93	.87	.60	.62	.78	.54	.77	.93	.88	1.0	1.0	(.71)

[a]Corrected for attenuation (reliability estimates in diagonal); N ≥ 365 for each coefficient.

equilibrium. The results also seem to confirm the notion of organizational climate as a global "halo" effect (Beer, 1971) that influences employees to observe multiple cues of the working environment in internally consistent ways. Operationally, Beer has suggested that organizational climate may be best defined as the "general factor" accounting for the common variance among climate perceptions. To assess this "general factor" in the Systems Company data, as well as to learn more about the unique contributions of the individual SPP scales, a computerized statistical partialing procedure was performed on the matrix. Specifically, the general factor was defined as the sum of all scales and then treated as a moderator variable to partial it from the matrix. When this is done, the resulting residual correlation matrix includes whatever variance is left when the influence of the overall "halo" is removed. This matrix for the Systems Company sample appears in Table 6.

The reader should note several things about Table 6 which differentiates it from Table 5. First, the internal consistency reliabilities (in the diagonal) that are used for attenuation corrections are lower due to the inter-item covariance that has been removed by the general factor. Nevertheless, these alphas are sufficiently high to conclude the presence of some unique variance common to items within scales. Secondly, two scales have been reassigned to the MANAGERIAL COMPETENCE condition based on their patterns of correlations. The first of these, Recognition of Employees as Resources, did not hold up well with the other IDENTITY scales, yet correlated strongly with all MANAGERIAL COMPETENCE conditions. Likewise, the Level of Cooperation

Table 6

Reordered and Partialed SPP Scale Intercorrelation Matrix[a]--Systems Company (N = 374)

	IDENTITY						PARTICIPATION						EQUITY						MANAGERIAL COMPETENCE						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
(1) Historical Perspective	(.40)																								
(2) Perceived Company Image to Outsiders	-.03	(.57)																							
(3) Product & Service Uniqueness	.36	.25	(.51)																						
(4) Company Awareness of External Environment	.06	.51	-.04	(.42)																					
(5) Knowledge of Company Objectives	.05	-.05	-.21	.32	(.45)																				
(6) Perceived Need to Change	-.05	.28	.05	.54	-.10	(.31)																			
(7) Acceptance of Responsibility to Participate	-.43	-.43	-.41	-.07	-.08	.05	(.27)																		
(8) Quality of Scanlon Representation	-.06	-.24	-.01	.03	.01	.01	.19	(.41)																	
(9) Extent of Involvement in Scanlon Plan	-.41	-.19	-.44	.23	.10	.11	.46	.46	(.26)																
(10) Quality of Scanlon Committee Meetings	-.20	-.16	-.07	-.15	-.15	-.13	.06	.75	.01	(.34)															
(11) Quality of Suggestion Processing System	-.15	.23	-.12	.03	-.07	.03	.00	-.33	.32	-.19	(.45)														
(12) Suggestion Quality	.19	.12	-.01	.36	.22	.31	-.05	.03	.21	-.40	.20	(.35)													
(13) Wage and Salary Equity	-.25	-.15	-.13	-.44	-.29	-.34	.05	-.19	-.35	-.01	-.06	-.13	(.37)												
(14) Company Equity	.00	.15	-.07	.09	.05	-.10	-.20	-.05	-.17	.21	.00	-.04	.17	(1.0)											
(15) Acceptance of Mgt/Office Participation in Bonus	-.28	-.28	-.13	-.49	-.08	-.35	.04	.00	.05	.12	.15	-.17	.27	.02	(.57)										
(16) Perceived Performance-Bonus Relationship	-.35	-.14	-.14	.09	.24	.06	.41	.09	.33	.14	-.26	-.07	.09	-.09	-.12	(.38)									
(17) Bonus as a Working Tool	.10	-.13	-.09	.17	.20	-.06	.30	.28	-.07	.47	-.46	.01	.00	.22	-.04	.50	(.43)								
(18) Perceived Fairness & Understanding of Bonus Calc.	.04	-.42	-.10	-.37	.03	-.28	.11	.00	-.10	.05	-.03	-.21	-.02	-.13	.37	.19	.13	(.60)							
(19) Managerial Style	-.09	-.02	-.05	-.40	-.08	-.30	-.29	-.32	-.30	-.24	.03	-.08	.57	.03	.13	.37	.19	.13	(.53)						
(20) Recognition of Employees as Resources	.12	-.20	-.05	-.20	-.23	.11	-.03	-.14	-.11	-.18	-.19	-.35	.22	.11	-.10	-.27	-.29	-.10	.31	(.40)					
(21) Management Receptivity to Influence	.10	-.23	-.06	-.43	-.12	-.19	.22	-.01	-.19	.13	-.19	-.60	.34	.11	.06	-.07	-.07	.07	.21	.34	(.32)				
(22) Quality of Communication	-.23	.03	-.10	-.08	-.06	-.14	-.33	-.31	.08	-.36	.27	-.21	.14	-.05	-.09	-.44	-.56	-.16	.48	.32	.23	(.30)			
(23) Managerial & Supervisory Job Competence	-.18	-.24	-.07	-.53	-.24	-.56	-.10	-.30	-.20	-.07	-.08	-.21	.41	-.06	.27	-.34	-.25	-.15	.33	.41	.15	.97	(.24)		
(24) Management Work Facilitation	.04	.47	.20	-.15	-.20	-.18	-.66	-.74	-.32	-.66	.47	-.06	.14	-.09	.13	-.45	-.92	-.02	.81	.30	-.02	.94	.84	(.11)	
(25) Cooperation & Integration	-.04	-.16	-.05	-.32	-.19	.10	.29	-.21	-.23	-.26	-.42	.03	-.02	-.13	.06	-.11	-.20	-.01	.18	.44	.06	.26	.54	.32	(.30)

[a]Corrected for attenuation (reliability estimates in diagonal); N ≥ 365 for each coefficient.

scale was moved from the PARTICIPATION condition to MANAGERIAL COMPETENCE due to the much stronger correlational relationships with the latter. Neither of these reassignments seriously threatens the conceptualization of the four condition model. The identification and recognition of employees as resources is clearly a management function. That was the message of the Theory X-Theory Y corollary which reminds managers that employee behavior is a consequence, rather than a cause, of how they are treated. In almost everything management does, it communicates its assumptions and expectations about the resourcefulness of employees. As for the Level of Cooperation scale (renamed Level of Cooperation and Coordination), one interpretation is that employees perceive management as responsible for integration and coordination of company operations. Inter-departmental conflict and lack of teamwork are therefore viewed as symptomatic of management weakness, perhaps beyond the control of the average employee.

The final observation we can make about the residual matrix is the contrast between interscale correlations within and between conditions. The partialing procedure resulted in large numbers of negative correlations, many of them near zero. However, inter-scale correlations within conditions are generally positive and some are quite large. The MANAGERIAL COMPETENCE condition holds together very well as a group of scales. Despite a few negative correlations, the other three conditions cluster reasonably well to suggest unique conceptual homogeneity in the absence of the general factor. That the conditions are not independent, even at the residual level, is evidenced by some strong relationships between scales in different clusters. For example, Wage

and Salary Equity covaries with perceptions of Managerial Style and Managerial and Supervisory Job Competence. Not surprisingly, Acceptance of the Responsibility to Participate is a strong correlate of the Perceived Performance-Bonus Relationship. Similarly, the Quality of Scanlon Committee Meetings is related to the Use of Bonus as a Working Tool. These and other inter-scale relationships supported the basic conceptual framework argued in Chapter II and offered preliminary support for SPP construct validity. This is not to say that the matrix offers conclusive evidence of our constructs and their expected relationships. On the contrary, the existence of three relatively sizeable negative correlations in the PARTICIPATION cluster is disturbing. Furthermore, interpretations of any negative correlations are difficult in a residual matrix where we can not be absolutely sure of the composition of the remaining variance.[12] Nevertheless, taken as an overall pattern of relationships, we do tend to discover the expected clusterings.

As in the reliability analysis, we repeated the correlational analysis on Piecemeal Company data with very comparable results. An overall high level of intercorrelation among scales resulted in the same partialing procedure that had been performed on the Systems Company sample. Table 7 presents the residual matrix, once again broken down by condition and corrected for attenuation. As can be seen there, large numbers of negative correlations appear in the residual matrix as a whole, yet relatively few of these fall within the four conditions'

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[12]In fact, the negative correlations are probably spurious and uninterpretable (Hunter, personal communication).

Table 7

Reordered and Partialed SPP Scale Intercorrelation Matrix[a]--Piecemeal Company (N = 182)

	IDENTITY						PARTICIPATION						EQUITY						MANAGERIAL COMPETENCE						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
(1) Historical Perspective	(.28)																								
(2) Perceived Company Image to Outsiders	-.11	(.41)																							
(3) Product & Service Uniqueness	.25	.56	(.55)																						
(4) Company Awareness of External Environment	.27	.65	.14	(.27)																					
(5) Knowledge of Company Objectives	.40	-.17	.02	.38	(.32)																				
(6) Perceived Need to Change	.43	.16	.19	.32	.25	(.31)																			
(7) Acceptance of Responsibility to Participate	.28	.18	-.08	-.09	.17	.73	(.39)																		
(8) Quality of Scanlon Representation	-.24	-.01	-.01	-.16	.28	-.15	.79	(.38)																	
(9) Extent of Involvement in Scanlon Plan	.19	.34	.01	.27	.55	.14	.65	.34	(.12)																
(10) Quality of Scanlon Committee Meetings	-.13	-.42	.01	-.63	-.30	.03	.09	.45	-.08	(.35)															
(11) Quality of Suggestion Processing System	-.41	-.18	.00	-.03	-.13	-.37	-.82	-.41	.01	.40	(.29)														
(12) Suggestion Quality	.19	-.38	.09	-.16	.20	.10	.07	.52	.49	.12	.14	(.33)													
(13) Wage & Salary Equity	-.23	.07	-.10	.12	-.04	-.06	-.15	-.16	-.57	-.46	-.06	-.58	(.50)												
(14) Company Equity	-.09	-.04	-.02	-.26	-.02	.13	-.32	-.15	-.22	.17	.25	-.23	.10	(1.0)											
(15) Acceptance of Mgt/Office Participation in Bonus	-.17	-.67	-.25	-.77	-.15	-.27	.00	.15	.00	.26	.65	.02	-.04	.13	(.49)										
(16) Perceived Performance-Bonus Relationship	-.12	.07	-.45	.07	.25	.08	-.03	-.12	.15	.18	-.29	.32	.02	.17	-.21	(.41)									
(17) Bonus as a Working Tool	.10	-.08	-.03	.01	-.46	.17	.03	-.18	-.31	.79	.14	-.33	-.34	.13	-.08	.27	(.56)								
(18) Perceived Fairness & Understanding of Bonus Calc.	-.25	-.29	-.38	-.51	-.08	-.12	-.06	-.14	.21	.28	.28	.17	.00	.17	.42	.24	.08	(.55)							
(19) Managerial Style	-.07	-.15	-.07	-.30	-.44	-.86	-.44	.02	-.36	-.23	.30	.09	.35	.02	.29	-.21	-.29	-.09	(.43)						
(20) Recognition of Employees as Resources	-.08	.00	-.20	-.21	.08	-.12	-.11	.33	-.30	-.41	-.72	-.27	.40	.09	-.30	.07	-.09	-.40	.18	(.38)					
(21) Management Receptivity to Influence	-.39	-.10	-.05	-.13	-.58	-.24	-.05	-.12	-.38	.29	.34	-.33	.07	.04	.22	-.19	.24	-.09	.06	.58	(.41)				
(22) Quality of Communication	-.04	.13	.04	.34	-.61	-.26	-.50	-.48	-.17	-.30	.23	-.26	-.06	-.05	-.16	-.34	-.05	-.23	.21	.00	.32	(.38)			
(23) Managerial & Supervisory Job Competence	-.34	.15	-.09	.37	-.29	-.58	-.55	-.11	-.73	.05	-.17	-.31	.24	-.23	.04	-.26	-.09	-.06	.40	.30	-.15	.81	(.28)		
(24) Management Work Facilitation	.09	-.16	-.34	.17	-.12	-.06	.05	-.30	.14	-.46	-.01	.10	.22	-.10	.00	-.16	-.22	-.12	.79	-.13	-.57	.37	.43	(.20)	
(25) Cooperation & Integration	-.12	-.07	-.27	-.07	-.07	-.03	-.25	-.27	-.15	-.55	-.34	.14	.18	-.17	-.05	.02	-.34	-.14	.22	.29	-.13	.50	.68	.55	(.44)

[a]Corrected for attenuation (reliability estimates in diagonal); N ≥ 175 for each coefficient.

clusters. In fact, there are many strong positive inter-scale relationships within conditions. Again, however, the negative correlations in the PARTICIPATION cluster were puzzling. Nonetheless, on the whole, the pattern of relationships was very similar to Systems Company. Note, for example, how the decisions to move the Recognition of Employees as Resources and Level of Cooperation and Coordination Scales were confirmed.

