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PARTICIPATIVE LEADERSHIP AS A DETERMINANT OF

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By

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ABSTRACT

PARTICIPATIVE LEADERSHIP AS A DETERMINANT OF
IDEA/SUGGESTION GENERATION: AN
EXPERIMENTAL SIMULATION

By

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Participative decision-making (PDM) has been a topic
of interest in the organizational behavior/organization
development literature for many years. Most researchers
have examined the relationship of a participative style of
leadership or decision-making and satisfaction and/or
productivity. Relatively little thought has been given to
a certain type of innovative behavior, i.e., the generation
of task-related ideas and suggestions, as a possibly benefi-
cial outcome of such a participative style. Another little-
researched, but important aspect of PDM is the effect of
a formal, prescribed PDM system (e.g., the Scanlon Plan) on
such innovative behavior. This dissertation examines the
impact of two variables on the idea-generating behavior of
work-group members: first, style of leadership and decision-
making; and second, the presence or absence of a formal PDM
system. It was predicted first, that a participative style
as opposed to an authoritarian style would result in more

task-related idea generation, and second, that the presence of a formal PDM system would result in more task-related idea generation than not having such a system.

One hundred twenty undergraduate subjects were assigned to 40 groups. Each group worked on a simulated manufacturing task. Groups were supervised by either a trained participative or authoritarian leader. Also, half of the groups worked in a formal participation system condition. Verbal ideas and suggestions (i.e., innovative behavior) were recorded before, during, and after the experimental task. Written ideas and suggestions were gathered in research questionnaires administered upon completion of the task.

Analysis of variance of the number of verbal suggestions indicated a greater number of suggestions were produced in the participative conditions, but the difference between formal and no-formal participation groups was nonsignificant. None of the effects were significant for the analysis on written suggestions.

Discussion focuses primarily on why certain aspects of a participative style of leadership and decision-making are conducive to the verbal provision of task-related ideas and suggestions by work-group members. Limitations on the interpretation of findings and implications for organizations are also discussed.

ACKNOWLEDGMENTS

Special thanks are due my nine independent study students who spent countless hours, days, and weeks helping to prepare for and conduct this study. In addition, Mike DuPuis, Bob McAlpine, and Tom Russian did most of the monotonous data coding.

Finally, there are those who, while not directly involved with the dissertation, provided the love, support, warmth, encouragement and inspiration needed to pull me through this endeavor: The Milford House people and Associates (past and present), Joanie, and, of course, my family.

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CHAPTER I

INTRODUCTION AND LITERATURE REVIEW

Participative Decision-Making (PDM)

Participative decision-making has been a topic of
great interest in the organizational behavior/organizational
development literature for at least three decades prior to
the 1980s (e.g., Nicol, 1948; Lawrence & Smith, 1955; Lowin,
1968; and Dachler & Wilpert, 1978). However, there appear
to be as many definitions and names of "participative
decision-making" in this literature as there are writers
about the topic. Dachler and Wilpert (1978) called atten-
tion to many other labels which appear to designate content
areas similar to PDM: industrial democracy, worker self-
management, power equalization, autonomous work groups, and
democratic leadership. In addition, the authors accurately
point out that ". . . the term participation has a variety
of meanings across investigators" (p. 1).

Due to both the variety of labels and definitions
utilized in the literature and the fact that some of the
authors cited in this paper did not provide explicit
definitions of participation, the Tannenbaum and Schmidt
(1973) "Continuum of Leadership Behavior" will be used as

a point of reference (see Figure 1). The continuum presents
a range of possible leadership behavior available to a
manager. On one extreme is the manager who maintains a
high degree of control over decision-making (the authori-
tarian or autocratic manager). At the other extreme is the
manager who gives a high degree of control over decision-
making to subordinates. The studies cited in this paper
that claim to use or that refer to participative decision-
making comfortably fit in the area of the more subordinate-
centered leadership, i.e., the area denoted by the three
categories to the extreme right. References to authoritarian
or autocratic leadership comfortably fit in the area of the
more manager-centered leadership, i.e., generally in the
area of the two categories to the extreme left. The impor-
tant point to keep in mind, then, as Tannenbaum and Schmidt
indicate by reference to their continuum, is that the extent
of participation in decision-making is not an either-or
phenomenon. Rather, it is a matter of degree.
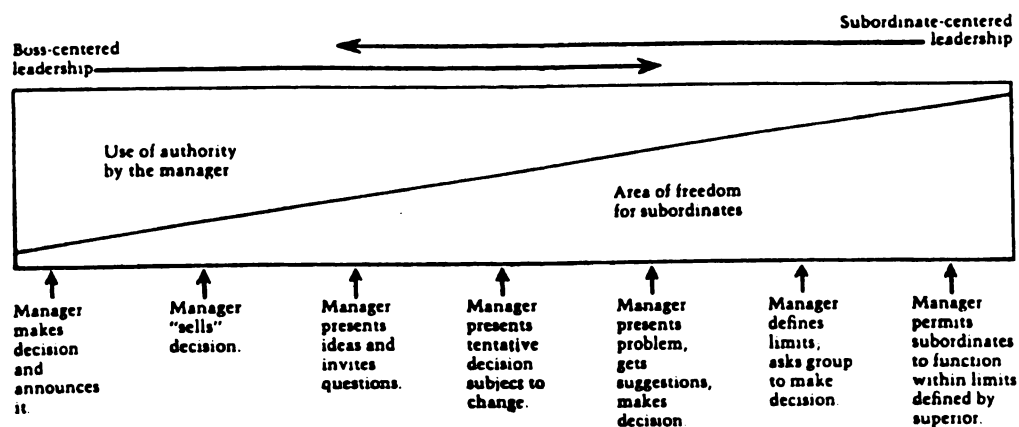
Figure 1. Continuum of Leadership Behavior (Adapted from
Tannenbaum and Schmidt, 1973).

Past research on participation has not been grounded solely in one leadership perspective. For example, some researchers have used a decision-making perspective (e.g., Lowin, 1968; Vroom & Yetton, 1973; Locke & Schweiger, 1979) while others have used a problem-solving approach (e.g., Hoffman & Maier, 1961; Maier, 1952). These leadership perspectives, and perhaps others, reflect what might be called a leadership climate for participation. McGregor (1960) and Likert (1961) are two theorists who have discussed such a concept. For example, a leader's or manager's role prescriptions in McGregor's Theory Y would stress democratic procedures and participative decision-making, and their importance in developing a climate in which human potential of idea generation, problem-solving, and creativity are maximized. Likert's participative-group system (i.e., System 4) attempts to foster a participative climate through highly cohesive groups, involving the groups in the decision-making process, and then establishing high goals through those groups.

Thus, perhaps the concept of participation should not be thought of as emerging from, or best discussed from, any one perspective. Rather, drawing from various leadership frameworks, including participative decision-making and problem-solving styles, helps to form an overall climate for participation.

Of the research that has been conducted on decision-making, some of it has been normative or prescriptive in

nature. Of the work in this area, Vroom and Yetton's
(1973) theory is the most widely known. Basically, it
identifies the styles or strategies of decision-making that
should be used by managers in solving problems that have
specific attributes. These strategies range from highly
autocratic (no subordinate involvement) to highly partici-
pative (full subordinate collaboration in decision-making).
The bulk of the research on PDM, however, has been gener-
ally non-prescriptive in nature. Of this research, Lowin's
work is particularly noteworthy. Lowin noted that the
varied research tactics and findings regarding PDM make it
clear that PDM is too complex a phenomenon to be "proved or
disproved," and, as a result, intervening or mediating
variables in the PDM process have garnered more attention
(as Lowin felt they should).

Lowin also developed a model of organizational PDM
which concentrated on PDM as "social equilibrium." He then
contrasted PDM (defined by Lowin as "a mode of organiza-
tional operations in which decisions as to activities are
arrived at by the very persons who are to execute those
decisions"), with the more traditional hierarchical (HIER)
mode of operations "in which decision and action functions
are segregated in the authority structure" (p. 69). Lowin
felt that no complex organization could ever totally operate
at either extreme of the scale, i.e., it could neither
operate on a purely PDM principle, nor could it totally
remove decision-making functions from its other activities.

Both of these areas emphasized by Lowin, i.e., the impor-
tance of intervening variables in the PDM process and the
PDM-HIER dimension, will be examined later in the context
of the proposed research.

Many of the researchers in the PDM area have implicitly
assumed on an a priori basis that PDM is "good." Then, the
effect of PDM on certain variables--almost always producti-
vity or satisfaction--was ascertained. The implicit
assumption of the "goodness" of PDM has not been held by
all researchers however. For example, Locke and Schweiger
(1979), who define PDM as "joint decision-making" in an
extensive review of the literature, take issue with the
ideological arguments that have been made for PDM, and
attempt to treat it as a practical issue--i.e., that PDM
should be promoted only if its use will increase organiza-
tional efficiency. They examined the literature on the
effects of PDM on productivity and satisfaction, finding
"equivocal" support for both relationships. However,
support was stronger for the "PDM leads to satisfaction of
employees" idea. (Satisfaction, according to the authors,
would likely not pass muster anyway as a "practical" out-
come.)

Similar results have been noted in other extensive
reviews of the PDM literature. First, Anderson (1959),
examining the studies comparing democratic (PDM) and
authoritarian approaches to teaching, found democratic
approaches to be generally more favorable with respect to a

morale (i.e., satisfaction) criterion, but found no trend with respect to a learning criterion; and Stogdill (1974) concluded that PDM usually led to higher morale (i.e., satisfaction) than directive leadership, but did not necessarily lead to higher performance.

Despite the presence of occasional papers like Lowin (1968) and Dachler and Wilpert (1978) discussed above, the focus of past PDM literature, both pro and con, has been mainly on resulting satisfaction and productivity, or lack thereof. Relatively little thought has been given to other possible outcomes of PDM. One of these "neglected" outcomes is innovation in organizations. The possibility exists that the effects of PDM on the development of innovations in organizations might be a smaller, more logical conceptual leap than that from PDM to increased productivity. In other words, innovative behavior may serve as one link between PDM and productivity.

This research is an attempt to "capture" the variables of interest (PDM and innovative behavior) and test their relationship in a controlled setting, i.e., through the use of an experimental simulation. The experimental simulation will allow for the simulation of a manufacturing task, while offering the added advantage of experimental control of the important independent variables--a condition not often found when conducting research in field settings.

Specifically, this research will test the idea that the presence of a participative style of leadership will

increase the amount of innovative behavior (defined for
the purposes of this research as the amount of task-related
ideas and suggestions generated) by work groups. Also
tested will be the idea that the presence of a formal,
prescribed system of PDM will facilitate innovative be-
havior.

Innovation in Organizations

The study of organizational innovation, unlike the
study of PDM, is a much more recent phenomenon, with the
bulk of the research occurring in the last 15 years. One
reason for the recent surge has been the belated realiza-
tion by researchers that previous discussions and models
of innovation were much more appropriate for individual
rather than organizational innovation (Radnor, Feller, &
Rogers, 1978; Warner, 1974).

Innovation in an organization is defined here as "any
idea, practice, or material artifact perceived to be new
by the relevant unit of adoption" (Zaltman, Duncan, &
Holbek, 1973). By this definition, the organization, or
its members, can be innovative without necessarily being
inventive--taking into account the value of both "inventing"
ideas, and adapting "pre-invented" ideas to their situation
--both considered to be "innovation." Zaltman, Duncan, and
Holbek, following this line of thought, felt that the dis-
tinguishing characteristic of an innovation is the per-
ception by a social unit of its newness, rather than it

being an external object. Thus, according to the authors,
a practice that is an innovation for one organization is
not necessarily an innovation for another.

Innovations may be concerned with five aspects of
organization. Four of these, according to Knight (1967)
are: first, innovations that pertain to the product or
services performed by the organization (e.g., the decision
of a firm to enter a new market); second, innovations that
are production-process oriented (e.g., automated assembly
lines), which involve some type of changes in either the
task systems of the organization or in its physical pro-
duction operations; third, organizational-structure innova-
tions (e.g., decentralizing decision-making); and fourth,
people innovations (e.g., interpersonal skills training for
supervisors). The above-mentioned aspects would seem to be
highly inter-related such that implementing an innovation
successfully on one aspect probably would depend on changes
in the other aspects.

Zaltman et al. (1973) added another aspect to Knight's
classification, that dealing with policy innovations, which
involves major changes in the organization's strategies for
achieving its major objectives, and which the authors felt
"is a sufficient but not necessary condition preceding any
other type of change" (p. 15). The authors provide a
health-field example of this type of innovation, noting the
decision of some family planning groups to use monetary

incentives to encourage the practice of birth-control by individuals and couples.

In addition to writings on the types of organizational innovations, as with the Knight article discussed above, researchers and writers have examined the types of organizations most likely to innovate (e.g., Thompson, 1965; Shepard, 1967; Knight, 1967).

Thompson (1965) studied the characteristics of the traditional, bureaucratic form of organization, and found it to be poorly suited for innovation. With their conservative orientation, bureaucratic organizations are likely to see novel solutions, which may use resources in a new way, as threatening. The internal distribution of power and status assumes a greater importance than organizational goal accomplishment to those with a bureaucratic orientation. This converts the organization into a system where politics determines who gets these extrinsic rewards (Burns & Stalker, 1961). The initial reaction to suggested changes and new ideas is likely to be, "How does it affect us"--with political interests and not organizational goals behind the question. Thompson feels, then, that the expectations of consequences upon which these organizations base their decisions to change, or innovate, are strongly influenced by these same political interests. New ideas are seen as speculative and thus are especially dangerous to personal goals--particularly the goals of status and power. Thus, according to Thompson, bureaucratic organizations, which

are structured around these extrinsic goals, are not likely to be highly innovative.

An innovative organization requires uncommitted resources, a diversity of inputs, freedom from excessive external pressures, structural looseness, and the use of group processes. Instead of income, power, and status--the common extrinsic organizational rewards--positive feelings are obtained from the search for innovative ideas, professional growth, and the esteem of respected peers. These rewards are seen as more conducive to innovation. Also, an innovative organization will display less control by superiors and more by self and peers. In addition, power and influence will be more broadly dispersed, the rationale being that concentrated influence and power often prevent imaginative solutions to problems by limiting the number of employees who have the opportunity to contribute ideas.

When discussing the structural requirements for innovative organizations, Thompson notes that the structural looseness required consists of freer communications and more decentralized decision-making than is customary. Furthermore, group processes will be more frequently used. All of these will result in more and better interpersonal communication (i.e., between peers, subordinate and supervisor, etc.) which may facilitate innovation by increasing the amount and diversity of input of ideas and stimulation. Finally, Thompson makes a statement that is quite consistent with the philosophy of humanistic theorists (e.g., McGregor,

1960; Likert, 1967), and organization development processes like the Scanlon Plan. Thompson writes that, "the innovative organization is innovative throughout and the innovative insights of the engineer, the research scientist, the machine tender, the administrative expert are all needed" (p. 29).

The contrasts between traditional bureaucratic conditions and innovative requirements as seen by Thompson are quite substantial. If, in the United States, a shift to more innovative forms of organization is desired, extensive changes in the attitudes of organization leaders would probably be needed. This inference would result from the past and current dominance of the bureaucratic organization in the United States.

Shepard (1967) also discussed the problem of innovative organizational conditions in a paper on innovative-producing and innovative-resisting organizations. He felt that most organizations have been designed to be innovation resisting, that is, to do a narrowly prescribed list of things in a reliable manner. To maintain this reliable repetition of prescribed operations, strong defenses against innovation are required by the organization. Shepard writes:

> Efforts to innovate must be relegated to the categories of error, irresponsibility, and insubordination, and appropriate corrective action taken to bring the would-be innovators "back in line." Any change is likely to run counter to certain vested interests and to violate certain territorial rights. Sentiments of vested interest and territorial rights are sanctified as delegations of legitimate authority

in traditional organizations, thus guaranteeing quick and effective counteraction against disturbances. (pp. 143-144)

Innovation in Innovation-Resisting Organizations

Innovative ideas, according to Shepard, would most likely occur to persons who are somewhat familiar with the situation(s) to which the idea would apply. This point is in agreement with the writings of others (Knight, 1967; March & Simon, 1958). The implication is that most new ideas would probably arise at some distance from the power center of the organization. New ideas are efficiently screened out of the upward communication flow, since, as mentioned previously, they are considered "disturbances." Because decision-making power and authority are at the top levels of the organization, it is almost a necessity for an idea to have top-level support if it is to become an innovation. In order to innovate in an innovation-resisting organization, the innovator may have to resort to such maneuvers as concealing the innovation from the rest of the organization, avoiding major innovations, and acquiring a critical mass of support, i.e., from internal and external sources.

Innovation in Innovation-Producing Organizations

People in these organizations may continuously learn, adapt to organizational and environmental changes, and successfully innovate in that environment. According to

Shepard, one important characteristic of this type of organization is <u>periodicity</u>, i.e., a capacity to use alternating organizational forms. For example, at the idea-generation phase of the innovation process, openness is needed in the organization so that a wide diversity of persons can contribute, and so that a number of options can be examined. At the implementation stage, a very different quality (e.g., singleness of purpose) may be needed, and so on.

Those in the innovation-producing organization also attempt to provide an environment in which persons feel that they can grow and achieve--seek to "self-actualize" if you will. According to Shepard:

> This means a climate in which members can view one
> another as resources rather than competitive threats
> or judges; a climate of openness and mutual support
> in which differences can be confronted and worked
> through, and in which feedback on performance is a
> mutual responsibility among members so that all can
> learn to contribute more. Such an environment is
> difficult to provide, since it is at variance with
> traditional management doctrine. (p. 149)

Consistent with the view of providing an environment in which higher-order needs (e.g., feelings of achievement) may be met, Knight (1967) also stressed the importance of the environment in fostering innovative behavior. Knight cites "Gresham's Law" of planning--routine drives out planning--as implying that a person is not likely to be innovative when deeply involved in a very highly routine activity:

> He is not likely to question his existing behavior
> and, therefore is unlikely to be creative. This
> indicates that an organization which keeps employees
> immersed in very routine activities is not likely to
> be a very creative one. (p. 481)

The author goes on to hypothesize that the attraction and
development of more creative (innovative) people will occur
in organizations that "reward people for creative ideas,
allow freedom to select and pursue problems, provide open
communication channels, and encourage different and unusual
points of view. . . ."

It is quite apparent from the discussion of Thompson
(1965), Shepard (1967), and Knight (1967) that if organiza-
tions desire to move to a more innovative form, a different
type of internal climate might be required. In the present
context, "climate" refers to general aspects of an organiza-
tion that tend to condition members of the organization to
either accept or reject innovative behavior as a norm of the
organization. Because most bureaucratic organizations have
been designed to assure reliability in performance, their
internal climates suppress, rather than promote, innovative
behavior. The acceptance (and encouragement) of innovative
behavior as an organizational norm would require an internal
climate consistent with that norm.

Despite the above and other writings about innovation,
Tornatzky, Roitman, Boylan, Carpenter, Eveland, Hetzner,
Lucas, and Schneider (1981) still found the innovation
process literature, as a whole, to be pervaded by uncer-
tainty:

The act, and the process of innovating is clearly
one that involves grappling with unknowns. These
unknowns or uncertainties may be technological,
economic, or merely the manifestation of personal
and social variables. (p. 3)

The same authors felt that it would be a "strategic and

intellectual error" to limit the analysis of innovation to

variables other than organizational variables (e.g.,

societal or individual levels), noting that "organizations

involved in innovation are inevitably involved in controlling

the uncertainties of that process" (p. 3).

A Model of Organizational Innovation

One way to gain some degree of control over the uncer-

tainties of the innovation process is to present a framework

from which the process of innovation might be explained.

Yin (1978) presented four such frameworks: the Research,

Development and Diffusion (R, D & D) approach, the Social

Interaction approach, the Innovative Organizations approach,

and the Organizational Change approach. Yin felt that only

one of these approaches, the Organizational Change approach,

was most appropriate to describe the innovation process in

organizations.