Despite the fact that the two residual matrices appeared comparable, there was the interesting question of just what had been removed in the partialing procedure. That is, the decrease in correlation from the original to the residual matrices indicates that a rather substantial portion of variance is lost with removal of the general factor. To further understand its composition, the part-whole correlations between each of the 108 items and the factor (sum of all items) were scanned. Items with high ($\geq .70$) part-whole correlations were selected as the most representative content to define the factor. Table 8 shows the number of items which reached that criterion by Scanlon Plan condition and company. The results are unequivocal; in both companies, two-thirds of the items with high loadings on the general factor came from MANAGERIAL COMPETENCE scales. Thus, it would appear that employees perceptions of management's competence, at least as defined by the SPP MANAGERIAL COMPETENCE condition, act as an overriding "halo effect" on their perceptions of the Scanlon Plan conditions in general. Furthermore, this held true for both companies, reinforcing perhaps the saliency of the competence issue regardless of a company's position on the piecemeal-systems continuum. This phenomenon is graphically

Table 8

Breakdown of SPP Items With High Loadings[a] on Each Company's General Factor

	SPP N of items	N of Items with High Loadings	
		Systems Co.	Piecemeal Co.
Identity	27 (25%)	1 (4%)	2 (7%)
Participation	27 (25%)	2 (8%)	2 (7%)
Equity	22 (21%)	6 (23%)	6 (20%)
Managerial Competence	32 (30%)	18 (67%)	20 (67%)
Totals	108 (100%)	27 (100%)	30 (100%)

[a]High loadings defined as any part-whole correlation ≥ .70.

depicted in Figure 2, where company profiles have been drawn. It will be immediately observed there that although the profiles differ in level (the significance of which is tested in Hypothesis 1), the shapes of the two lines are nearly identical (Pearson r = .86, $p < .001$). Note further the relatively large differences on MANAGERIAL COMPETENCE dimensions which, as the "halo," may have contributed to the observed differences on other dimensions.

Depending on one's stance either as a theoretician or methodologist, the results of these preliminary analyses may lead to quite different conclusions. From the point of view of systems theory, especially as espoused by Likert, Beer and those of us who consider the Scanlon Plan as systems OD, the high intercorrelations among scales and conditions seem to confirm the need to study and change organizations from a systems perspective. Employees in our two samples tended to order their perceptions of the working environment in a very internally consistent manner. Attempts to isolate the primary determinants of these perceptions further suggest the dominance of managerial competence as a major influence. In fact, the question remains whether one's perceptions of Managerial Style, Recognition of Employees as Resources, Managerial and Supervisory Job Competence, Level of Cooperation and Coordination, and Facilitation of Work by Management are the only dimensions which determine the level of the SPP. If so, there is compelling evidence to validate Frost's assertion that the responsibility for success of the Scanlon Plan lies in management's assumptions, attitudes and job competencies.

From a purely methodological standpoint, the results could be

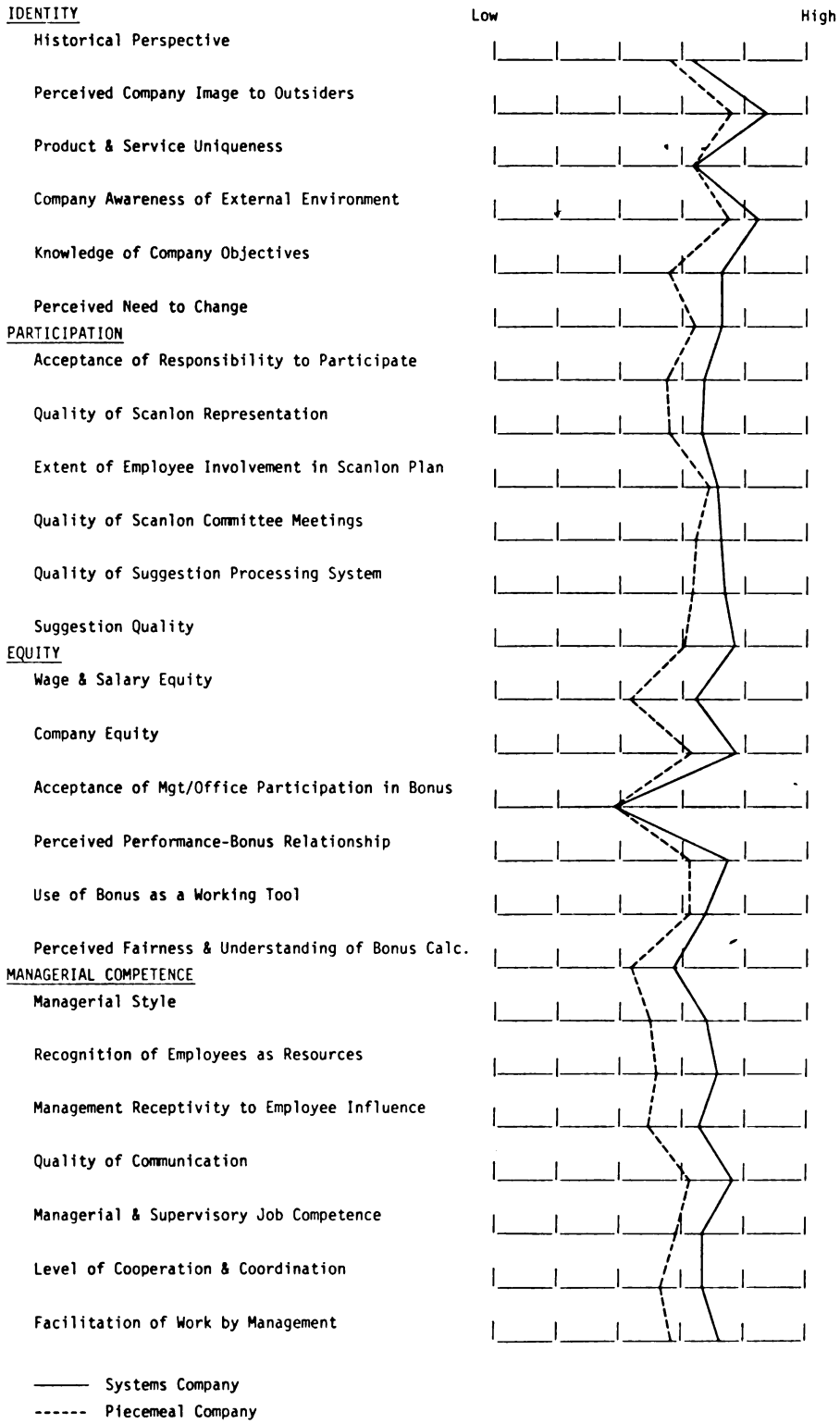

Figure 2. Systems Company (N = 374) - Piecemeal Company (N = 182) SPP Comparison[a]

[a]Each point is the mean scale score of all employees for the specified company plotted on a six-point scale to reflect the SPP Questionnaire response format (negative items reverse scored).

interpreted to mean that the SPP Questionnaire, rather than measuring several internally consistent Scanlon Plan dimensions, does in face tap only a single construct. In advancing this interpretation, the reader is reminded of the organizational climate literature controversy concerning the relationships of climate concepts to job satisfaction. Numerous theories and some empirical data exist to suggest a conceptual distinction (see Chapter II), yet most climate studies to date leave the dispute unsettled. Similarly, the SPP data have been shown to possess a high degree of unidimensionality. The patterns of correlations in the residual matrices, however, do reveal some unique and "explainable" variance within the four conditions and their respective scales. Whether this residual variance is sufficient to account for differences along the theoretical piecemeal-systems continuum remained to be tested. In light of this issue, therefore, an additional analysis was added to Hypothesis 1. Specifically, a second MANOVA was planned treating the seven MANAGERIAL COMPETENCE scales as covariates. Statistically, this procedure was designed to test the discriminating power of the SPP on the remaining eighteen scales with the variance they share with MANAGERIAL COMPETENCE removed.

Hypothesis 1

Hypothesis 1, as another test of construct validity, was concerned with the discriminating ability of the SPP. Hypothesis 1A specifically predicted a higher SPP level at Systems Company than at Piecemeal Company. Table 9 lists the means and variances for each SPP scale broken down by company. Two clear intercompany differences emerge from these data: (1) the means are consistently higher at Systems Company,

Table 9

Means and Variances of SPP Scales by Company

SPP Scale	Systems Company		Piecemeal Company	
	Mean[a]	Variance	Mean[a]	Variance
Historical Perspective	4.18	.7695	3.76	.8552
Perceived Company Image to Outsiders	5.43	.3762	4.84	.5718
Product & Service Uniqueness	4.06	.8957	4.05	.9257
Company Awareness of External Environment	5.25	.4559	4.84	.6886
Knowledge of Company Objectives	4.64	.8076	3.87	1.1257
Perceived Need to Change	4.80	.4646	4.24	.6631
Acceptance of Responsibility to Participate	4.14	.8077	3.91	.9734
Quality of Scanlon Representation	4.15	.7896	3.89	1.0551
Extent of Involvement in Scanlon Plan	4.53	.6900	4.40	.6866
Quality of Scanlon Committee Meetings	4.47	.9060	4.23	1.2626
Quality of Suggestion Processing System	4.64	.5450	4.15	.7604
Suggestion Quality	4.67	.6437	4.01	.9642
Wage & Salary Equity	4.10	.8166	3.12	1.4441
Company Equity	4.94	1.1977	4.05	1.8088
Acceptance of Mgt/Office Participation in Bonus	2.95	1.7822	2.87	1.7230
Perceived Performance-Bonus Relationship	4.72	.7545	4.22	.9896
Use of Bonus as a Working Tool	4.24	.6819	4.16	1.0996

Table 9 (cont'd.)

SPP Scale	Systems Company		Piecemeal Company	
	Mean[a]	Variance	Mean[a]	Variance
Perceived Fairness & Understanding of Bonus Calc.	3.90	1.2837	3.14	1.4288
Managerial Style	4.39	1.4289	3.48	1.7706
Recognition of Employees as Resources	4.44	.9057	3.61	1.3786
Management Receptivity to Employee Influence	4.16	.9224	3.50	1.3357
Quality of Communication	4.69	.9318	4.09	1.3928
Managerial & Supervisory Job Competence	4.28	.8801	3.96	.9479
Facilitation of Work by Management	4.56	.7595	3.80	1.0541
Level of Cooperation & Coordination	4.27	.8049	3.66	1.2471

[a]Based on six-point format with negatively worded items reverse scored.

and (2) the variances are consistently higher at Piecemeal Company. Statistically, the univariate and multivariate tests of mean differences reached high levels of significance, as reported in Table 10. Furthermore, MANAGERIAL COMPETENCE did not appear to moderate intercompany differences on other scales; as Table 11 shows, the treatment of MANAGERIAL COMPETENCE scales as covariates did not eliminate the discriminatory power of the remaining SPP scales, either in a univariate or multivariate sense. The contribution of these other scales is further reinforced by the results of a discriminant function analysis in Table 12. There each scale is ordered according to its entry in the step-wise analysis. As an entry criterion, Rao's V (Nie et al., 1975, p. 448) was chosen because it chooses variables according to their ability to maximize the mean differences between groups (in this case companies). The significance tests in Table 11 assess the extent to which the addition of a given scale increases the intercompany mean difference given the partialed out variance it shares with other previously chosen scales. Note in Table 12 how the first four scales chosen came from the EQUITY, IDENTITY, MANAGERIAL COMPETENCE and PARTICIPATION clusters respectively. Moreover, not until the sixteenth scale was chosen (Acceptance of Responsibility to Participate) did the increase in discriminant function mean difference between companies fail to reach significance at the .05 level or better. Further examination of these sixteen scales reveals a very even distribution among the four Scanlon Plan conditions: IDENTITY (4), PARTICIPATION (3), EQUITY (4), MANAGERIAL COMPETENCE (5).