The R, D & D approach to innovation, which covers the

macro system that produces, markets, and implements new

technology, views the innovative process from a multi-

institutional point of view. The steps include conducting

basic research (the research component), developing specific

innovations to be applied to service problems (the develop-

ment component) and communicating these innovations to

potential users (the diffusion component). Also included in the adoption, that is, the final installation and implementation, of an innovation. The major problem with this approach is that it contains a perspective biased towards the external environment of the innovating organization. Thus, this approach seems to emphasize the production and diffusion of new R & D products in the marketplace more than emphasizing potentially critical conditions and events within the innovating organization.

The Social Interaction (Diffusion) approach concerns situations where individuals adopt specific innovations. Essentially, this perspective emphasizes that individuals learn about innovation from other adopters, which creates a communication network through which innovation-related information passes. Thus an essential part of the adoption process is the social interactions, or communications, among individuals. The major disadvantage of this approach is its primary concern with the behavior of individuals, rather than the behavior of individuals as part of the innovative process in organizations.

The Innovative Organizations approach attempts to identify the essential aspects of innovative organizations, i.e., those characteristics shared by innovative organizations. This approach, however, has never clearly explained how organizations change over time (i.e., process aspects).

The Organizational Change approach deals with what happens in an organization as it undergoes change. The

process of innovation is viewed simply as a type of organi-

zational change. Basically, the process involves four

stages (Hage & Aiken, 1970):

1. The <u>prior state</u> of the organization before change, in which dissatisfaction or a sense of opportunity may arise, and there is a recognition of the need for change.

2. <u>Initiation</u>, or the process of planning for specific changes and identifying the resources to be used and procedures to be followed.

3. <u>Implementation</u>, or the actual occurrence of change when the plan becomes a reality, and during which unanticipated responses may occur.

4. <u>Routinization</u>, or the establishment of the new changes as a stable and normal part of organiza-tional procedures and behavior.

As Yin pointed out, different authors have applied the same

basic conceptual framework in numerous studies, using

different labels for the stages (e.g., Lewin's (1947) "un-

freezing," "change," and "refreezing" match the last three

stages.)

Yin further notes that the process occurs constantly

in virtually every organization, and that managerial initia-

tives such as <u>planned change</u> or <u>organizational development</u>

rest on "the premise that a chronic capacity for change is

a desirable state of affairs for most organizations" (e.g.,

Bennis, Benne, & Chin, 1969). It is partially upon this

premise--i.e., that a capacity for change is desirable for

most organizations--that, later in this paper, a link will

be established in the present research between the concept

of innovation and the Scanlon Plan, a management process

which promotes and encourages change (and which includes participation in decision-making as one of its core principles).

The Relationship of PDM to the Amount of Innovation in Organizations

Participative Climate, Leadership Style and Innovation

Theoretically, participation in decision-making should influence the amount of innovation in an organization. Basically, participative management provides an increased opportunity for workers to participate in those decisions directly affecting their lives at work. More decisions are made at organizational levels closer to the areas of organizational functioning that would be affected by the decisions. A major goal of this style of leadership is improved decision-making, although improvements in organizational structure, work procedures, and group process often result (Cummings & Molloy, 1977). These improvements may take the form of increased interactions among employees and their supervisors, peers, and subordinates for the purpose of discussing and resolving work-related procedures and issues (i.e., a more open communication system); a more accepting and less critical attitude in the organization regarding input (ideas, suggestions, opinions, etc.) from employees; and, a greater opportunity for employees to fulfill higher-order, intrinsic needs. The belief here is that the increased interaction and discussion of work-related

procedures and issues provided by PDM increases the opportunity for innovation merely by chance alone, i.e., the greater the amount of work-related interaction that takes place, the greater the chance that innovative ideas will arise from this interaction (Tornatzky et al., 1981; Hoffman & Maier, 1961). This, coupled with the belief that a more open and less critical atmosphere, ideally provided by PDM, will lessen the inhibitions that an employee may have about expressing an idea (i.e., an innovation) regarding a work-related procedure or process (Likert, 1967; Lowin, 1968), lends credence to the hypothesis that a participative system will facilitate the development of innovative behavior in organizations. In addition, the satisfaction of certain higher-order needs (e.g., a sense of accomplishment, achievement) that might accrue from the consideration of one's inputs into the decision-making process (Argyris, 1957; Likert, 1961), may, along with these other factors, produce a participative climate conducive to more innovative ideas and behavior from employees (see Figure 2).

Some research has been conducted which considers the relationship between PDM and innovation. This research has been conducted in non-industrial settings (e.g., Tornatzky, Fergus, Avellar, & Fairweather, 1981; Fairweather, Sanders, & Tornatzky, 1974; Hage & Aiken, 1967), and the researchers typically report a positive relationship.

Hage and Aiken (1967), in a study of welfare organizations, found a positive relationship between PDM and the

Certain Aspects of PDM

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┌─────────────────────┐
│ increased innovative │
│ behavior (i.e., work-│
│ related ideas and sug-│
│ gestions) by organiza-│
│ tional members       │
└─────────────────────┘
        ↑    ↑    ↑
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┌─────────────────────┐
│ more interaction and │
│ discussion of work-related │
│ issues │
└─────────────────────┘

┌─────────────────────┐
│ less inhibitions │
│ about expressing │
│ work-related ideas │
└─────────────────────┘

┌─────────────────────┐
│ more open, less critical │
│ atmosphere │
└─────────────────────┘

┌─────────────────────┐
│ perceived opportunity to │
│ satisfy higher-order needs │
└─────────────────────┘
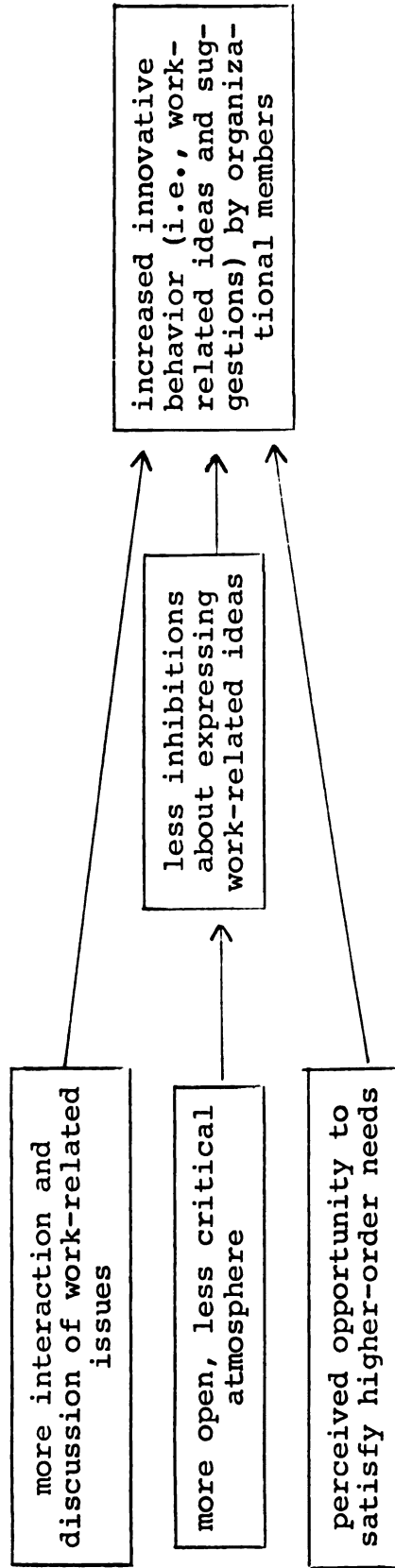
Figure 2. A Process Model of Major Hypothesized Effects of Certain Aspects of PDM on Innovative Behavior.

rate of program change, and a negative relationship between more hierarchical authority and program change.

Fairweather, Sanders, and Tornatzky (1974) conducted a four-year, nationwide study attempting to find the parameters of social change in mental health organizations. Two hundred fifty-five state and federal psychiatric hospitals in the U.S. were involved. The purpose of the study was to persuade them to adopt the "community lodge" as an innovative treatment program. This method had previously been established as a valid and helpful mental health program. A strong and recurrent relationship was found between PDM and the degree of change observed in the hospitals. The authors noted that a clear and consistent finding was "the degree to which involvement across disciplines, across social status levels, and with more groups, produced greater change." Mindful of the importance of some degree of PDM, they further added that, "(I)t is abundantly clear that change does not emanate from unilateral decisions--even though they might emanate from the top."

As a follow-up to the Fairweather et al. (1974) study, Tornatzky et al. (1981) tested the general hypothesis that broad-based PDM in organizations will result in a greater likelihood of movement towards implementation of an organizational innovation (i.e., the "community lodge"). Specifically, three hypotheses were offered. First, attempting to manipulate the breadth of involvement (the number of people) in early decision-making relative to the innovation,

the authors hypothesized that "the more people involved in early initiation decisions, the more likely decisions for innovation will result." Second, manipulating the <u>quality</u> <u>and intensity</u> of group discussion and interaction relative to the innovation, they hypothesized "(T)he more discussion and interaction relative to the innovation, the more likely decisions for innovation will result." In addition to manipulating the number of people involved in decision-making, and the intensity of involvement in decision-making, they also attempted to vary the <u>organizational roles and</u> <u>status</u> of those involved in decision-making relative to the innovation. Specifically, the researchers hypothesized that "(G)reater involvement of non-administrators would more likely yield decisions for innovation." The study used 108 psychiatric hospitals.

Some of the key findings of the study were that methods to increase participation which focused on <u>process</u> (i.e., altering the intensity and frequency of interaction) produced a greater degree of <u>perceived</u> participation by organization members, and that felt (or perceived) participation seemed to be correlated with <u>implementing</u> an innovation. In addition, techniques to increase PDM which focused on <u>organizational framework</u> more typically produced a <u>decision</u> for innovation. These findings led the authors to conclude that a continued focus on the relationship between organizational processes and decision-making, and innovation,

seemed warranted. As a summative, "generic hypothesis" for

their research, Tornatzky et al. felt that:

> (C)hange and innovation without human contact, and
> interpersonal interaction, is not likely to be either
> beneficial or complete. Conversely, if change agents,
> and dissemination programs, can facilitate a greater
> magnitude of interaction, and discussion, in organiza-
> tions involved in innovation then perhaps there will
> be a higher probability of the innovation process
> proceeding to a successful conclusion. (p. 192)

The results of the three studies discussed above,

despite an indication that a relationship exists between PDM

and innovation, should still be viewed cautiously for the

present research. It would seem that whether the results

of these studies would generalize to manufacturing tasks,

i.e., the type of task simulated in the present research,

is still open to question.

In another non-industrial PDM-innovation study, White

and Lippitt (1960) felt that their leadership climate

studies of a boys' club showed that a democratic, as opposed

to an autocratic climate, was superior. However, there did

seem to be little tendency for democratic groups to do

better than autocratic groups in the task-oriented variable

of making "group-minded" suggestions, which might be

regarded as a type of innovative behavior. In addition,

even if a positive relationship was found for the "group-

minded" suggestions variable, the generalizability of these

findings is also questionable.

Three studies conducted within organizations have been

able to tie PDM to innovation-related variables, though

not to innovation directly (Burns & Stalker, 1961; Coch &

French, 1948; and Maier, 1953). Burns and Stalker (1961) in their well-known study of 20 industrial firms in England and Scotland, found that an organic structure, with its smaller authority hierarchy and wider involvement in decision-making, is more effective in dealing with the more unstable (i.e., uncertain) conditions that often accompany attempts of innovation.

In the classic study by Coch and French (1948), the researchers varied workers' participation in decisions to adopt new production line procedures in a pajama manufacturing plant. As a result of increased participation, a greater degree of acceptance of the procedures was found. The study was not designed specifically for, nor did it demonstrate the effects of PDM on innovation per se, but it was able to show strong evidence for PDM's effectiveness in lessening resistance to new line procedures--in effect, lessening the resistance to innovation, as opposed to promoting innovation.

Maier (1953) used industrial personnel (primarily first-line supervisors and middle managers) in a role-playing situation in order to test the effectiveness of training leaders in group decision procedures (i.e., PDM). He found that the solutions of those trained in group decision tended to be either acceptance of the implied solution or the development of some compromise solution. Trained leaders also tended to be more tolerant, considerate and open to suggestions (e.g., innovative ideas). The results seemed to show that a group's resistance to change

could be sharply reduced by training the leader in group
decision procedures. This, of course, is similar to the
Coch and French (1948) study discussed above, in which PDM
was shown to lessen resistance to innovation or change.

Although the last three studies discussed dealt with
the relationship of PDM to innovation in a peripheral manner,
they did not directly assess the impact of PDM on innovation
or innovative behavior. One study that did directly assess
the extent of this relationship was conducted by Litwin and
Stringer (1968). College-age subjects participated in three
simulated business organizations, each headed by a president
with a distinct specific leadership style. The simulation
procedure involved producing miniature construction models
of radar towers and radar-controlled guns of various kinds
from "Erector Set" parts. The major tasks of the businesses
were production, product development, and control (account-
ing). The businesses were accountable to a simulated
government agency, which, among other things, was responsible
for releasing specifications for new products and product
changes. The periodic changing of product specifications
as well as other pressures from the agency revolved around
a steady demand for new products. Thus, innovations were
stressed, and the businesses were made very much aware of
this.

The three organizations in the study were as follows
(pp. 98-99):

Organization A: British Radar

The president placed strong emphasis on the maintenance
of a formal structure. Members of the organization
were assigned roles, their spheres of operation were
tightly defined, and they were held responsible for
the strict performance of their duties. Seriousness,
order, and relative status were heavily stressed. All
levels of management were encouraged to exercise
position-based authority, and deviation from explicit
organizational rules was punished. Communication was
allowed only through strict vertical channels, was
formal in nature, and was only permitted to cover
matters directly related to the task. A conservative
policy was maintained toward the task, the managerial
credo being that reliable and consistent quality was
more important than product innovation.

Organization B: Balance Radar

A loose, informal structure was endorsed by the presi-
dent of Organization B. He stressed friendly, coopera-
tive behavior, group loyalty, and teamwork, and he
tried to reflect these values in his own behavior.
Group decision making was encouraged at every level.
Punishment was dispensed with and was replaced with a
relaxed atmosphere of encouragement and assistance.
To insure the absence of conflict and frustration,
managers were encouraged to pay special attention to
the self-development and personal well-being of the
workers. Group meetings were established in which the
workers could better get to know one another.

Organization C: Blazer Radar

High productivity was valued by the president of
Organization C. Each participant was encouraged to
set his own goals and take personal responsibility
for results. Efforts to be innovative and creative
were supported and reinforced by management. Com-
petitive feedback was given frequently so that progress
toward goals could be easily evaluated. Rewards for
excellent performance were given in the form of recog-
nition and approval, as well as in promotions and pay
raises. An attempt was made to create a feeling of
pride and teamwork in the organization through emphasis
on competition against an external standard. Members
were encouraged to seek each other's help around task
issues, and no formal system of communications was
instituted.

Litwin and Stringer examined their results in terms
of two dimensions: group norms that developed, and organi-
zational performance. "British Radar's" hierarchical
structure led to the development of separate sets of norms
for management and workers. Aloofness was one of the more
noticeable norms of management: they had the formal author-
ity, exercised final control, and made all of the decisions.
In addition, they relied on formal and depersonalized com-
munications. Written messages were the common mode of
interaction. Communications were always directed not at a
person, but at a position. A significant employee norm
that developed in "British" was that a person should do
only what he or she was told to do, and nothing more. Thus,
innovative behavior (i.e., idea generation) was strongly
discouraged. When, in the early stages of the simulation,
employees had helped out in areas other than their own,
this behavior was rather harshly criticized. After that,
employees refused to take risks.

The most obvious norms that developed in "Balance
Radar" were friendliness, equality (exemplified by open and
rather casual management styles, and lack of concern for
status), and democratic decision-making (e.g., managers
would try to solicit different opinions before making
changes). But the purpose of democratic decision-making in
"Balance" seemed to be more concerned with group unity and
the quality of interpersonal relationships than with task-
related issues, like innovation.

"Blazer Radar" developed rather clear-cut norms, one of which was a norm of teamwork. This norm, however, unlike "Balance," did not extend to the decision-making process. This may have been because of another norm which was particularly strong among the managers and supervisors in this organization, that of individualism and responsibility (i.e., a willingness to take more and more personal responsibility). In addition, "Blazer" developed a norm of wanting to "beat the competition," (i.e., a strong determination to win), and risk-taking (e.g., innovative behavior) was accepted.

Results of the study showed that "Blazer" performed better than "Balance," and "Balance," in turn, performed better than "British" on the two innovation variables in the study: number of new products and materials-saving innovations. The "Blazer" climate seemed to encourage members to innovate and to be open to others' innovations and ideas. In addition, on a productivity measure, "Blazer" was the only high performing organization. These results suggest that innovative behavior might be most effective and helpful to an organization, and most likely to appear, if a strong emphasis on productivity exists in the organization.

It is also apparent that the authoritarian, formal climate in "British," which emphasized sticking to standard procedures and strict performance of duties, was quite effective in dissuading innovative behavior. In the "Balance" organization, the friendly, democratic climate

encouraged openness to <u>others</u>' ideas and mutual dependence, but the lack of emphasis on individual and group responsibility for idea generation (innovative behavior), and on the importance of productivity, may account for the organization's low productivity and only moderate innovativeness.

The Litwin and Stringer study, of all the studies reviewed, most directly--and innovatively--probed the association between leadership style and innovative behavior. It was not sound in all respects, however. Perhaps the major problem was with the extreme nature of the leadership styles in the three organizations. The leadership style in the "Blazer" organization was perhaps the only one of the three that was somewhat realistic (if not idealistic). The concern with maintaining order, exercising authority and control, and other aspects of extreme authoritarian leadership was excessive in the "British" organization, while the concern with maintaining informality, creating warm, friendly relationships and a relaxed, easy-going atmosphere, etc., which was supposed to be indicative of participative leadership, was excessive in the "Balance" organization. Most organizations, obviously, fit somewhere between these extremes. A non-participative leader, contrary to those in the "British" organization, does not necessarily have to be unfriendly, extremely critical of poor performance, and, in general, as unfeeling as those portrayed in the "British" organization. On the other hand, participative leaders are

not necessarily the warm-hearted, friendly, and easy-going "teddy bears" portrayed by the "Balance" group.

Because of the noted concerns with the studies discussed above, it was decided to conduct a study to assess the relationship between PDM and the amount of innovative behavior. In this research, the innovative behavior to be studied will consist of a type of behavior that occurs very early in the innovation process, i.e., task-related idea and suggestion generation. In order that the key variables might best be controlled, the decision was made to conduct the study using a simulated task setting, similar to the Litwin and Stringer (1968) study.

Formal PDM and Innovation: The Scanlon Plan

The research discussed up to this point has, for the most part, not dealt with formal, i.e., prescribed PDM. As indicated by the Continuum of Leadership Behavior (Figure 1), the presence of PDM was typically a matter of degree rather than a matter of having it or not having it. In this section, discussion will focus on the potential advantages of having a formal, prescribed system of PDM in an organization for the purpose of promoting innovative behavior (i.e., task related ideas and suggestions). Throughout this section, the Scanlon Plan will be discussed as a system representative of other formal PDM systems.

The Scanlon Plan is an innovative management process for total organization development (Frost, 1978). The

assumptions about human motivation and behavior integral to
the Scanlon Plan are basically McGregor's (1960) Theory Y
assumptions--most notably that the average worker will seek
and accept job responsibility, desires to exercise autonomy
and creativity, strives toward self-actualization, and is
not by nature passive or resistant to the organization's
needs and goals.

One of the Scanlon Plan's core principles, which is
essential for the successful implementation and maintenance
of the Plan, is participation. Frost defined participation
as:

> the structured and guaranteed opportunity and responsi-
> bility provided all employees to influence the decision
> process within the company, and to become accurately
> informed and responsible in their respective areas
> and roles of competence.