As a final check of SPP differences, the standard error of

Table 10

Univariate and Multivariate ANOVA to Test Intercompany SPP Differences

SPP Scale	Mean Square	Univariate[a] F	Significance (p less than)
Historical Perspective	19.2232	24.8271	.0001
Perceived Company Image to Outsiders	39.3300	90.5148	.0001
Product & Service Uniqueness	.0720	.0806	.7766
Company Awareness of External Environment	19.8039	36.8582	.0001
Knowledge of Company Objectives	62.7342	70.4905	.0001
Perceived Need to Change	33.5111	64.0499	.0001
Acceptance of Responsibility to Participate	5.4699	6.3890	.0118
Quality of Scanlon Representation	7.1276	8.1832	.0044
Extent of Involvement in Scanlon Plan	1.7631	2.5303	.1123
Quality of Scanlon Committee Meetings	3.2805	3.3421	.0681
Quality of Suggestion Processing System	21.6199	36.5824	.0001
Suggestion Quality	45.3760	61.3367	.0001
Wage & Salary Equity	95.7434	98.7032	.0001
Company Equity	80.4933	59.0693	.0001
Acceptance of Mgt/Office Participation in Bonus	.0340	.0196	.8888
Perceived Performance-Bonus Relationship	24.9918	30.1122	.0001
Use of Bonus as a Working Tool	.3970	.4901	.4842
Perceived Fairness & Understanding of Bonus Calc.	57.8021	43.9903	.0001

Table 10 (cont'd.)

SPP Scale	Mean Square	Univariate[a] F	Significance (p less than)
Managerial Style	81.4124	56.7243	.0001
Recognition of Employees as Resources	66.3601	64.8647	.0001
Management Receptivity to Employee Influence	38.7440	38.9936	.0001
Quality of Communication	31.8361	30.3456	.0001
Managerial & Supervisory Job Competence	6.9938	8.0771	.0047
Facilitation of Work by Management	55.3836	69.2400	.0001
Level of Cooperation & Coordination	40.5315	43.7782	.0001

F - Ratio[b] for Multivariate Test of Equality of Mean Vectors = 13.6352 ($p < .0001$)

[a]Degrees of freedom = 1,540

[b]Degrees of freedom = 25,516

Table 11

Univariate and Multivariate ANCOVA to Test Intercompany SPP Differences with MANAGERIAL COMPETENCE Scales as Covariates

SPP Scale	Mean Square	Univariate[a] F	Significance (p less than)
Historical Perspective	.0096	.0184	.8921
Perceived Company Image to Outsiders	8.1555	27.8163	.0001
Product & Service Uniqueness	6.9493	9.6225	.0021
Company Awareness of External Environment	1.9288	5.1338	.0239
Knowledge of Company Objectives	8.4069	15.0290	.0002
Perceived Need to Change	3.9902	11.4327	.0008
Acceptance of Responsibility to Participate	2.6972	4.5968	.0325
Quality of Scanlon Representation	2.4519	4.4382	.0357
Extent of Involvement in Scanlon Plan	4.2487	8.3981	.0040
Quality of Scanlon Committee Meetings	7.6015	15.2380	.0002
Quality of Suggestion Processing System	.0732	.2658	.6064
Suggestion Quality	9.3907	16.3302	.0001
Wage & Salary Equity	13.6415	28.2407	.0001
Company Equity	11.4207	12.0835	.0006
Acceptance of Mgt/Office Participation in Bonus	14.7680	10.6988	.0012

Table 11 (cont'd.)

SPP Scale	Mean Square	Univariate[a] F	Significance (p less than)
Perceived Performance-Bonus Relationship	.0210	.0434	.8351
Use of Bonus as a Working Tool	5.5396	9.6304	.0021
Perceived Fairness & Understanding of Bonus Calc.	2.4482	3.1997	.0743
F - Ratio[b] for Multivariate Test of Equality of Mean Vectors = 9.9180 (p < .0001)			

[a]Degrees of freedom = 1,533

[b]Degrees of freedom = 18,516

Table 12

Results of Step-Wise Discriminant Function Analysis on Systems Company and Piecemeal Company SPP Scores

Order of Entry	Change in Raos V[a]	Significance (p less than)[b]	Standardized Disc Function Coefficients
Wage & Salary Equity	111.1735	.000	.49495
Perceived Company Image to Outsiders	39.2080	.000	.47780
Managerial & Supervisory Job Competence	33.3539	.000	-.43178
Suggestion Quality	34.9018	.000	.37928
Use of Bonus as a Working Tool	25.4623	.000	-.28344
Product & Service Uniqueness	20.4158	.000	-.29876
Knowledge of Company Objectives	17.9427	.000	.29558
Extent of Involvement in Scanlon Plan	19.5064	.000	-.23908
Perceived Need to Change	13.3810	.000	.24511
Perceived Fairness & Understanding of Bonus Calc.	10.3458	.001	.29479
Quality of Scanlon Committee Meetings	13.0768	.000	-.28453
Company Equity	9.9409	.002	.19616
Acceptance of Mgt/Office Participation in Bonus	9.8060	.002	-.19345
Recognition of Employees as Resources	6.5286	.011	.18995
Facilitation of Work by Management	3.9849	.046	.21830
Acceptance of Responsibility to Participate	2.8502	.091	-.11804

Table 12 (cont'd.)

Order of Entry	Change in Raos V[a]	Significance (p less than)[b]	Standardized Disc Function Coefficients
Management Receptivity to Employee Influence	2.6615	.103	.16782
Quality of Suggestion Processing System	1.6891	.194	-.10712
Quality of Communication	1.0833	.298	-.10512
Perceived Performance-Bonus Relationship	.9937	.319	-.07720
Quality of Scanlon Representation	.9752	.323	-.07283
Company Awareness of External Environment	.4291	.512	-.04380
Managerial Style	.2919	.589	.04875
Historical Perspective	.0331	.856	-.01279
Level of Cooperation & Coordination	.0000	n.s.	

[a]The Rao's V step-wise criterion maximizes separation between the groups being discriminated (Nie et al., 1975, p. 448).

[b]Chi-square of change in Rao's V.

measurement was computed on each scale and compared against the observed between company mean differences. This was done as a precaution against the possibility that the observed SPP differences could in fact be accounted for by measurement error alone. Given the somewhat low reliabilities for some scales, that possibility seemed reasonable in our data. The findings in Table 13, however, failed to substantiate our concern. Of the twenty-one scales for which univariate Fs reached significance in Table 10, thirteen also displayed intercompany mean differences larger than their standard errors. Thus, we can be reasonably confident that most observed SPP differences are indeed real.

The several analyses reported above individually and collectively indicate that Hypothesis 1A has been confirmed. The SPP does discriminate between companies in predicted ways. There is also evidence in the discriminant function and covariance analyses to conclude that the scales measure more than a unidimensional construct. The few scales on which differences did not result could be subject to post hoc interpretation. For example, the lack of differentiation on Product and Service Uniqueness may reflect the position as industry leaders which both companies occupy in their respective markets.

A word should be said about the magnitude of scale differences. It will be remembered that in the original selection of research sites, we sought companies at opposite ends of the theoretical piecemeal-systems continuum. Although our two companies were not necessarily chosen as anchor-points for that continuum, it was expected that they would represent extreme examples of the general piecemeal and systems Scanlon Plan applications. When the SPPs were plotted, however, they

Table 13

Comparison of Intercompany SPP Scale Mean Differences With Standard Errors

SPP Scale	Intercompany Mean Difference	Scale Standard Error[a]
Historical Perspective	.42	.55
Perceived Company Image to Outsiders	.59	.37
Product & Service Uniqueness	.01	.56
Company Awareness of External Environment	.41	.48
Knowledge of Company Objectives	.77	.56
Perceived Need to Change	.56	.48
Acceptance of Responsibility to Participate	.23	.61
Quality of Scanlon Representation	.26	.54
Extent of Involvement in Scanlon Plan	.13	.48
Quality of Scanlon Committee Meetings	.24	.53
Quality of Suggestion Processing System	.49	.37
Suggestion Quality	.66	.60
Wage & Salary Equity	.98	.54
Company Equity	.89	
Acceptance of Mgt/Office Participation in Bonus	.08	.81
Perceived Performance-Bonus Relationship	.50	.51
Use of Bonus as a Working Tool	.08	.52
Perceived Fairness & Understanding of Bonus Calc.	.76	.54
Managerial Style	.92	.60
Recognition of Employees as Resources	.83	.45

Table 13 (cont'd.)

SPP Scale	Intercompany Mean Difference	Scale Standard Error[a]
Management Receptivity to Employee Influence	.66	.53
Quality of Communication	.60	.48
Managerial & Supervisory Job Competence	.32	.50
Facilitation of Work by Management	.76	.48
Level of Cooperation & Coordination	.61	.53

[a]Reliability estimates and variances for the combined sample were used to compute standard errors of measurement.

both fell roughly at or above the midpoint of the arbitrary range we had established for questionnaire items. Thus, although statistical significance was found between relative positions of the profiles, there was much less difference in absolute level than had been hoped. As a result, future studies employing the SPP instrument may want to strongly consider a revision of the response format. Rather than three responses each for different degrees of TRUE and FALSE, it may make more sense to consider varying degrees of a single quality, such as is done with the MSQ. Or, a more sophisticated scaling analysis could be conducted to determine the perceived meanings and psychometric qualities of response format alternatives. In either case, more research is needed to determine the range of Scanlon Plan companies along profile dimensions.

Hypothesis 1B, based on the notion of internal consistency among conditions, predicted that the variance among Piecemeal Company SPP scale means would be significantly larger than the corresponding variance for Systems Company. This turned out not to be the case. The ratio of Piecemeal Company to Systems Company variances (.2205/.2307) yielded an insignificant F of .948 (Degrees of freedom = 24,24), which did not allow rejection of the null homogeneity of variance hypothesis. Thus, the variance of SPP scale scores at the two companies cannot be used as evidence to substantiate the internal consistency notion, at least when company profile is used as the unit of analysis. The reader is reminded, however, that these results say nothing about differences of individual profiles between companies (see previous discussion on page 137). That is, it was still possible that employees at Piecemeal

Company perceived more inconsistency among dimensions, as reflected in their individual SPPs, than did Systems Company employees. Therefore, judgment on the validity of the internal consistency concept was reserved until tests of Hypothesis 4 had been completed. Suffice it to say at this stage, however, that the usefulness of SPP variance to infer internal consistency at the company level was not borne out by the data.

Hypothesis 2

Hypothesis 2 was designed as both a manipulation check and a test of relationships between perceived organizational effectiveness/health variables and SPP scales. In Table 14 can be found the means and variances for the six organizational climate scales broken down by company. As with the SPP scales, means are generally higher and variances lower (with one exception) at Systems Company. Table 15 reports that multivariate and all univariate Fs reached significance ($p < .0001$), further confirming our success in selecting research sites which differed in predicted ways on dimensions that could serve to test the SPP scales. Hypothesis 2A has been unequivocally confirmed; Systems Company employees perceive significantly higher levels on the six climate dimensions of organizational effectiveness and health than do Piecemeal Company employees.

In preparation for tests of Hypothesis 2B, which required the intercorrelation matrix of SPP and climate scales, it was necessary to compute reliabilities for the latter in order to make the appropriate attenuation corrections. The reader is once again referred to Table 14 wherein the internal consistency reliabilities, computed on the

Table 14

Reliabilities, Means and Variances of Organizational Climate Scales By Company

Climate Scale	α[a]	Systems Company		Piecemeal Company	
		Mean[b]	Variance	Mean[b]	Variance
Motivation to Achieve	.61	4.89	.4306	4.33	.7443
Flexibility & Innovation	.60	4.31	.7820	3.65	1.1813
Intelligence	.80	4.51	.6719	3.77	1.0479
Future Orientation	.44	4.27	.7446	3.76	.6119
Readiness to Innovate	.63	4.24	.8302	3.61	1.0412
Open-Mindedness	.68	4.21	.9065	3.57	1.2945

[a]Internal consistency reliability based on combined sample.

[b]Based on six-point response format with negatively worded items reverse scored.

Table 15

Univariate and Multivariate ANOVA to Test Intercompany Organizational Climate Differences

Climate Scale	Mean Square	Univariate[a] F	Significance (p less than)
Motivation to Achieve	41.7230	78.2387	.0001
Flexibility & Innovation	53.1451	58.2307	.0001
Intelligence	67.8839	85.3987	.0001
Future Orientation	31.0693	44.3116	.0001
Readiness to Innovate	47.5390	52.8666	.0001
Open-Mindedness	50.6572	49.0169	.0001

F - Ratio[b] for Multivariate Test of Equality of Mean Vectors = 17.3599 ($p < .0001$)

[a]Degrees of freedom = 1,550

[b]Degrees of freedom = 6,537

combined sample, appear in the first column. The reader will note that the reliabilities are consistently lower than those reported by the scale developers. Making use of these reliability estimates, along with the previously computed SPP reliabilities, Table 16 provides the estimated true score climate scale intercorrelation matrix followed by the estimated true score correlations between climate scales and the twenty-five SPP scales.

In Table 16 one is immediately struck by the high level of intercorrelation among the climate scales themselves. In fact, many of the coefficients approach unity, strongly suggesting unidimensionality among the perceived effectiveness and health measures. Furthermore, there is little differentiation in correlation between each of the climate scales and a given SPP scale. That is, the correlation between an SPP scale and any climate dimension tends to hold true for that SPP scale and all climate dimensions. This further supports the conclusion that the six climate dimensions, rather than tapping distinct climate variance, are in fact measuring only a single construct.

Closer inspection of Table 16 further reveals that, despite high and statistically significant correlations between all combinations of climate and SPP scales, the magnitude of correlation with perceived organizational effectiveness and health varies across SPP scales. As expected, some SPP scales were particularly strongly related to climate perceptions. For example, Perceived Need to Change was almost perfectly correlated with Motivation to Achieve and Future Orientation. Interestingly, Future Orientation was also a strong correlate of Historical Perspective and Company Awareness of External Environment,

Table 16

Correlations Among Organizational Climate Scales and Between Climate and SPP Scales--Combined Sample

	(1)	(2)	(3)	(4)	(5)	(6)
(1) Motivation to Achieve	1.0	.84	.97	.95	.88	.78
(2) Flexibility & Innovation	.84	1.0	.94	.89	1.0	.72
(3) Intelligence	.97	.94	1.0	.99	.95	.84
(4) Future Orientation	.95	.89	.99	1.0	.89	.90
(5) Readiness to Innovate	.88	1.0	.95	.89	1.0	.78
(6) Open-Mindedness	.78	.72	.84	.90	.78	1.0
Historical Perspective	.67	.71	.72	.90	.70	.70
Perceived Company Image to Outsiders	.85	.73	.78	.67	.72	.66
Product & Service Uniqueness	.51	.53	.49	.54	.52	.50
Company Awareness of External Environment	.89	.61	.87	.94	.71	.72
Knowledge of Company Objectives	.87	.75	.87	.87	.73	.78
Perceived Need to Change	.97	.72	.81	.93	.73	.83
Acceptance of Responsibility to Participate	.71	.62	.74	.79	.67	.65
Quality of Scanlon Representation	.67	.68	.72	.71	.63	.72
Extent of Involvement in Scanlon Plan	.74	.73	.73	.78	.74	.70
Quality of Scanlon Committee Meetings	.70	.72	.76	.79	.73	.73
Quality of Suggestion Processing System	.79	.83	.87	.83	.85	.79
Suggestion Quality	.84	.71	.78	.78	.71	.66
Wage & Salary Equity	.75	.88	.87	.80	.79	.76
Company Equity	.58	.56	.63	.65	.54	.57

Table 16 (cont'd.)

	(1)	(2)	(3)	(4)	(5)	(6)
Acceptance of Mgt/Office Participation in Bonus	.34	.55	.51	.54	.50	.50
Perceived Performance-Bonus Relationship	.80	.78	.78	.83	.74	.70
Use of Bonus as a Working Tool	.47	.49	.60	.63	.48	.67
Perceived Fairness & Understanding of Bonus Calc.	.70	.74	.75	.84	.74	.71
Managerial Style	.70	.90	.83	.81	.83	.77
Recognition of Employees as Resources	.91	.86	.88	.89	.84	.90
Management Receptivity to Employee Influence	.72	.80	.82	.82	.85	.90
Quality of Communication	.78	.85	.92	.86	.83	.85
Managerial & Supervisory Job Competence	.82	.90	.90	.93	.87	.81
Facilitation of Work by Management	.83	.90	.93	.98	.87	.85
Level of Cooperation & Coordination	.88	.97	.98	1.0	.97	.84

Note. All coefficients have been corrected for attenuation using combined sample reliability estimates. All coefficients are based on at least 540 cases and are significant beyond the .001 level.

supporting the relationships between historical and environmental perspective with future planning. Not surprisingly, the strongest correlates of perceived effectiveness and health tended to be the SPP MANAGERIAL COMPETENCE scales, once again confirming the importance of employee perceptions of that Scanlon Plan condition.

Conspicuous by their presence in a matrix dominated by moderately high and extremely high correlations were the relationships between climate scales and four SPP scales: Product and Service Uniqueness, Company Equity, Acceptance of Management/Office Participation in Bonus and Use of Bonus as a Working Tool. It will also be observed, however, that these same SPP scales were also the ones that tended not to discriminate between Systems Company and Piecemeal Company.[13] One interpretation that could be offered, then, is that these particular dimensions do not differentiate organizations on the theoretical Scanlon continuum, nor are they strongly related to organizational effectiveness and health. As such, they may not be necessary or useful as part of the SPP. This must remain a tentative hypothesis until more Scanlon Plan companies have participated in studies of this type. In sum, Hypothesis 1B did yield data to conclude that our attention to organizational effectiveness and health in Scanlon Plan model-building was reflected in an SPP instrument which is not independent of these criteria. Future research in other companies and with multidimensional, perhaps objective, health and effectiveness measures will be required to assess the true extent of relationship.

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[13]The only exception is the Company Equity scale which contains only a single item for which there is no reliability estimate.

Hypothesis 3

Hypothesis 3 paralleled Hypothesis 2 by replacing organizational effectiveness and health variables with two individual effectiveness constructs. Operationalization was accomplished through three job satisfaction scales (general, intrinsic, and extrinsic) and a fourteen item role ambiguity scale, the sources for which are provided in Chapter III. Of interest were scale differences between companies (Hypothesis 3A and 3C), as well as their relationships with SPP scales (Hypothesis 3B and 3D).

Intercompany differences are explored in Table 17 where the trend of previous analyses is continued: (1) Systems Company scores significantly better on all scales;[14] (2) there is more variance in perceptions among employees at Piecemeal Company. Employees are characterized by significantly higher levels of job satisfaction (particularly extrinsic) and correspondingly lower levels of role ambiguity at Systems Company. Both Hypothesis 3A and Hypothesis 3B have been confirmed.

Also reported in Table 17 are the combined sample reliability estimates for four individual effectiveness scales. Unlike the organizational climate scales, these alphas were high and consistent with the authors' reported reliabilities. Along with SPP reliability estimates, they were applied to the raw score correlation coefficients between individual effectiveness and SPP measures. This resulted in the correlation matrix appearing in Table 18. As found with the climate scales,

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[14] A low score is considered more desirable than a high score on the Role Ambiguity scale.

Table 17

Scale Statistics and Tests of Intercompany Mean Differences for Individual Effectiveness Scales

Scale	α[a]	Systems Company		Piecemeal Company		F[c]	Significance (p less than)
		Mean[b]	Variance	Mean	Variance		
General Job Satisfaction	.93	3.42	.5177	3.12	.5787	20.89	.0001
Intrinsic Job Satisfaction	.90	3.62	.5315	3.40	.5989	9.93	.0017
Extrinsic Job Satisfaction	.87	3.13	.6998	2.69	.8065	32.17	.0001
Role Ambiguity	.84	2.50	.6199	2.79	.7186	14.78	.0001

[a]Internal consistency reliability based on combined sample.

[b]Job Satisfaction means based on five-point response format; role ambiguity mean based on six-point response format with positively worded items reverse-scored.

[c]Degrees of freedom = 1,547

Table 18

Correlations Among Individual Effectiveness Scales and Between Individual Effectiveness and SPP Scales--Combined Sample

	(1)	(2)	(3)	(4)
(1) General Job Satisfaction	1.0	1.0	1.0	-.72
(2) Intrinsic Job Satisfaction	1.0	1.0	.83	-.69
(3) Extrinsic Job Satisfaction	1.0	.83	1.0	-.68
(4) Role Ambiguity	-.72	-.69	-.68	1.0
Historical Perspective	.51	.41	.57	-.53
Perceived Company Image to Outsiders	.58	.55	.56	-.59
Product & Service Uniqueness	.49	.46	.46	-.44
Company Awareness of External Environment	.58	.58	.53	-.75
Knowledge of Company Objectives	.54	.47	.57	-.67
Perceived Need to Change	.57	.51	.58	-.62
Acceptance of Responsibility to Participate	.51	.41	.58	-.57
Quality of Scanlon Representation	.51	.44	.54	-.58
Extent of Involvement in Scanlon Plan	.44	.38	.47	-.68
Quality of Scanlon Committee Meetings	.56	.48	.62	-.61
Quality of Suggestion Processing System	.58	.52	.61	-.63
Suggestion Quality	.56	.51	.56	-.63
Wage & Salary Equity	.68	.56	.76	-.51
Company Equity	.44	.37	.48	-.39
Acceptance of Mgt/Office Participation in Bonus	.34	.26	.41	-.28
Perceived Performance-Bonus Relationship	.51	.43	.55	-.63

Table 18 (cont'd.)

	(1)	(2)	(3)	(4)
Use of Bonus as a Working Tool	.37	.30	.41	-.50
Perceived Fairness & Understanding of Bonus Calc.	.50	.40	.58	-.52
Managerial Style	.66	.55	.76	-.59
Recognition of Employees as Resources	.69	.57	.78	-.63
Management Receptivity to Employee Influence	.71	.61	.77	-.58
Quality of Communication	.70	.60	.77	-.66
Managerial & Supervisory Job Competence	.72	.60	.81	-.64
Facilitation of Work by Management	.75	.61	.81	-.73
Level of Cooperation & Coordination	.72	.65	.80	-.70

Note. All coefficients have been corrected for attenuation using the combined sample reliability estimates. All coefficients are based on at least 540 cases and are significant beyond the .001 level.

job satisfaction scale intercorrelations are extremely high when corrected for attenuation. This is in part a function of scale definition; the general job satisfaction scale is defined as the sum of intrinsic and extrinsic job satisfaction. However, there is also a strong relationship (.83) between the two component scales. The correlations between job satisfaction scales and role ambiguity were negative and sizeable, though not of the magnitude of the other correlations in the 4 x 4 matrix at the top of Table 18.

Moving down Table 18 to the correlations between SPP scales and individual effectiveness measures, most correlations are in the moderate range, although some could be considered quite high. In this latter category are the correlations between extrinsic job satisfaction and (1) all MANAGERIAL COMPETENCE scales, and (2) Wage and Salary Equity. Since extrinsic job satisfaction is generally considered to be influenced by job <u>context</u> factors, e.g., supervision and pay, these findings are perfectly consistent with theory and previous research. Intrinsic job satisfaction, theoretically influenced by job <u>content</u> like responsibility, challenge, influence opportunity, etc., failed to correlate at conspicuously high levels (although all were statistically significant) with any of the SPP scales. This was surprising given the expressed intent of the Scanlon Plan to afford employees the opportunity for increased on-the-job self-actualization. The findings from our samples would seem to indicate that the financial and supervisory aspects of the Scanlon Plan are slightly more influential in determining satisfaction than are the intrinsic motivators.[15] However, <u>all</u>

[15]Of course, this is only a possible explanation given that we cannot infer causality.

coefficients were statistically significant, regardless of type of satisfaction or SPP scale, thus the findings validate the prediction in Hypothesis 3B.

Likewise, Hypothesis 3D has been confirmed; all correlations between SPP scales and role ambiguity are negative and statistically significant. MANAGERIAL COMPETENCE was once again a strong correlate as were the Company Awareness of External Environment, Knowledge of Company Objectives and Perceived Need to Change scales. As IDENTITY components, these last three scales should be strongly related to role ambiguity because they serve to more sharply define the current situation for employees. Role ambiguity also displayed a high degree of relationship with scales like Perceived Performance-Bonus Relationship (-.63), Quality of the Suggestion Processing System (-.63) and Quality of Communication (-.66), all of which serve to provide the employee with feedback and thus reduce role ambiguity.