A major element of the Scanlon Plan is a formal com-
mittee framework established in the organization designed
to encourage, facilitate communication of, evaluate, and
decide the status of productivity improvement suggestions
in any or all areas of the organization's functioning.
According to Greenwood (1977),

> The basic principle behind a committee structure of
> this type is that employee potential of <u>ideas</u>,
> <u>creativity</u> and <u>innovation</u> 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.
> (underlines added)

It is obvious from the above discussion of the Scanlon
Plan that it can be classified as a type of PDM. Of parti-
cular interest for the present research is Dachler and

Wilpert's (1978) analysis of "formal" vs. "informal" partici-
pation. This analysis is included in their discussion of
"properties of participatory systems, i.e., the structures
and processes along which different kinds of participatory
schemes may vary." They note that past discussion and
research on participation has implicitly considered PDM to
be an organizational treatment or intervention strategy.
This then implies that a power base or base of legitimization
exists which an agent uses to develop and apply the treat-
ment. The power base or base of legitimization, and thus
a PDM system, can vary from "formal" to "informal." The
formal base is an "explicitly recorded system of rules and
agreements imposed on or granted to the organization," while
the informal base refers to a "nonstatutory consensus
emerging among interacting members." The most common base
of legitimization for formal PDM treatments in the United
States is management policies, which are unilateral regula-
tions about individual or group involvement in organization
decisions. On the other hand, arrangements of informal
participation rely on a consensus among interacting indi-
viduals and groups, and become sanctioned through both
practice and evolving norms or customary procedures. It
would not be unreasonable to expect, as Dachler and Wilpert
point out, that a participatory system imposed or granted
through formal rules "is likely to be different from a
participatory system that emerges informally among

interacting members and that is legitimized by the develop-
mental process" (p. 11).

This, of course, does not mean that formal and informal
participatory schemes are totally independent of each other.
Rather, formal systems may be overlaid on an existing
informal participatory system, and a participatory system
that is formal in nature is likely to develop some aspects
of an informal participatory system.

The Scanlon Plan, and many other formal systems of PDM,
are generally subsumed under the latter category. As
mentioned previously, the Plan includes specific procedures
for implementing certain principles of management, e.g.,
a formal committee structure designed to encourage parti-
cipation. Indeed, the Frost (1978) definition of partici-
pation mentions "the structured and guaranteed opportunity
and responsibility provided all employees to influence the
decision process within the company, . . ." But, in addi-
tion to this, the Scanlon Plan philosophy encourages the
"nonstatutory consensus" among interacting organizational
members that is the basis of informal participation.

The importance of providing clear definitions of
"formal" and "informal" systems, such as those of Dachler
and Wilpert, should not be underestimated. Uhlaner has
accurately pointed out that while there is nothing wrong
with a formal-informal dichotomy per se, it is frequently
the case in the literature that such dichotomies are not
clear. Specifically, she notes that in the formal-informal

literature, the concepts have been defined in such a way that certain key aspects of formal-informal have been confounded with each other, e.g., source (management or immediate work group) or format (written or unwritten). The solution to this problem is to clearly define what one means by "formal" and "informal." Dachler and Wilpert have done this by clearly focusing on role source: upon whose initiative it is that participation is expected. Formal refers to participation established by management; informal--by the immediate work group.

Though predominantly formal systems of PDM may have some "informal" attributes, and vice-versa, it still seems that formal PDM systems like the Scanlon Plan "stick out" (at least in the U.S.) because they were established formally through top management policies. Perhaps this is because there are and have been relatively few systems of this type in the U.S. (compared to the legislated, statutory history of "industrial democracy" in many European countries). In any case, this noticeable difference between formal (as displayed by the Scanlon Plan) and informal participatory schemes is of interest for the present research.

A key question of interest for the proposed research is essentially, "Which type of participatory system, i.e., a predominantly formal system or a relatively informal system, would be more facilitative of innovative behavior in organizations?" This is not a topic that has been

discussed in the literature, but is one that certainly deserves consideration.

It also would not be unreasonable to consider a formal PDM system as an <u>innovation</u> for organizations, when one considers the definition of "innovation" provided earlier. However, perhaps one of the most interesting aspects of a formal PDM system is that it may be essentially an innovative process or system <u>from which other innovations in the form of suggestions may be facilitated</u> as a result of the participative framework of such a system. At this point, the concepts of primary and secondary innovation gain importance. According to Davis, "virtually all organizational development involves innovation in the primary and possibly the secondary level. By primary level, I mean the organizational development interventions themselves are innovations for most organizations" (p. 7). Davis includes PDM as an example of primary innovation. He then points out that frequently these primary innovations (e.g., PDM) serve as vehicles for discovering secondary innovations. According to Davis:

> Secondary innovations result from OD interventions
> that tap the creative, problem-solving talents of
> employees. By permitting employees to have a greater
> voice in the operations for which they are responsible
> (a primary innovation), for example, they are more
> apt to discover secondary operational innovations that
> will improve effectiveness. (p. 7)

From Davis' discussion, it becomes apparent that systems of PDM such as the Scanlon Plan, as primary

innovations, may produce secondary innovations, in the form
of work-related ideas and suggestions.

In the previous section it was noted how the process
of PDM would be conducive to innovative behavior in organi-
zations. An effective formal PDM system like the Scanlon
Plan should be <u>even more</u> conducive to innovative behavior
than most forms of PDM. This is basically because the SP,
through its committee system, is formally designed to actively
promote participation, and thus, through the processes noted
in the preceding section, innovation.

An innovative idea in an effective SP organization
typically passes through a formal process (i.e., a produc-
tion and screening committee) designed to handle just such
ideas. Thus, the "processing of innovation" should be
greatly facilitated. As Greenwood (1977) states, "(T)he
Plan formalizes a means through which all employees, within
the limits of their capabilities, can constructively respond
to current situational realities" (p. 55). So then, an
important attitude that should exist in Scanlon organiza-
tions, that "nobody knows a job better than the person
who's on it," should help to promote innovative behavior.
Furthermore, in an effective SP organization, an ambience
not merely conducive to, but actively encouraging innovative
behavior exists. It is to everyone's advantage in the
organization if innovative behavior occurs (i.e., producti-
vity improvement ideas) because they may all reap the
rewards of innovation in the form of a bonus. The originators

of innovative ideas brought to fruition may reap intrinsic rewards as well (e.g., a sense of achievement or accomplishment). Even the originators of suggestions and ideas that are not accepted by the organization may still be intrinsically motivated by a sense of challenge to "be innovative."

It is conceivable that, in SP organizations, employees' perceptions of how effectively their SP participation system is functioning may color their perceptions of PDM in general, and vice versa. Thus, another process model, based on Figure 2, emerges. This model (Figure 3), however, incorporates hypothesized relationships of the formal Scanlon participation system with previously hypothesized relationships of general PDM and innovative behavior. The designation of PDM as primary innovation and the resultant ideas and suggestions as secondary innovation is also made.

Though the Scanlon Plan has been discussed at some length, the planned research will test certain aspects inherent in most formal PDM systems--not just the Scanlon Plan. In addition, this research will not attempt to test the relationships discussed above in a field setting (i.e., real organization). Rather, an attempt will be made to operationalize the variables of interest in an experimental simulation, analogous to the Litwin and Stringer (1968) study discussed earlier. This type of research offers the advantages of allowing the experimenter control and manipulation of key variables, and of facilitating the identification of causal linkages. The ideas tested and evaluated

(Primary Innovation)

(Secondary Innovation)

```
┌─────────────────────────────────┐
│ Formal PDM: "recommended"       │
│ SP Participation System         │
│ (suggestion system mechanics,   │
│ participation philosophy, etc.) │
└─────────────────────────────────┘

         Certain perceived aspects of
                general PDM

┌─────────────────────────────────┐
│ more interaction and discussion │
│      of work-related issues     │
└─────────────────────────────────┘

      ┌─────────────────────────┐
      │ more open, less critical│
      │        atmosphere       │
      └─────────────────────────┘

      ┌─────────────────────────┐
      │ perceived opportunity to│
      │ satisfy higher-order needs│
      └─────────────────────────┘

┌─────────────────────────────────┐
│ increased innovative            │
│ behavior (i.e., work-           │
│ related ideas and sug-          │
│ gestions) by organiza-          │
│ tional members                  │
└─────────────────────────────────┘

      ┌─────────────────────────┐
      │ less inhibitions about  │
      │ expressing work-related │
      │          ideas          │
      └─────────────────────────┘
```

Figure 3. A Process Model of Hypothesized Relationships Among Formal
           SP Participation, Employee Perceptions of PDM, and Innova-
           tive Behavior.

in this study should provide the basis for future research in field settings.

In summary, this study will test the participative-authoritarian and formal PDM system-no formal PDM system dimensions and their interaction. Specifically tested will be the predictions that the mean performance of groups in the participative condition will be higher than the mean performance of groups in the authoritarian condition, that the mean performance of the formal PDM system groups will be higher than that of the no-formal PDM system groups, and that there will be no interaction. Figure 4 presents a graphic representation of these predictions.

Innovative
Behavior

(i.e., Idea/
Suggestion
Generation)

Formal

No formal

Partici-   Authori-
pative   tarian

Figure 4. Graphic Representation of Predictions.

CHAPTER II

METHOD

Independent Variables

There were two independent variables in this study,
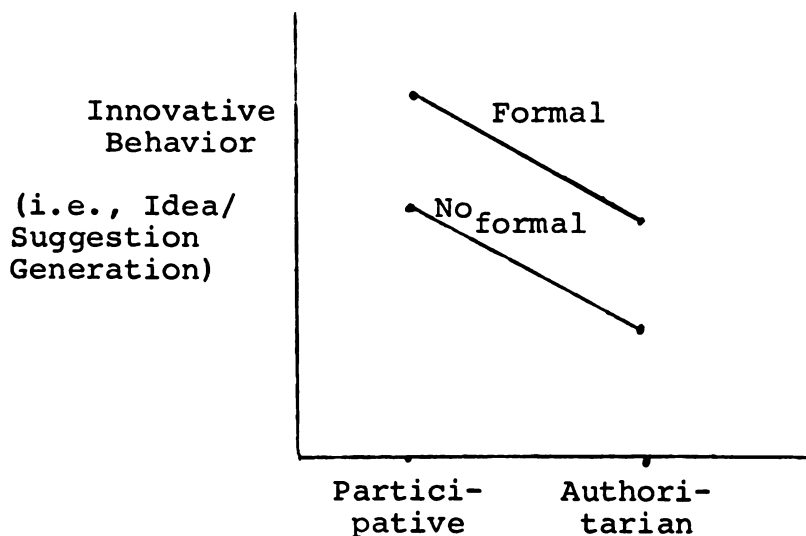each with two levels. The first independent variable was
degree of participativeness of the leader (authoritarian vs.
participative, i.e., the degree to which a leader creates a
participative or authoritarian climate). The second inde-
pendent variable was degree of formality of participation
system (formal system (FS) vs. no formal system (NFS)),
which refers to whether the experimental condition had a
formal system of participation. It is assumed that authori-
tarian leaders may in fact exist in organizations that have
formal systems for participation (e.g., a Scanlon Plan),
though one might be tempted to speculate that they may
eventually be "weeded out" of such organizations. The four
experimental conditions, then, were (1) participative leader
with a formal system for participation, (2) participative
leader without a formal system for participation, (3) author-
itarian leader with a formal system for participation, and
(4) authoritarian leader without a formal system for parti-
cipation. Ralsky (1976) provided an excellent summary of

behaviors characteristic of authoritarian and participative

leaders:

>(A)uthoritative [authoritarian] leaders are conceptu-
>alized as exerting their influence in the group freely
>and exercising strong control over the group process.
>Responsibility for the group product lies with the
>authoritative leader and, as such, places the owner-
>ship of the group problem within the leader. Because
>of this locus of ownership, the authoritative leader
>responds to questions from the group by receiving them
>and then unilaterally deciding upon their resolution
>rather than reflecting them back to the group. . . .
>Furthermore, authoritative leaders monitor task accom-
>plishment on a close, frequent basis. . . . It is
>important to note . . . that authoritative leaders are
>not conceived of as punitive.
>
>Participative leaders are conceptualized as encouraging
>the group to control its own process. Responsibility
>for the group product lies within the group and, as
>such, places the ownership of the group problem within
>the group. Since the locus of problem ownership is
>placed in the group the leader responds to questions
>from the group by reflecting them back to the group
>for resolution by consensus. . . . Participative
>leaders monitor group process in a general manner.
>. . . While it is important to recognize that author-
>itative leaders are not conceived of as punitive, it
>is equally important to note that participative leaders
>are not completely permissive and seen as abdicating
>their role, but rather as aiding the group to use its
>potential in reaching problem solution. (pp. 45-46)

Leadership Training

Leaders for this study were independent-study under-

graduates at Michigan State University. They were trained

to assume the roles of both participative and authoritarian

leaders. The training was similar to the leadership train-

ing provided in the Ralsky (1976) study, with emphasis

being placed on first, providing the theoretical underpinnings

of participative and authoritarian leadership; second,

acclimating the leaders to the experimental task by

demonstrating the task, answering questions, and reviewing introductory scripts to be used during experimental sessions; and third, providing extensive practice, through the role-playing technique, so that the leaders would be able to effectively portray "authoritarianism" or "participative-ness."

During the actual experimental sessions, the leaders had available a list of behavioral guidelines that noted the prescribed roles of both the authoritarian and participative leaders, in order to facilitate the portrayal of these roles. These guidelines, which were used in the Ralsky (1976) study, are:

<u>Authoritarian</u>

1. Use "I" instead of "we."
2. Direct communication to yourself.
3. Establish control of process early.
4. Compliment and criticize on a personal basis.
5. Remind group of time constraints and appeal to logic.
6. Do not be punitive.

<u>Participative</u>

1. Summarize.
2. Present alternatives.
3. Probe when there is early consensus.
4. Involve all group members.
5. Allow the group to make the decision.
6. Emphasize when a decision has been made.

<u>Experimental Task</u>

Major considerations for choosing a task for this study were first, that it be an effective and realistic simulation of a manufacturing task that might exist in a real organization; and second, that the task be such that

it would easily accommodate different levels of the independent variables and the measurement of the dependent variables.

The task used in this research was a variation of the Production Task: Real Estate Problem (Hall, Bowen, Lewicki, & Hall, 1975). Basically, the task involved having small groups construct a building with computer cards (the "raw materials"), using a ruler, scissors, stapler and tape (the "tools"). The goal of each group was ostensibly to make the greatest profit possible in their project. During this study, the groups were not made aware that the primary interest of the experimenter was to measure innovative behavior. (See Appendix A for complete Task Directions.)

As will be discussed in the Procedure section, this task adequately met the criteria for choosing an experimental task noted earlier.

Dependent Variables

1. The major dependent variable in this study was the innovative behavior of groups. Innovative behavior was defined for the purposes of this research as the number of ideas or suggestions provided for improving quality, speed, cost savings, managerial aspects or other aspects involved in the task of manufacturing the building. These may have involved the actual production process, materials, intra-group relations, etc. Data was collected for both verbal suggestions (recorded before, during, and after the task)

and written suggestions (recorded after the task). (See Procedure section for description of how the idea/suggestions were collected.)

    2. Number of non-redundant idea/suggestions per group.

Subjects

Subjects for this study were 120 undergraduate students at Michigan State University. They were solicited by the experimenter from the Introductory Psychology subject pool. Potential subjects were informed that the experimenter was looking for subjects to participate in research that would measure the task performance of groups. They were told that two sessions per group would be held, the second one a couple of weeks after the first. Interested students then signed up for the research. On the evening before their scheduled session, subjects were contacted to remind them of the scheduled time and location of the session.

Subjects were randomly assigned to 40 groups of three and these 40 groups were randomly assigned to one of the four experimental conditions.

Procedure

Subjects reported to a designated room at a specified time. Five minutes after the designated time, the experimenter briefly explained the nature of the task (group performance on a construction task), and then asked all subjects to read and sign a consent form. Subjects were then told that they would be participating as a group on a

task for about 1½ hours, including their responses to a
questionnaire. In addition, the experimenter explained that
the subjects would be asked to perform the task again at a
second session, in a few weeks. (In reality, the subjects
would not perform the task a second time. They were led to
believe this to establish a feeling of "ongoingness" in the
subjects, i.e., that this session was not a "one-shot deal"
and that they were to be part of an ongoing group--in an
ongoing organization.) After this introduction, the experi-
menter introduced the leader, and then left the room.

The leader was supplied with either an authoritarian
or participative script, depending on the condition being
run:

Authoritarian:

Thank you for coming tonight. My name is _____
and I'm assisting in some research involved in the
task performance of groups. Before I explain the
details of this project, why don't we all introduce
ourselves starting with you. (Leader points to the
subject on his left.) (After all the introductions
are completed, Leader says) Okay. Let me tell you
about the task we're going to perform tonight and
again in a few weeks. It's called "Production Task:
Real Estate Problem" and my function is to lead this
group to optimal performance. If you will all read
the directions silently while I read them aloud, I'm
sure the task we're going to perform will become clear.
(Leader gives subjects the directions for the task
and reads them aloud.) (See Appendix A for Task
Directions.)

In addition to the directions that I've just read,
this is a list of other standard rules and procedures
provided by the experimenter for this task. Let's
try not to make any errors in following them, because
I'm responsible for the group's performance on this
task. (Leader hands out copies of list to subjects
and reads them aloud.) (See Appendix B.)

If there are no questions, I'd like to spend some
time talking about the objectives for this group
regarding this task, and how the group is going to
be organized and coordinated to accomplish the task.
The experimenter has given me a few minutes to discuss
these things. I thought about these issues last week
and wrote some thoughts down on paper. (The leader
will then proceed to discuss the above from notes on
a piece of paper. Basically, the leader's discussion
will revolve around the following points: (1) objec-
tives: to make as much profit as possible, more than
any other group, and to construct a building of the
highest quality. (2) plan to be used to achieve these
objectives: most effective way is for leader to direct
all aspects of the construction process. (3) organi-
zation of group members to accomplish the task: the
leader will designate specific functions and responsi-
bilities for each group member, and all questions
should be directed to the leader. (4) utilization of
resources: the group must be efficient in their use
of resources, thus the leader will closely monitor
their use.)

If there are no questions, I'll get the experimenter,
and he'll tell us when to begin. (Leader opens door
and calls in experimenter, who enters.) (Experimenter
says) Okay. You'll have 20 minutes to complete this
task, and one minute to deliver it to the Real Estate
Board's table. (Experimenter points out Real Estate
Board and Supply Depot.) Ready? Begin production.
(The experimenter exits.)

Participative:

        Thank you for coming tonight. My name is _____
and I'm assisting in some research involved in the
task performance of groups. Before I explain the
details of this project, why don't we all introduce
ourselves. (Pauses and allows subjects to introduce
themselves.) (After all the introductions are com-
pleted, Leader says) Okay. Tonight, and again in a
few weeks, we're going to perform a task called
"Production Task: Real Estate Problem," and our
function is to perform the task at an optimal level.
Let's all read the directions. (See Appendix A for
Task Directions.) (Leader gives subjects the direc-
tions. After having allowed enough time for each
subject to read the instructions silently, Leader says)
Okay. Any questions so far? (Pauses to answer
questions.)

In addition to the directions that we've just read, the
experimenter has provided us with a list of other

standard rules and procedures for this task. We're
all responsible for understanding these procedures
and rules, and, of course, all responsible for the
group's ultimate performance on the task. (Leader
hands out copies of list to subjects, and allows time
for them to read the list.) (See Appendix B.) Any
questions?

Okay, why don't we spend some time discussing the task.
The experimenter has given us a few minutes to discuss
these things. (Using participative techniques (described
in Leadership Training section), the leader proceeds to
lead a group discussion of the objectives for the group
regarding the task, and how the group should be organi-
zed and coordinated to accomplish the task. (Group
discusses these issues, then Leader says) Okay. Any
more questions or comments? (Pause) Okay then, I'll
get the experimenter, and he'll tell us when to begin.
(Leader opens door and calls experimenter, who enters.)
(Experimenter says) Okay, you'll have 20 minutes to
complete this task, and one minute to deliver it to the
Real Estate Board's table. (Experimenter points out
Real Estate Board and Supply Depot.) Ready? Begin
production. (The experimenter exits.)

(For both) When 20 minutes had elapsed, the experimenter

entered the room and said, "Time is up. Stop production.

You have one minute to deliver your building to the Real

Estate Board's table," and exited when the building had been

delivered. The Real Estate Board spent approximately five

minutes appraising the building, after which they fed back

results to the group. All groups were told that theirs was

"about average" performance. While the appraisal was being

conducted, clean-up took place, according to instructions.

The next steps varied according to the condition:

(A) No Formal PDM system (NFS)--authoritarian condition

and NFS-participative condition.