Hypothesis 4

Following up on the results of Hypothesis 1B, which failed to demonstrate significant differences between company SPP variances, Hypothesis 4 compared the mean individual employee SPP variances at the two companies. Based on the expectation of different levels of perceived internal consistency, the hypothesis predicted lower mean SPP variance (higher internal consistency) for employees at Systems Company than for employees at Piecemeal Company. This turned out to be true; mean SPP variances were .6618 and .8206 ($F = 17.27$, $p < .0001$) respectively. On the whole, the average employee at Systems Company tended to record his SPP perceptions within a narrower range than the

average Piecemeal Company employee. Graphically, the Piecemeal Company profiles deviate more from a straight line and suggest less systems-like organization of perceptions. Therefore, despite the overall "halo" which characterized perceptions in both samples, the expected deviations from internal consistency which were theorized to be characteristic of piecemeal applications of the Scanlon Plan were confirmed. One might wonder whether this same phenomenon holds true in Likert's data; that is, would employees in "System 1" companies be characterized by greater variance in their management system profiles than "System 4" company employees? Another empirical question concerns the point at which perceptions of inconsistency in the environment are counteracted by the various theorized "correcting mechanisms" in the psychological literature (Gestalt, cognitive consistency, systems integrity, and the like).

The test of Hypothesis 4 did establish that systematic variation occurred in perceptions of internal consistency, at least when operationalized as SPP variance. Specifically, evidence was presented to suggest a relationship between internal consistency and position along the piecemeal-systems Scanlon Plan continuum. However, these results must be qualified by two considerations: (1) small sample size and (2) the possibility of measurement error in SPP variance. Since only two companies participated in the research, the generalizability of results is severely limited, as are any of the comparative analyses. As for the SPP variance measure itself, we have no way at this point of estimating its reliability. SPP variance is computed on the basis of twenty-five scale scores, each with its own measurement error. Furthermore, this problem is compounded in the present study by the

differences in reliability in our two samples. It is entirely possible, for example, that the larger SPP variances among employees at Piecemeal Company are merely reflecting the lower reliabilities of scale scores in that sample (see comparison in Tables 3 and 4). Consequently, the usefulness of SPP variance as a variable, despite its intuitive appeal, awaits further resolution of these methodological issues.

Hypothesis 5

Bearing in mind the reservations surrounding the SPP variance measure, Hypothesis 5 assessed its relationship with individual effectiveness measures. Table 19 presents the four correlations. Note that all are statistically significant and in predicted directions, yet the magnitude of these correlations is substantially less than has been generally true in previous analyses. Especially low are the

Table 19

Correlations Between Perceived Internal Consistency (SPP Variance) and Individual Effectiveness Scales

Individual Effectiveness Scale	Pearson r^a
General Job Satisfaction	-.31
Intrinsic Job Satisfaction	-.19
Extrinsic Job Satisfaction	-.43
Role Ambiguity	.18

Note. All coefficients are based on at least 545 cases and are significant beyond the .001 level.

[a]Corrected for attenuation.

correlations of intrinsic job satisfaction (-.19) and role ambiguity (.18) with SPP variance. Extrinsic satisfaction is the strongest correlate (-.43), suggesting that perceived internal consistency, along with perceptions of working conditions, supervision and wages, may be more of a job context than job content factor. This may well be because the SPP domain emphasizes organizational context (or climate) dimensions that transcend the job itself. The same interpretation may explain the lower than expected correlation between SPP variance and role ambiguity. The role ambiguity measure used in this research asks the employee to focus on aspects of his own job environment, e.g., specific supervisor, job-related tasks, local coworkers, etc., which may or may not be strongly related to the organization at large. Once again, the unknown measurement error of SPP variance could well have suppressed a truer assessment of its relationships with individual effectiveness scales.

Hypothesis 6

Hypothesis 6 predicted more consensus in SPP scores between management and nonmanagement employees at Systems Company than at Piecemeal Company. Confirmation of this hypothesis required a significant hierarchical level by company interaction in a two-factor multivariate ANOVA. As can be seen in Table 20, the hypothesis was rejected. Not only did the multivariate F fail to reach significance, but none of the univariate Fs show any SPP scale for which an intercompany difference in management/nonmanagement consensus exists. As shown in Figures 3 and 4, management is more favorable in its perceptions of SPP dimensions at both companies (Multivariate F = 4.7035; Degrees of freedom =

Table 20

Univariate and Multivariate ANOVA to Test Hierarchical Level By Company Interaction on SPP Scales

SPP Scale	Mean Square	Univariate[a] F	Significance (p less than)
Historical Perspective	.2760	.3565	.5508
Perceived Company Image to Outsiders	.4214	.9699	.3252
Product & Service Uniqueness	.1297	.1453	.7032
Company Awareness of External Environment	.5300	.9864	.3211
Knowledge of Company Objectives	.1235	.1388	.7097
Perceived Need to Change	.4985	.9528	.3295
Acceptance of Responsibility to Participate	3.2411	3.7858	.0523
Quality of Scanlon Representation	.2378	.2730	.6016
Extent of Involvement in Scanlon Plan	.0767	.1101	.7402
Quality of Scanlon Committee Meetings	2.4326	2.4783	.1161
Quality of Suggestion Processing System	1.5330	2.5939	.1079
Suggestion Quality	.0162	.0218	.8826
Wage & Salary Equity	1.3830	1.4257	.2330
Company Equity	.0029	.0021	.9635
Acceptance of Mgt/Office Participation in Bonus	1.2488	.7195	.3967
Perceived Performance-Bonus Relationship	.7758	.9347	.3341
Use of Bonus as a Working Tool	.0953	.1176	.7319
Perceived Fairness & Understanding of Bonus Calc.	1.3287	1.0112	.3151
Managerial Style	.2540	.1770	.6742

Table 20 (cont'd.)

SPP Scale	Mean Square	Univariate[a] F	Significance (p less than)
Recognition of Employees as Resources	.2156	.2108	.6464
Management Receptivity to Employee Influence	.0019	.0019	.9655
Quality of Communication	.2229	.2125	.6451
Managerial & Supervisory Job Competence	.9541	1.1019	.2944
Facilitation of Work by Management	1.7530	2.1916	.1394
Level of Cooperation & Coordination	.0056	.0060	.9383

F - Ratio[b] for Multivariate Test of Equality of Mean Vectors = 1.0036 ($p < .4601$)

[a]Degrees of freedom = 1,540

[b]Degrees of freedom = 25,516

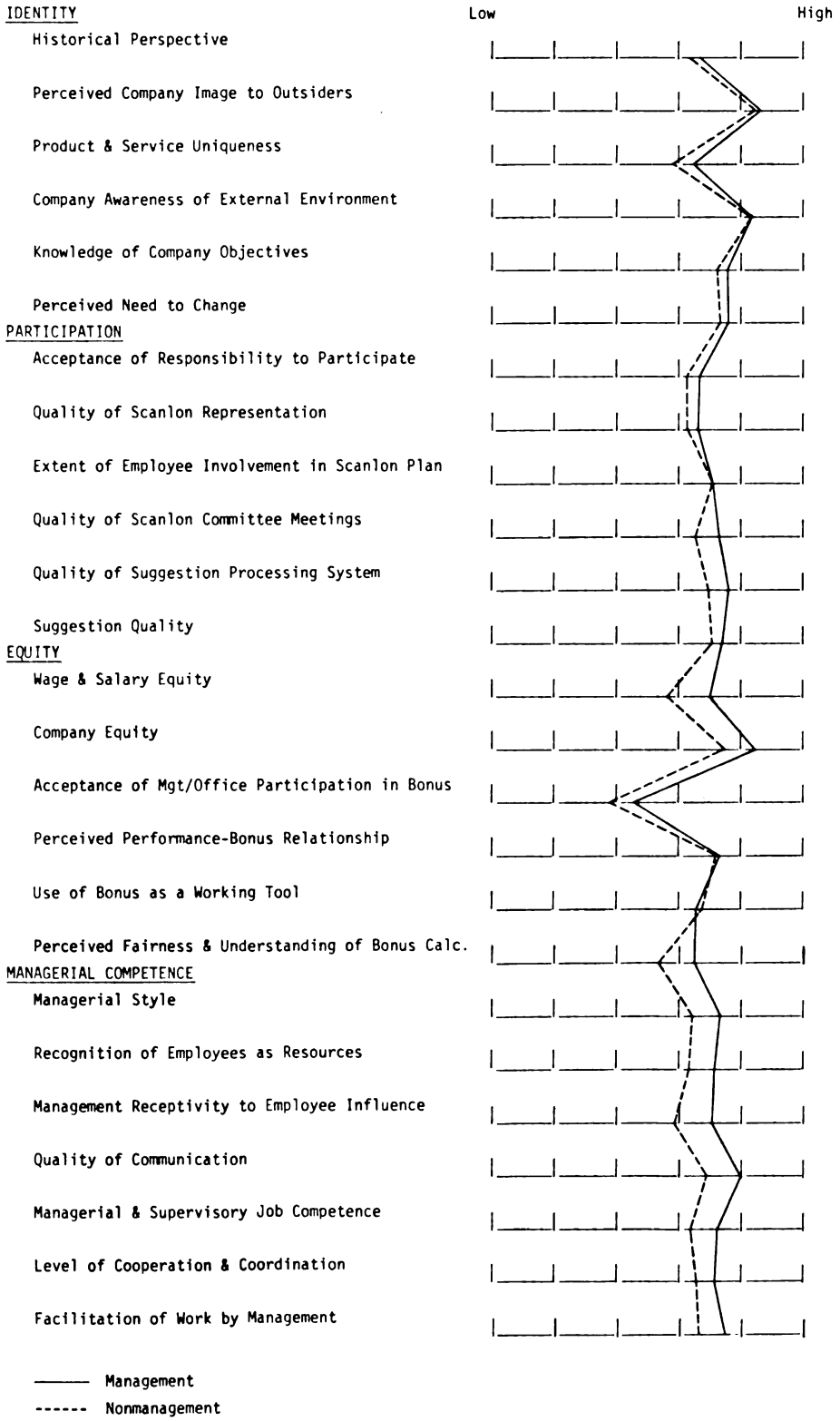

Figure 3. Comparison of Management/Nonmanagement Profiles--Systems Company

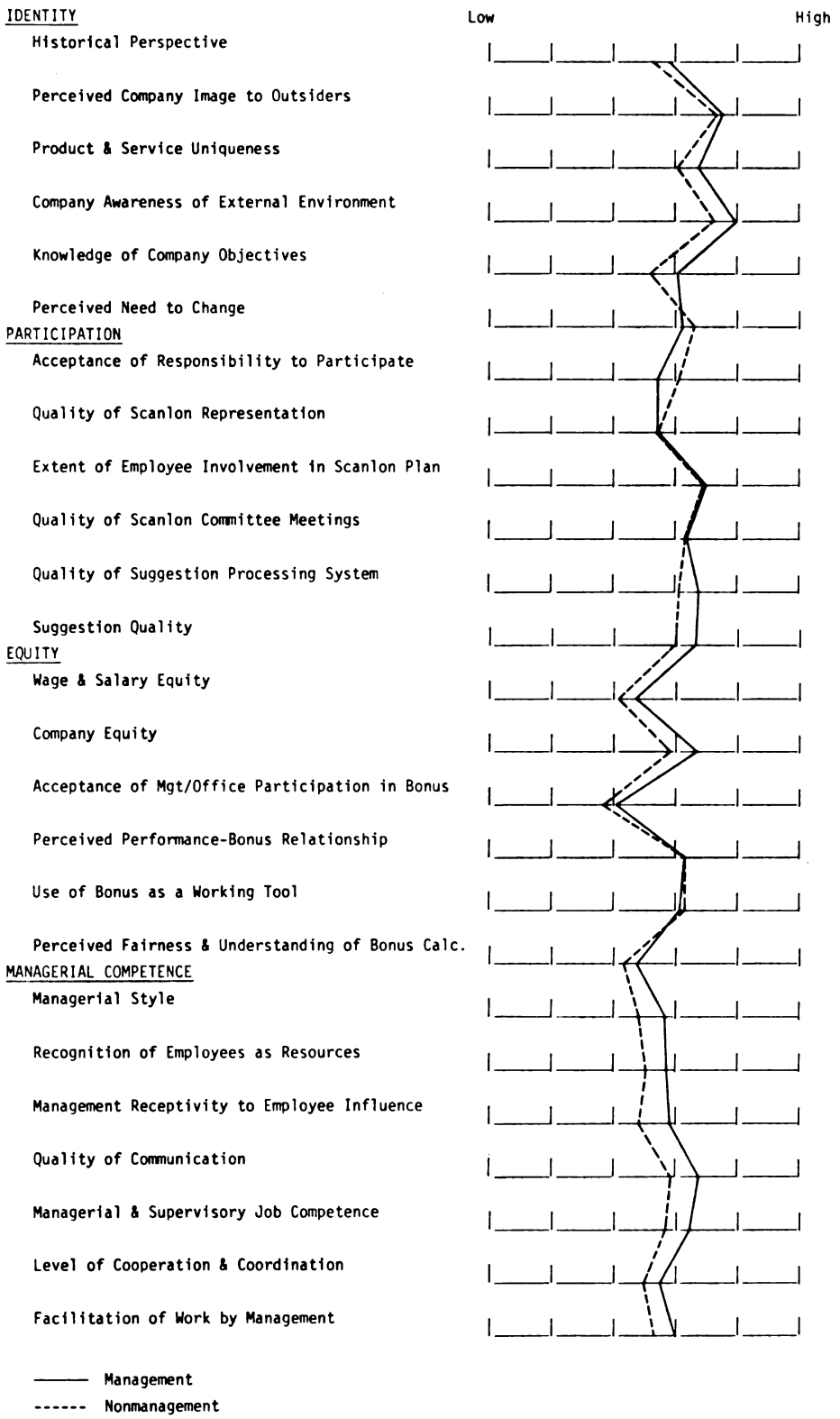

Figure 4. Comparison of Management/Nonmanagement Profiles--Piecemeal Company

25,516; $p < .0001$). This finding brings to question whether the high correlation between hierarchical level and favorability of perceptions is a general characteristic of all organizations.