The leader passed out a questionnaire to the group

members. The questionnaire contained items concerning

participation and group process, but also contained a

. question asking for ideas and suggestions regarding the

task (the major dependent variable). The participation and

group process items were essentially "decoys," used to "pad"

the questionnaire. The "ideas and suggestions" question

was neatly "tucked in" the questionnaire, so as not to

arouse suspicion that "this is what the experimenter is

really interested in," and thus unduly influence the sub-

jects' responses. (See Appendix C for the questionnaire.)

Before filling out the questionnaire, the group was told by

the leader:

1. For NFS-authoritarian condition

> After you fill out this questionnaire, I'll evalu-
> ate how I think this group did on the task, and
> then I'll announce some goals and objectives for
> this group for the next run. If there are no
> questions, why don't you fill out the question-
> naire?

The leader then excused himself for a few minutes (in

order to provide a freer atmosphere in which to fill out

the questionnaire).

After the subjects had completed the questionnaire,

the leader collected them, and conducted the above-noted

discussion, using authoritarian techniques noted previously.

After the discussion, the leader asked the subjects to not

discuss the research with others, mentioned that the group

members would be called to confirm a meeting time for the

next session, and dismissed the group.

2. <u>For NFS-participative condition</u>

> After you fill out this questionnaire, I thought
> that we might evaluate, as a group, how we feel we
> did on the task, and then possibly establish some
> goals and objectives for ourselves for the next
> run. Is that okay with the group? Okay, why don't
> you fill out the questionnaire?

The leader then excused himself for a few minutes.

After the subjects had completed the questionnaire, the
leader collected them, and conducted the above-noted dis-
cussion, using participative techniques noted previously.
After the discussion, the leader asked the subjects to not
discuss the research with others, mentioned that the group
members would be called to confirm a meeting time for the
next session, and dismissed the group.

(B)   <u>Formal PDM system (FS)-authoritarian condition and FS-</u>
      <u>participative condition</u>.

The leader passed out task "idea-suggestion" forms,
and a questionnaire to each group member. The questionnaire
was basically the same as that received by both NFS condi-
tions, except that it did <u>not</u> include the question asking
for ideas and suggestions regarding the task, i.e., the
major dependent variable. In this sense, it served as a
control. The written share of the major dependent variable,
of course, was measured by the task "idea-suggestion" form,
which was distributed along with the questionnaire. Before
filling out the form and the questionnaire, the group was
told by the leader:

1. <u>For FS-authoritarian condition</u>

> Because the experimenter feels that both profit <u>and</u> input from task group members are important, an idea and suggestion system has been established in which <u>all</u> ideas and suggestions regarding improving <u>any</u> aspect of the task process will be given serious consideration. The ideas will be given to a committee consisting of one of you, members of the other task groups, and the experimenter, and the committee will then decide how each idea or suggestion should be dealt with, and whether it should be put into effect for the next session. (Of course, the "committee" will never have to meet, because there is not to be a second session.) Feedback, if you desire it, will be given to you on any or all suggestions that you make. Once again, suggestions about <u>any</u> aspects of the task are encouraged--improving quality, speed, cost savings, materials, group process, managerial aspects, etc. This (holds up "idea-suggestion" form) is the form you'll be using for that. After you've completed the "idea-suggestion" forms, please fill out this questionnaire (holds up questionnaire). After you've filled out both of these, I'll evaluate how I think this group did on the task, and then I'll announce some goals and objectives for this group for the next run. If there are no questions, why don't you fill these out, starting with the "idea-suggestion" forms?

The leader then excused himself for a few minutes.

After the subjects had completed the "idea-suggestion" forms and the questionnaire, the leader collected them, and conducted the above-noted discussion (i.e., how the group performed, goals and objectives), using authoritarian techniques noted previously. After the discussion, the leader said, "By the way, I'll be calling one of you before the next session to serve on the 'idea-suggestion' committee." Also, the leader mentioned that the group members would be called to confirm a meeting time for the next session, and that the "idea-suggestion" committee would meet immediately

prior to the task meeting. After asking the subjects to
not discuss the research with others, he dismissed them.

    2. <u>For FS-participative condition</u>

> Because both the experimenter and I feel that both
> profit <u>and</u> input from task group members are impor-
> tant, an idea and suggestion system has been
> established in which <u>all</u> ideas and suggestions
> regarding improving <u>any</u> aspect of the task process
> will be given serious consideration. The ideas
> will be given to a committee consisting of one of
> you, members of the other task groups, and the
> experimenter, and the committee will then decide
> how each idea or suggestion should be dealt with,
> and whether it should be put into effect for the
> next session. Feedback, if you desire it, will be
> given to you on any or all suggestions that you
> make. Once again, suggestions about <u>any</u> aspects
> of the task are encouraged--improving quality,
> speed, cost savings, materials, group process,
> managerial aspects, etc. This (holds up "idea-
> suggestion" form) is the form you'll be using for
> that. After you've completed the "idea-suggestion"
> forms, please fill out this questionnaire (holds
> up questionnaire). After you've filled out both
> of these, I thought that we might evaluate, as a
> group, how we feel we did on the task, and then
> possibly establish some goals and objectives for
> ourselves for the next run. Is that okay with the
> group? Okay, why don't you fill these out, start-
> ing with the "idea-suggestion" forms?

The leader then excused himself for a few minutes.

    After the subjects had completed the "idea-suggestion"
forms and the questionnaires, the leader collected them,
and conducted the above-noted discussion, using participa-
tive techniques noted previously. After the discussion, the
leader asked for volunteers to serve on the "idea-suggestion"
committee. (If too few or too many volunteered, the group
was asked to make the decision as to how to select one com-
mittee member.) (Note: Even though the dependent measures
had already been collected at this point, leading the

subjects to believe that such a committee meeting would take place, and that the entire task group would meet again, was a safeguard against subjects informing other potential subjects that the study actually only required one session--which may have influenced their responses. All subjects were asked, though, at this point, to not discuss the research with others.) The leader then mentioned that the group members would be called to confirm a meeting time for the next session, and that the "idea-suggestion" committee would meet immediately prior to the task meeting. The group members were then dismissed.

Recording Verbal Idea/Suggestions

In addition to the written format for collecting idea/suggestions that was described above, verbal idea/suggestions by the subjects were also recorded before, during, and after the task. These were recorded by the experimenter assistants who made up the Supply Depot and Real Estate Board. Subjects were not aware that their verbal idea/suggestions were being recorded (i.e., the experimenter assistants were seated behind the subjects, so the subjects faced away from the assistants, and faced the group leader.)

Coding

Raters were trained to distinguish between verbal and written idea/suggestions which were task-related and those that were not task-related. Only those task-related

statements were used in the analyses. There was approximately 98% agreement on what constituted task-related suggestions.

The raters were also asked to report the number of non-redundant (i.e., original) idea/suggestions for each experimental group. For example, one suggestion made three times was to be considered only one suggestion.

Debriefing

When all groups had been run, the experimenter telephoned each subject and scheduled an appointment to explain the purpose of the research. Any questions the subjects had were answered at that time.

Data Analysis

The effects of the independent variables were tested using analyses of variance.

CHAPTER III

RESULTS

Manipulation Check

Two types of data were collected to assess the effectiveness of the training given the work group leaders, i.e., the extent to which the leaders were able to effectively display participative or authoritarian behavior. First, videotapes of the four leaders were made during experimental sessions. These were shown to six advanced graduate students in the organizational psychology area. Two of the tapes showed participative leaders, and two showed authoritarian leaders, with each tape using a different leader. The six graduate students independently assessed the leadership style depicted in each of the four tapes correctly. That is, there was 100% agreement that the leaders effectively portrayed the style of leadership that they were trained to portray.

The second type of data consisted of a set of questions administered to the experimental subjects after the task was completed (but before the subjects were debriefed). All subjects rated their leaders on the following items on six point Likert scales, ranging from "to a very great extent"

to "to no extent" (adapted from Ralsky, 1976). (Note: These items correspond to items 16-22 in the questionnaire [see Appendix C]).

1. To what extent did the leader try to influence the decisions made by the group?

2. To what extent did the leader encourage communication among all members of the group?

3. To what extent was the leader considerate of the feelings of other group members?

4. To what extent did the leader stimulate members of the group to make contributions to the task process?

5. To what extent did the leader ask for suggestions from the group?

6. To what extent did the leader use the suggestions, of other members of the group in attempting to complete the task?

7. To what extent did the group, excluding the leader, actually derive the most effective way of completing the task?

If the training of the leaders was successful, it should follow that authoritarian leaders would be perceived as higher on influence (item 1 above), while participative leaders would be higher on encouragement of communication (item 2), stimulation of contributions (item 4), suggestion solicitation (item 5), use of suggestions (item 6), and group derivation of means of task completion (item 7). No difference between leadership styles should be found in consideration (item 3). This was expected because the training of group leaders stressed the non-punitive nature of authoritarian leadership.

Responses to these items of the subjects in the authoritarian and participative conditions were compared through a multivariate analysis of variance. As expected, the multivariate analysis revealed a significant manipulation effect (F (7, 112) = 38.95, p < .001). Subsequent univariate tests of each item are shown in Table 1.

The univariate tests show that subjects in the authoritarian condition saw their leaders as exerting significantly more influence on decisions than did the subjects in the participative condition. Subjects in the participative condition saw their leaders doing significantly more of the following than did subjects in the authoritarian condition: encouraging communication among the group members, being considerate of group members' feelings, stimulating group members to make contributions to the task process, asking for suggestions from group members, and using group members' suggestions. In addition, subjects in the participative condition felt that their groups actually derived the most effective way of completing the task to a greater extent than did subjects in the authoritarian condition.

With the exception of the item concerning leader consideration of the feelings of group members, the subjects' perceptions of their leaders were in the predicted direction and statistically significant.

Table 1.--Means and F-ratios for Manipulation Check Items.

Item	Authoritarian Condition (N=60)	Participative Condition (N=60)	F-ratio
#1 To what extent did the leader try to influence the decisions made by the group?	3.52	1.97	81.31*
#2 To what extent did the leader encourage communication among all members of the group?	2.58	4.33	71.76*
#3 To what extent was the leader considerate of the feelings of other group members?	3.66	4.88	39.57*
#4 To what extent did the leader stimulate members of the group to make contributions to the task process?	3.68	4.50	15.49*
#5 To what extent did the leader ask for suggestions from the group?	2.02	4.85	239.51*
#6 To what extent did the leader use the suggestions of other members of the group in attempting to complete the task?	2.78	5.12	114.29*
#7 To what extent did the group, excluding the leader, actually derive the most effective way of completing the task?	3.24	4.67	47.40*

*p < .001.