Although the hypothesis that perceptual consensus would be greater at Systems Company was not confirmed, it would be incorrect to conclude that the overall level of employee consensus was comparable for the two samples. Our use of the management/nonmanagement breakdown allowed testing of discrepancy between those two groups only. However, other data exist to strongly suggest greater consensus at Systems Company, but that it is not a function of hierarchical level. For example, in Table 9 we noted the uniformly larger SPP scale variances at Piecemeal Company. Using an argument developed earlier, this difference could be attributed to different SPP scale measurement errors in the two samples were it not also the case for organizational climate (Table 14) and individual effectiveness (Table 17) scales. Combined with the data from tests of Hypothesis 5, we find Piecemeal Company employees characterized by more variation in perceptions both across and within scales. What remain to be discovered are the correlates of this variance.

CHAPTER V

SUMMARY AND CONCLUSIONS

As noted in Chapters I and II, the research reported here was motivated to a large extent by the need to supplement the accumulated Scanlon Plan literature with documentation of its theoretical premises and applied principles. Specifically, the study conceptualized Frost's Scanlon Plan model within a systems context and then proceeded to operationalize the four conditions hypothesized by the model to be essential to the Scanlon Plan and organizational effectiveness. Instrumentation was developed to measure the conditions, to test their conformity to systems characteristics, and to investigate their relationships with selected measures of organizational effectiveness and health.

Throughout the foregoing discussion, the reader has been continually reminded of the exploratory nature of the study. Our methodology, including small sample size and previously untested instrumentation, clearly indicates a bias in favor of theory development and model-building rather than emphasizing experimental design and statistical elegance. Given the present state of the art of Scanlon Plan literature, this emphasis seemed appropriate. The research data provided little in the way of conclusive results in a statistical sense, yet the findings for the most part are sufficiently encouraging to suggest continued use of the systems Scanlon Plan model in more controlled research. A summary of these findings, their limitations, and suggestions for future research follows.

1. It was discovered that operationalization of the Scanlon Plan conditions did lead to scales that could be reliably measured. A few scales required revision, some of which will require even more given their small number of items or discrepant reliabilities across samples. It may be possible, in fact even desirable, to probe the literature for previously validated measures of Scanlon-relevant variables which could either replace SPP scales or suggest items to improve psychometric quality without sacrificing the "face validity" of the instrument in Scanlon contexts. Silkiner's (1964) "Knowledge of Objectives," "Knowledge of Implementations" and "Knowledge of Performance" measures would be likely sources of IDENTITY scales. Likewise, the "character of the decision-making process" and "character of the communication process" measures on Likert's (1967) instrument could be useful guides for improving PARTICIPATION scales. Expectancy theory researchers (e.g., Vroom, 1964) have developed innovative measures relevant to the EQUITY condition. Finally, we should not overlook the extensive work at Ohio State University (Fleishman, 1971) in the MANAGERIAL COMPETENCE area toward the development of measures of the "initiating structure" and "consideration" dimensions of leadership.

2. Cluster analysis of the SPP scales tended to substantiate a set of four underlying dimensions which, with the reassignment of two scales to MANAGERIAL COMPETENCE, reinforced the conceptual model. Future research should consider the possibility of additional conditions to account for "Scanlon Plan variance." For example, one proposal is already underway at Michigan State University to examine the role of the change agent in OD efforts like the Scanlon Plan.

3. Statistically significant differences in SPP levels between two qualitatively distinct organizations suggested that the SPP scales may be valid in discriminating Scanlon Plan practitioners. Further tests in additional Scanlon Plan organizations are required. Likewise, reliabilities should be improved if the SPP is to realize its potential as a diagnostic tool to locate companies at specific points along the Scanlon Plan continuum.

4. Perceptions of the Scanlon Plan dimensions were influenced significantly by an overall "halo" effect. Halo was not considered a major problem from a behavioral standpoint given the role of perceptions in defining one's subjective environment and for stimulating an appropriate response. Yet to the extent perceptions deviate from objective reality, one kind of measurement error is introduced. Therefore, it would be interesting in future research to develop more objective measures of the Scanlon Environment, e.g., number of suggestions, cost savings of suggestions, average bonus levels, frequency of Scanlon Committee meetings, average time to implement suggestions, etc. With these data, it would be possible to develop and test hypotheses related to the discrepancy between objective and subjective reality in systems versus piecemeal Scanlon Plans.

A second problem with perceptual measures like the one used here has to do with the assumptions one makes in using them. Specifically, when comparing Systems Company to Piecemeal Company on SPP scales, it was assumed that the perceived range and interpretation of the underlying dimensions defining each of them was equivalent in both organizations. But is it valid to presume, for example, that when asked to

consider the statement, "Most of this company's employees have assumed responsibility for making our Scanlon Plan work," that respondents employ the same frame of reference? Employees in piecemeal applications of the Scanlon Plan might consider the statement descriptive of their company within a substantially narrower conceptualization of what their responsibility really is. Consequently they might answer "yes" if significant numbers attend voluntary employee meetings. Yet their counterparts at a systems Scanlon Plan company would equate "responsibility for making our Scanlon Plan work" with showing up for work, making suggestions, facilitating change and being productive. In a situation like this one, a comparison of the two organizations could conceivably result in the piecemeal company scoring higher than the systems company on the SPP! In essence, what happens is that a different yardstick is used in the two companies, thus making any comparison spurious. Golembiewski, Billingsley, and Yeager (1976) describe how this same phenomenon can occur when assessing interventions on the management system over two points in time (Now I versus Now II) in a single organization:

> The OD intervention may be said to be <u>failure</u> because Now II is lower than Now I, and OD interventions should induce change toward System IV. Or the OD intervention can be taken to be <u>successful</u> because the respondents at Now II have a more realistic view of how things really are, a firmer descriptive base for subsequent ameliorative action. (136-137)

By definition, the systems Scanlon Plan <u>does</u> operate from a more sophiscated frame of reference than the piecemeal Scanlon Plan. This may suggest why we did not find larger SPP differences between Systems Company and Piecemeal Company (see Chapter IV, Hypothesis 1). It

could be hypothesized that Piecemeal Company employees were much less self-critical of their Scanlon Plan given that they possessed a narrower conception of its dimensions and potential.

5. The emergence of MANAGERIAL COMPETENCE as the predominant component of the "halo" influence on SPP perceptions attests to its inclusion in the formerly three condition Scanlon Plan model. This finding is further corroboration of Wallace's (1971) and White's (1974) results concerning the importance of managerial attitudes toward participative management. It also seems to lend credence to those theorists who argue the need for OD interventions to "begin at the top."

6. Despite the overriding halo of MANAGERIAL COMPETENCE, covariance and discriminant function analyses revealed that IDENTITY, PARTICIPATION and EQUITY scales did contribute unique variance to account for significant differences between Systems Company and Piecemeal Company. Should those scales which did not retain discriminatory variance with the removal of MANAGERIAL COMPETANCE continue to do likewise in future applications of the instrument, they should be removed or rewritten.

7. The SPP was related in hypothesized ways to perceived organizational effectiveness and health, as well as to individual effectiveness measures of job satisfaction and role ambiguity. Tests of the specific nature of relationships between SPP and effectiveness scales was made difficult by the variance common to all measures. Given the exclusive use of perceptual measures here, there is need for future studies to remove the methodological shortcoming of "methods variance" through use of other types of effectiveness data, e.g., sales growth, earnings record, return on investment, absenteeism, turnover,

grievances, etc. The earlier quoted Silkiner (1964) and Perez (1968) studies show how these more objective organizational and individual effectiveness measures can be useful.

8. Surprisingly, SPP scales were more highly related to extrinsic than intrinsic job satisfaction. MANAGERIAL COMPETENCE and EQUITY dimensions were particularly strong correlates of job satisfaction, suggesting perhaps that IDENTITY and PARTICIPATION dimensions have not as yet been developed to their fullest potential in helping employees achieve valued goals. Some qualitative evidence to reinforce this interpretation surfaced in feedback sessions to employees at the two research sites. Some degree of dissatisfaction was expressed with the performance review process for its overemphasis on financial considerations without corresponding programs for individual goal-setting and responsible participation in the Scanlon Plan.

9. Although SPP scale variances were greater at Piecemeal Company than at Systems Company, they could not be explained as a function of hierarchical level. This left open the question of whether perceptual discrepancies were in fact greater at Piecemeal Company or whether the larger variances there were solely reflecting more measurement error.

10. The investigation of an operational measure of "internal consistency" among Scanlon Plan conditions yielded ambiguous results. Company SPP variance is not sensitive to individual employee variance and consequently may be of marginal utility. Computation of individual employee SPP variances, which can then be averaged to produce an overall company internal consistency measure, does appear promising particularly given confirmation of its hypothesized relationships with job

satisfaction and role ambiguity. Yet, for reasons discussed earlier, the measure is highly susceptible to error and should be used primarily as a theoretical construct until such time that its reliability can be assessed.

11. Given the findings summarized in #10, the use of "piecemeal" and "systems" as anchor points for the Scanlon Plan continuum is questionable. Our hypothesis that companies toward the "low" end of the continuum would deviate more from straight-line SPPs than companies at the "high" end was not confirmed by the two samples. This means either the theory is wrong or the samples are not representative of the populations of companies from which they were theoretically selected. Although the latter interpretation is open to empirical test, the more likely explanation is that we have merely confirmed Likert's notion of systems integrity within the Scanlon Plan context. That is, although a company may pursue a piecemeal strategy in Scanlon Plan implementation, the attempt to change a single condition will be resisted unless the others, particularly MANAGERIAL COMPETENCE, are simultaneously change targets. The implication for a company considering the Scanlon Plan, therefore, is that it engage in serious self-examination on all dimensions and consider its understanding, commitment and competence to initiate the systems-wide nature of the change that will be demanded.

12. Despite the large number of statistically significant relationships, the issue of causality remains open to longitudinal research. Within the Likert model of causal, intervening and end result variables, the question arises as to the appropriate placement of IDENTITY, PARTICIPATION, EQUITY and MANAGERIAL COMPETENCE. Likert's theory

positions causal variables as the first intervention priority and warns there may be a considerable time lag before changes on these target variables are reflected by the intervening processes and end results. In our discussion, MANAGERIAL COMPETENCE and IDENTITY emerged within the context of causal factors which, once in place, activate the PARTICIPATION and EQUITY intervening decision-making and control processes. End results were viewed as organizational and individual effectiveness. Tests of this implied causal model will require periodic measures over time of SPP scales, as well as the more objective measures recommended earlier in this chapter.

13. The work initiated by this study, as well as the future research suggested by it, must not stop with the development of a diagnostic instrument and validation of a causal model. Certainly these steps are necessary, but beyond them is the need to develop programming and intervention strategies which are necessary if a company desires to pursue the Scanlon Process.[16] Some efforts are already underway due to the combined efforts of Michigan State University and the Scanlon Plan Associates. MANAGERIAL COMPETENCE and IDENTITY were the foci of recent day-long conferences of Scanlon Plan company chief executive officers and their staffs. Centering on the need for and operationalization of the organizational mandate, CEO's were challenged to consider the rationale, understanding, acceptance and commitment to the Scanlon Plan as an operational tool toward mandate fulfillment. Future conferences

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[16]Some have suggested that "Scanlon Plan" be changed to "Scanlon Process" to emphasize its true nature. For years, one Scanlon company supervisor has referred to it as the "Scanling Plan" as a reminder of its ongoing frame of reference.

will emphasize the PARTICIPATION component as lower level employees are invited and asked to respond to the mandate and contribute their personal commitments toward reaching it. EQUITY has been the central issue around which an organization of Scanlon Plan company accountants has evolved. These individuals exchange information concerning their measurement systems, bonus formulas and educational programs. They are also alerted to sophisticated concepts like human resource accounting. Other "functional groups" of foremen and administrative assistants have attracted employees from Scanlon Plan companies who seek to define their roles and improve individual competencies. Each of these programs offers an excellent opportunity for interventionists and researchers. Programming strategies must be planned, executed and evaluated. Hopefully, the research reported here will serve as a conceptual model and suggested instrumentation for such exploration.

APPENDIX

Appendix

A Priori Scanlon Plan Profile Scales[17, 18]

I. Identity

A. Historical Perspective

1. The company's successes and failures over the years are common knowledge to employees.

2. The history of this company is well understood by employees.

3. Just about anyone around here could tell you how this company got started.

*4. Most of the people in this company would prefer to forget about past achievements.

*5. We don't very often look back on our past accomplishments around here.

B. Perceived Company Image to Outsiders

*1. This company has a pretty bad reputation in the local community.

2. People around town would say this company is an excellent employer.

3. Our customers and suppliers think we are a good company to do business with.

4. Our company prides itself on the image it has created for outsiders.

*5. Our company has a reputation for poor quality products.

C. Product and Service Uniqueness

*1. It is fair to say that the products we make are not much better than our competitors.

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[17]Asterisked items were reverse scored.

[18]Items in brackets were subsequently deleted on the basis of internal consistency reliability analyses (see Chapter IV).

2. We think of ourselves as a pretty unique company in our industry.

*3. If our company went out of business, our customers could get the same quality products from our competitors.

4. The products we produce are much different than the competition.

5. Our company provides services and products that no other company in the industry can provide.

D. Company Awareness of External Environment

1. This company tries to monitor how the economy will affect our business.

2. The company pays attention to the needs of its customers.

*3. [Not many people around here know who our competition is.]

4. As a company we try to keep track of what our competition is doing.

*5. [Employees around here don't know much about the customers we do business with.]

E. Knowledge of Company Objectives

*1. The overall goals of this company have never been stated to employees.

*2. [Employees do not need to know the company's goals and objectives.]

3. The company's overall goals and objectives are understood by the employees.

4. We are frequently reminded of the company's objectives.

*5. There is a lot of confusion about where this company is headed.

F. Recognition of Employees as Resources

1. You can tell by our training programs that this company thinks its employees are important.

2. [Employees understand why their jobs are important to the company.]

3. This company goes to a lot of effort to get the best person for each job.

*4. People in this organization are not recognized for the important job they do.

5. Every employee is recognized as an important asset to this company.

6. In this company, every employee is treated like he has a contribution to make.

G. Perceived Need to Change

1. Employees feel there is a real need to find ways to cut costs.

2. It is understood by employees that we must improve our product and service if we are to be competitive.

3. Employees in this company see the need to do their jobs better.

*4. Our company probably won't change much in the next five years.

*5. Given our successes as a company, there is the attitude around here that there is not much need to change.

II. Participation

A. Acceptance of Responsibility to Participate

1. We see it as a responsibility of our jobs to make Scanlon suggestions when we have them.

2. [An effective employee who resists giving his Scanlon suggestions will probably get some pressure from his coworkers.]

3. Most of this company's employees have assumed responsibility for making our Scanlon Plan work.

*4. Too many of this company's employees are more worried about the size of their bonus checks than what they can contribute.

*5. [Our Scanlon Plan doesn't make many demands on the average employee.]

B. Quality of Scanlon Representation

*1. Scanlon Committee representatives speak only for themselves rather than for the people who elected them.

2. Scanlon Committee representatives take their jobs seriously.

*3. Elections for people to serve on the Scanlon committees are taken pretty lightly.

4. [Our Scanlon Plan representatives give us feedback on company decisions and operations.]

5. The best qualified people are elected to represent us on Scanlon committees.

C. Extent of Employee Involvement in Scanlon Plan

1. Scanlon suggestions are made by people from all over the company.

*2. [The people in office jobs don't seem to get as involved in the Scanlon Plan.]

*3. The same people are always the ones making suggestions.

4. Everyone, from the president of the company on down, is involved in Scanlon Plan participation.

*5. It is really only a very small group of people that keeps our Scanlon Plan going.

D. Quality of Scanlon Committee Meetings

1. You can get a pretty good idea of how this company is doing by attending a Scanlon Committee meeting.

2. [Scanlon committees meet whether there are bonuses or not.]

3. Serving on a Scanlon Committee is one of the best educations an employee can get about our company's business.

*4. The things that go on in Scanlon Committee meetings are seen as a waste of time.

*5. Other than bonuses, nothing useful ever comes out of our Scanlon Committee meetings.

E. Quality of Suggestion Processing System

*1. People don't think their suggestions are acted on promptly enough.

*2. No written record is made to keep employees informed of the status of their Scanlon suggestions.

*3. Employees do not understand the procedure for making a Scanlon suggestion.

4. Scanlon suggestions can be made by filling out a simple form.

*5. If a suggestion is rejected, the person who made the suggestion is not given an explanation.

6. Decisions on Scanlon suggestions are made using the best information available.

7. If a Scanlon suggestion is rejected, it is usually for a good reason.

8. Scanlon suggestions that are accepted are quickly put into use.

*9. The same one or two people make most of the decisions on whether to accept Scanlon suggestions.

F. Suggestion Quality

1. [Employee suggestions are of high quality.]

*2. The suggestions made as part of the Scanlon Plan are usually gripes about the job.

3. Employees' suggestions involve cost savings and process changes rather than complaints.

4. Employees understand the difference between Scanlon suggestions and grievances.

5. [Most of our Scanlon suggestions are aimed at cutting costs.]

G. Level of Cooperation

*1. People who work in one department don't care whether they create a problem for people in another department.

2. "Teamwork" would be the best way to describe the way we operate here.

3. We are usually able to resolve conflicts between departments before they affect performance.

*4. It is unusual for people to cooperate with each other in this company.

*5. Departments in this company tend to only look out for themselves.

III. Equity

A. Wage and Salary Equity

*1. The bonus is seen as just another way to avoid paying higher wages and salaries.

*2. People frequently leave this company for better pay.

3. The pay here is fair.

4. The pay here is based on how much an individual contributes.

5. The company makes an effort to see that employees maintain a good income.

B. Company Equity

1. [We tend to agree that the company must be doing well before we receive any bonus.]

2. [Employees are willing to place part of their bonus in a reserve fund to be used in months when no bonus is earned.]

3. [Employees understand that there will be no bonuses if the company isn't successful.]

*4. [The main reason this company has a Scanlon Plan is to pay bonuses to employees.]

5. Our Scanlon Plan has made this a more successful company.

C. Group Incentive

*1. There is a general feeling that top management should not be included in the bonus because they are paid enough already.

*2. Employees question why people in the office are included in the bonus.

3. [Everyone in the company shares in bonuses when we earn them.]

*4. [There are people in this company who receive special bonuses that others don't.]

5. [This company does not believe in paying a cash bonus to one person for his/her suggestion.]

D. Perceived Performance-Bonus Relationship

*1. Employees cannot see how their suggestions contribute to bonus.

*2. Employees see little or no relationship between the work they do and the amount of bonus earned.

3. When we receive a bonus, we know we have earned it.

4. The opportunity to earn bonus has motivated employees to do better.

5. If we work harder and smarter, it seems to pay off in bonuses.

E. Use of Bonus as a Working Tool

1. Information supplied along with our bonus statement makes it clear where we can improve in the next month.

2. Asking questions about the bonus is one way to learn about this company's costs.

3. The bonus serves as a kind of "report card" of how we are doing.

4. The bonus figure is one of the best ways to tell how well we are doing as a company.

5. From our discussions of bonus we are able to pinpoint specific problem areas.

F. Perceived Fairness and Understanding of Bonus Computation

*1. Employees really don't understand the bonus formula.

*2. There is a lot of distrust about how the bonus is computed.

3. The way our bonus is computed seems fair to most of us.

*4. [This company is very secret about how it computes the bonus.]

5. The bonus computation is simple enough for most employees to understand it.

IV. Managerial Competence

A. Managerial Style

*1. Employees feel that management treats them like children.

*2. [It seems like the management of this company believes that employees cannot be responsible for their own work.]

*3. Management here thinks that the only way to get people to work is by "cracking the whip."

*4. If management would just treat people with more respect, this would be a more successful company.

B. Management Receptivity to Employee Influence

*1. There is a general attitude around here that it is better to keep your suggestions to yourself.

*2. A person in this company cannot honestly say that he has influence on management's decisions.

3. The Scanlon Plan provides a good opportunity for employees to have influence over their jobs.

4. The Scanlon Plan here provides employees the opportunity to have a "say" in how this company is managed.

5. Employees here are given the opportunity to participate in decisions affecting their jobs.

C. Quality of Communication

*1. [The management of this company provides so much information to employees that it becomes confusing.]

2. Management tries hard to see that all departments get accurate and complete information to get the job done.

*3. Communication between management and employees is getting worse all the time.

4. Management makes every attempt to insure that the information communicated to employees is accurate.

*5. Most of the communication from management is incorrect and cannot be trusted.

D. Managerial and Supervisory Job Competence

*1. Nonmanagement employees think they could do a better job of running this company than management.

2. Management has provided this company with excellent leadership in good times and bad times.

3. It would be hard to beat the management of this company.

*4. The supervisors here don't seem to know much about their jobs.

5. In this company management is very competent on their jobs.

E. Facilitation of Work by Management

1. Management does its best to insure that every employee will have a full day's work.

*2. Management spends more time frustrating employees than helping them on the job.

3. Management tries to keep a steady and balanced production schedule.

*4. Our work runs in two extremes: either we have nothing to do or we are overloaded.

5. We are provided with the best equipment and supplies in order to be more productive.

BIBLIOGRAPHY

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Argyris, C. Personality and organization. New York: Harper, 1957.

Argyris, C. Integrating the individual and the organization. New York: Wiley, 1964.

Beckhard, R. Organization development: Strategies and models. Reading, Mass.: Addison-Wesley, 1969.

Beer, M. Organizational climate: A viewpoint from the change agent. Paper presented to Division 14 of the American Psychological Association, Washington, D. C., 1971.

Beer, M. Research and organization development: A systems view. Paper presented at Eastern Academy of Management Meeting, Philadelphia, 1973.

Beer, M. On gaining influence and power for OD. Journal of Applied Behavioral Science, 1976, 12, 44-51. (a)

Beer, M. The technology of organization development. In M. Dunnette (Ed.), Handbook of Industrial and Organizational Psychology. Chicago: Rand McNally, 1976, 937-993. (b)

Blake, R. R., & Mouton, J. S. The managerial grid. Houston: Gulf Publishing Co., 1964.

Bowers, D. G. (Ed.). Applying modern management principles to sales organizations. Ann Arbor: Foundation for Research on Human Behavior, 1963.

Bowers, D. G., & Seashore, S. E. Peer leadership within workgroups. Paper read at International Congress of Applied Psychology, Ljubljana, Yugoslavia, August, 1964.

Burke, W. W. Organization development in transition. Journal of Applied Behavioral Science, 1976, 12, 22-43.

Burns, T. The comparative study of organizations. In Vroom, V. H. (Ed.), Methods of organizational research, Pittsburgh: University of Pittsburgh Press, 1967, 113-170.

Campbell, J. P., & Beaty, E. E. Organizational climate: Its measurement and relationship to workgroup performance. Paper presented at the annual meeting of the American Psychological Association, Washington, D. C., September, 1971.

Coch, L., & French, J. R. P., Jr. Overcoming resistance to change. Human Relations, 1948, 11, 512-532.

Davenport, R. Enterprise for everyman. Fortune, 1950, 41, 51-58.

Drucker, P. F. Management: Tasks, responsibilities, practices. New York: Harper & Row, 1974.

Erickson, D. J. Members' knowledge of an organization and effective corporate performance. Unpublished Ph.D. dissertation draft, Michigan State University, 1964.

Etzioni, A. Two approaches to organizational analysis: A critique and a suggestion. Administrative Science Quarterly, 1960, 61, 256-278.

Evan, W. M. A systems model of organizational climate. In R. Tagiuri & G. Litwin (Eds.), Organizational climate: Explorations of a concept. Boston: Division of Research, Harvard Business School, 1968, 105-124.

Fiedler, F. E., & Chemers, M. M. Leadership and effective management. Glenview, Ill.: Scott, Foresman & Co., 1974.

Fleishman, E. A. Twenty years of consideration and structure. Paper presented at Southern Illinois University Leadership Conference, April, 1971.

Frederiksen, N., Jensen, O., & Beaton, A. E. Prediction of organizational behavior. Elmsford, N. Y.: Pergamon, 1972.

French, W. L., & Bell, C. H., Jr. Organization development. Englewood Cliffs, N. J.: Prentice-Hall, 1973.

Friedlander, F. OD reaches adolescence: An exploration of its underlying values. Journal of Applied Behavioral Science, 1976, 12, 7-21.

Frost, C. F. The Scanlon Plan: Its reality and potential. Paper presented to the Federal Small Business Agencies, Detroit, Michigan: 1964.

Frost, C. F. Employee psychological stimuli. Paper presented to the American Architects Association Seminar: Living and Working Environments, Chicago, Illinois, Fall, 1967.

Frost, C., Wakeley, J., & Ruh, R. The Scanlon Plan for organization development: Identity, participation and equity. East Lansing: Michigan State University Press, 1974.

Georgopoulos, B., & Tannenbaum, A. A study of organizational effectiveness. American Sociological Review, 1957, 22, 534-540.

Golden, C. S. A tribute to Joseph N. Scanlon. In F. G. Lesieur (Ed.), The Scanlon Plan: A frontier in labor-management cooperation. Cambridge, MIT Press, 1958, 2-6.

Golembiewski, R. T., Billingsley, K., & Yeager, S. Measuring change and persistence in human affairs; types of change generated by OD designs. Journal of Applied Behavioral Science, 1976, 12, 133-157.

Goodman, R. K., Wakeley, J. H., & Ruh, R. A. What employees think of the Scanlon Plan. Personnel, 1972, 49, 22-99.

Gouldner, A. Cosmopolitans and locals: Toward an analysis of latent social roles: I. Administrative Science Quarterly, 1958, 2, 281-306. (a)

Gouldner, A. Cosmopolitans and locals: Toward an analysis of latent social roles: II. Administrative Science Quarterly, 1958, 2, 444-480. (b)

Guion, R. M. A note on organizational climate. Organizational Behavior and Human Performance, 1973, 9, 120-125.

Hays, W. L. Statistics. New York: Holt, Rinehart and Winston, 1963.

Helfgott, R. Group wage incentives: Experience with the Scanlon Plan. New York: Industrial Relations Counselors, Industrial Relations memo no. 141, 1962.

Herrick, N. Q. The quality of work and its outcomes: Estimating potential increases in labor productivity. Columbus, Ohio: Academy for Contemporary Problems, 1975.

Herrick, N. Q., & Maccoby, M. Humanizing work: A priority goal of the 1970s. In L. Davis & Cherns (Eds.), The quality of working life, New York: The Free Press, 1975, 63-77.

Hill, T. E. Locus of control, dogmatism, and satisfaction with the leader as determinants in the perception of leadership styles. Unpublished Masters thesis, Michigan State University, 1976.

House, R. J., & Rizzo, J. R. Role conflict and ambiguity as critical variables in a model of organizational behavior. Organizational Behavior and Human Performance, 1972, 7, 467-505.

Huse, E. F. Organization development and change. St. Paul: West Publishing Co., 1975.

Iman, S. C. Fenlon Works: The effects of organizational development. Unpublished Doctoral dissertation, University of Michigan, 1972.

James, L. R., & Jones, A. P. Organizational climate: A review of theory and research. Psychological Bulletin, 1974, 81, 1096-1112.

Johnson, R. H. Initiating structure, consideration and participation in decision making: Dimensions of leader behavior. Unpublished Doctoral dissertation, Michigan State University, 1973.

Kahn, R. L., Wolfe, D. M., Quinn, R. P., Snoek, J. D., & Rosenthal, R. A. Organizational stress: Studies in role conflict and ambiguity. New York: Wiley, 1964.

Katz, D., & Kahn, R. The social psychology of organizations. New York: Wiley, 1966.

Katz, D., Maccoby, N., & Morse, N. C. Productivity, supervision and morale in an office situation. Ann Arbor: University of Michigan, Institute for Social Research, 1950.

LaFollette, W. R., & Sims, H. P., Jr. Is satisfaction redundant with organizational climate? Organizational Behavior and Human Performance, 1975, 13, 257-278.

Lawrence, P. R., & Lorsch, J. W. Organization and environment: Differentiation and integration. Boston: Harvard University Press, 1967.

Lawrence, P. R., & Lorsch, J. W. Developing organizations: Diagnosis and action. Reading, Mass.: Addison-Wesley, 1969.

Lesieur, F. G. The Scanlon Plan: A frontier in labor-management cooperation. Cambridge, MIT Press, 1958.

Levinson, H. Organizational diagnosis. Harvard University Press: Cambridge, 1972.

Lewin, K. Frontiers in group dynamics. Human Relations, 1947, 1, 5-41.

Likert, R. L. New patterns of management. New York: McGraw-Hill, 1961.

Likert, R. L. The human organization: Its management and value. New York: McGraw-Hill, 1967.

Lippitt, G. L. Organizational renewal. New York : Appleton-Century-Crofts, 1969.

Litwin, G. H., & Stringer, R. A., Jr. Motivation and organizational climate. Boston: Harvard University, Graduate School of Business Administration, Division of Research, 1968.

Lowin, A. Participative decision making: A model, literature critique and prescriptions for research. Organizational Behavior and Human Performance, 1968, 3, 68-106.

McGregor, D. The significance of Scanlon's contribution. In F. G. Lesieur (Ed.), The Scanlon Plan: A frontier in labor-management cooperation. Cambridge: MIT Press, 1958, 7-15. (a)

McGregor, D. The Scanlon Plan through a psychologist's eyes. In F. Lesieur (Ed.), The Scanlon Plan: A frontier in labor-management cooperation. Cambridge: MIT Press, 1958, 89-99. (b)

McGregor, D. The human side of enterprise. New York: McGraw-Hill, 1960.

Mann, F. C. Studying and creating change: A means to understanding social organization. In C. Arensberg et al. (Eds.), Research in industrial human relations. New York: Harper and Bros., 1957, 157-167.

Margulies, N., & Raia, A. Organization development values, process, and technology. New York: McGraw-Hill, 1972.

Marrow, A. J., Bowers, D. G., & Seashore, S. E. (Eds.). Management by participation: Strategies of organizational change. New York: Harper and Row, 1967.

Miles, R. H. Role requirements as sources of organizational stress. Journal of Applied Psychology, 1976, 61, 172-179.

Murrell, K. L., & Vaill, P. B. Organization development: Sources and applications. Washington, D. C.: American Society for Training and Development, 1975.

National Commission on Productivity and Work Quality [NCPWQ]. A plant-wide productivity plan in action: Three years of experience with the Scanlon Plan. Washington, D. C., May, 1975.

Nie, N., Hull, C., Jenkins, J., Steinbrenner, K., & Bent, D. Statistical Package for the Social Sciences (2nd Ed.). New York: McGraw-Hill, 1975.

Nunnally, J. C. Psychometric theory. New York: McGraw-Hill, 1967.

O'Connell, M. J., Cummings, L. L., & Huber, G. P. The effects of environmental information and decision unit structure on felt tension. Journal of Applied Psychology, 1976, 61, 493-500.

Patchen, M. Labor management consultation at TVA: Its impact on employees. Administrative Science Quarterly, 1965, 10, 149-174.

Payne, R. L., & Pheysey, D. C. G. G. Stern's organization climate index: A reconceptualization and application to business organizations. Organizational Behavior and Human Performance, 1971, 6, 77-98.

Perez, D. An investigation of the relationship between employees' knowledge of organizational reality and certain indices of organizational effectiveness. Unpublished Masters thesis, Michigan State University, 1968.

Porter, L. W., Lawler, E. E., III, & Hackman, J. R. Behavior in organizations. New York: McGraw-Hill, 1975.

Pritchard, R. D., & Karasick, B. W. The effects of organizational climate on managerial job performance and job satisfaction. Organizational Behavior and Human Performance, 1973, 9, 126-146.

Puckett, E. S. Measuring performance under the Scanlon Plan. In F. Lesieur (Ed.), The Scanlon Plan: A frontier in labor-management cooperation. Cambridge: MIT Press, 1958, 65-79.

Pugh, D. S., Hickson, D. J., Hinings, C. R., & Turner, C. Dimensions of organization structure. Administrative Science Quarterly, 1968, 13, 65-105.

Pugh, D. S., Hickson, D. J., Hinings, C. R., & Turner, C. The context of organization structure. Administrative Science Quarterly, 1969, 14, 91-114.

Rizzo, J. R., House, R. J., & Lirtzman, S. E. Role conflict and ambiguity in complex organizations. Administrative Science Quarterly, 1970, 15, 150-163.

Ross, T. L. et al. Measurement under the Scanlon Plan and other productivity incentive plans. Unpublished manuscript, Bowling Green State University, 1975.

Ruh, R. Wage incentive systems and the Scanlon Plan. Paper presented to the Furniture Manufacturers Association of Grand Rapids, November, 1970.

Ruh, R. The Scanlon Plan: A system for total organization development. Paper presented at the Nineteenth Annual Personnel Management and Industrial Relations Conference, Tuscaloosa, Alabama, December, 1971.

Ruh, R. Research on the Scanlon Plan: A brief review of previous literature, a model to guide future research and some recent data. Paper presented to the Nineteenth Annual Meeting of the Institute for Management Sciences, Houston, April, 1972.

Scanlon, J. N. Profit sharing under collective bargaining: Three case studies. In F. Lesieur (Ed.), The Scanlon Plan: A frontier in labor-management cooperation. Cambridge: MIT Press, 1958, 135-152.

Schneider, B. Organizational climates: An essay. Personnel Psychology, 1975, 28, 447-479.

Shultz, G. P. Worker participation on production problems. In F. Lesieur (Ed.), The Scanlon Plan: A frontier in labor-management cooperation. Cambridge: MIT Press, 1958, 50-64.

Silkiner, D. S. A method to translate organizational effectiveness into operational data and a test of its practicality. Unpublished Doctoral dissertation, Michigan State University, 1964.

Steers, R. M. Problems in the measurement of organizational effectiveness. Administrative Science Quarterly, 1975, 20, 546-558.

Strauss, G. P., & Sayles, L. R. The Scanlon Plan: Some organizational problems. Human Organization, 1957, 16, 15-22.

Tyron, R., & Bailey, D. Cluster analysis. New York: McGraw-Hill, 1970.

Vroom, V. H. Work and motivation. New York: Wiley, 1964.

Vroom, V. H., & Yetton, P. W. Leadership and decision-making. Pittsburgh: University of Pittsburgh Press, 1973.

Wallace, R. L. A comparative study of attitude scores of managers toward employees and toward selected leadership policies in groups of firms which have either discontinued or retained cost reduction sharing plans. Unpublished Doctoral dissertation, Michigan State University, 1971.

Weiss, D. J., Dawis, R. V., England, G. W., & Lofquist, L. H. Manual for the Minnesota Satisfaction Questionnaire. Minnesota Studies in Vocational Rehabilitation: XXII. Minneapolis: University of Minnesota, Industrial Relations Center, 1967.

White, J. K. The Scanlon Plan: Causes and success. Unpublished Doctoral dissertation, Michigan State University, 1974.

Whyte, W. F. Money and motivation: An analysis of incentives in industry. New York: Harper, 1955.