Dependent Variables

The primary concern of this study was to examine the differential effects of authoritarian vs. participative leadership and a formal system of participation vs. no formal system of participation on innovative behavior (in the form of task-related ideas and suggestions). The results of the study were analyzed at the group level using analysis of variance (ANOVA) for the number of verbal and written suggestions only. Because the correlation between the number of verbal idea/suggestions and total number of idea/suggestions was so high ($r = .93$), further analysis of the total number of suggestions per group was not necessary. Similarly, due to the high correlation between the number of verbal suggestions per group and number of non-redundant suggestions per group ($r = .90$) further analysis of non-redundant suggestions was not pursued. The total number of verbal suggestions and total number of written suggestions were uncorrelated ($r = .03$) (see Table 2).

In summary, then, the analyses for this study were focused on the number of verbal and the number of written idea/suggestions.

Verbal Idea/Suggestions

The results of the 2 x 2 ANOVA (degree of participativeness by system formality) indicated that for verbal idea/suggestions, there was a significant main effect for the degree of participativeness ($\underline{F}(1,36) = 53.28$, $\underline{p} < .001$). However, there was neither a significant main effect for

Table 2.--Intercorrelations of Dependent Variables.

Type of Suggestion	Verbal	Written	Total(Verb. & Writ.)	Nonredundant
Verbal		.03	.93	.90
Written			.38	.33
Total(Verb.&Writ.)				.95
Nonredundant				

the degree of formality of the participation system nor a significant interaction effect.

Written Idea/Suggestions

The results of the 2 x 2 ANOVA (degree of participativeness by system formality) indicated that for written idea/suggestions, the tests for both degree of participativeness and degree of formality main effects and their interaction were non-significant. Means and standard deviations as well as the analysis of variance for both verbal and written idea/suggestions are presented in Tables 3 and 4, respectively.

Univariate Analysis of Variance with Consideration Adjusted as a Covariate

Because the training given leaders emphasized that authoritarian leaders are non-punitive, it was predicted that there would be no significant differences in the subjects' perception of the consideration of authoritarian and participative leaders. However, the results showed

Table 3.--Means and Standard Deviations for Amount of
Verbal and Written Idea/Suggestions for All
Conditions.

Condition	Type			
	Verbal		Written	
	$\bar{x}$	SD	$\bar{x}$	SD
Participative-formal	19.1	9.9	7.6	3.8
Participative-no formal	21.5	8.3	9.9	5.0
Authoritarian-formal	5.6	4.8	8.4	3.7
Authoritarian-no formal	2.9	1.9	9.7	3.9

Note: N = 10 groups per condition.

Table 4.--Analysis of Variance on Verbal and Written Idea/
Suggestions.

Source	df	F			
		Verbal	ω^2	Written	ω^2
Degree of Participativeness	1	53.28*	.571	.05	.000
Degree of Formality	1	.01	.000	1.89	.023
Participativeness vs. Formality	1	1.35	.004	.15	.000
Error	36	(48.35)		(17.16)	

*p < .001.

that subjects in the participative condition perceived their leaders to be significantly higher in consideration than subjects in the authoritarian condition. To control for the effects of perceived leader consideration, univariate analyses of variance on the dependent measures were calculated with adjustment for the group consideration scores as a covariate. The results of this analysis for the dependent measures, i.e., the total number of verbal and written suggestions, remained the same.

CHAPTER IV

DISCUSSION

Two predictions were offered in this research. First, it was believed that groups whose leaders used a participative style of leadership would display more innovative behavior (in the form of task-related ideas and suggestions) than groups whose leaders used an authoritarian leadership style. Second, it was predicted that groups with access to a formal system of participation would be more likely to display innovative behavior than groups without access to such a system. The results of an ANOVA showed that the first prediction was strongly supported, but only for verbal suggestions. There was no support for the second prediction. Discussion will focus on the participative-authoritarian leadership dimension and the formal-no formal participation system dimension.

The Participative-Authoritarian Leadership Dimension

Verbal Suggestions

As predicted, groups whose leaders used a participative leadership style generated significantly more verbal

task-related ideas and suggestions than groups led by authoritarian leaders. This section will pertain to verbal suggestions, almost all of which were provided before and during the task. The next section will pertain to written suggestions, which were provided after the task. Both the summary of behaviors characteristic of authoritarian and participative leaders provided in Chapter II, and Figure 2, which presents a process model of hypothesized effects of PDM on innovative behavior, provide a framework for explanation of the results.

In the summary of leader behaviors, it is pointed out that participative leaders encourage the group to control its own process, that the group has responsibility for the group product, and that ownership of the problem lies squarely within the whole group--not just within the leader. Indeed, one way for a group to handle the responsibility for and ownership of a problem is to suggest ways to overcome the problem. (In the simulated task in this research, the problem, as it is so often in "real" organizations, was to make a cost-effective, and quality, product). It is the nature of participative leadership to encourage and reinforce this type of behavior, i.e., task-related ideas and suggestions. Conceivably, the opportunity for leader-provided reinforcement (as well as intrinsic reinforcement, e.g., a feeling of achievement if one's ideas are considered and/or implemented) can motivate group members to continue the suggestion-making behavior.

Authoritarian leaders, on the other hand, exert strong influence and control over the group process. This, in effect, limits the amount of input provided by group members in general, and more specifically, limits task-related ideas and suggestions. Unlike participative leaders, authoritarian leaders do not generally seek out ideas from group members. Rather, they tend to unilaterally decide issues with little input from members of the group. Seeing this type of behavior in a leader, it is not surprising that group members do not contribute more ideas--though the authoritarian leader may never actually say, "I don't want your input," his or her behaviors indicate that such input will not be seriously considered. The opportunity for reward (intrinsic and extrinsic) for the group members and thus the motivation to contribute are then reduced.

The results of the research can also be explained in light of Figure 2. The three aspects of PDM noted in the model (i.e., more interaction and discussion of work-related issues, a more open, less critical atmosphere, and the perceived opportunity to satisfy higher-order needs) seemed to be much more prevalent in the participative condition than in the authoritarian condition.

First, the model indicates the belief that the mere opportunity to interact and talk about the task would lead to more ideas and suggestions. In fact, this appeared to happen in the experimental sessions. Relative to groups in the authoritarian conditions, there seemed to be a

substantially greater amount of overall discussion for groups in the participative condition. With the task at hand, it was inevitable that a great deal of the discussion would regard the task. And, of the task-related discussion, it would follow that at least some of that discussion would consist of ideas and suggestions regarding the task, especially considering that participative leaders tend to encourage such behavior. Groups in the authoritarian condition, though not told that they could not discuss work-related issues, had very little reason to—they were autocratically told by the leader how the task was to be done.

Second, participative leaders often strive to create a more open and less critical atmosphere, as indicated in Figure 2. One of the benefits of this, which was often displayed within the groups in the participative condition, was noticeably less inhibition about expressing ideas, relative to groups in the authoritarian condition. Indeed, on some occasions participative leaders had to diplomatically hold back one person's expression of ideas until another group member was finished expressing one of his or her own. On the other hand, some subjects in the authoritarian condition appeared frustrated and uncomfortable about the perceived lack of opportunity to express themselves, and others appeared to simply resign themselves to doing what the leader wanted (perhaps due to the realization that any ideas that they did have would not be considered anyway). In fact, when given the opportunity to express themselves

in writing after the task, many subjects who were in the authoritarian condition said that they "should have been allowed to give suggestions during the task." They said this even though, as pointed out previously, they were never told that they were not allowed to make suggestions.

Third, it would seem that the perceived opportunity for group members to satisfy higher-order needs (e.g., a sense of achievement, esteem) may have been greater in the participative than in the authoritarian condition. Argyris (1957), Likert (1961) and other theorists firmly believed that higher-order need achievement would often occur when one's inputs into the decision-making process were con- sidered and/or one's ideas implemented. In the participative condition, leaders were receptive to inputs from group members. In most cases, discussion among all group members ensued, and the group decided which ideas would be the best to put into effect.

Written Suggestions

Idea/suggestions were collected in two modes: verbal and written. Virtually all verbal suggestions were recorded before and during the task during the group interaction. All written suggestions were recorded after the task was completed. While the results showed that the first pre- diction (i.e., that groups in the participative condition would display more innovative behavior than groups in the authoritarian condition) was supported for the total amount

of suggestions and for the amount of verbal suggestions, the prediction was not supported for the amount of written suggestions. That is, there were no significant differences between the authoritarian and participative conditions in the amount of written suggestions. The preceding section speculated on why support was found when the total number, and particularly the total number of verbal, suggestions was considered. This section will consider possible explanations for why the prediction did not hold for written suggestions.

One possible explanation was indicated by a comment from one of the subjects after the experimental session. The subject, who had taken part in the participative condition, commented that because he had been given the opportunity before and during the task to verbalize his ideas, he did not feel the need to write them down. It should be pointed out that even though the verbal suggestions were typically given to improve the task at hand, while the written suggestions regarded ways to improve the task in future sessions, subjects may not have seen this as an important distinction. That is, they may have felt that suggestions that they provided verbally during the task would indeed be taken into account in future sessions.

Another possible explanation for the lack of differences between conditions concerns the nature of the authoritarian groups. As discussed in the previous section, the authoritarian leaders may have provided an atmosphere which

inhibited the <u>verbal</u> expression of work-related ideas by group members. However, the written format may have been seen as an outlet for their pent-up ideas. That is, some subjects in the authoritarian condition, not perceiving much of a chance to make suggestions before and during the task, may have used the written form for cathartic purposes-- using the opportunity to "spill out" at least some of the ideas that had been held inside them. It is interesting to note that many of the written suggestions from subjects in the authoritarian condition were suggestions that the group members be allowed to express their ideas verbally before and during the task!

Thus, the possible decrease in the number of suggestions from the participative groups, and the possible increase in the amount of suggestions from the authoritarian groups due to the reasons discussed above may account for the lack of significant differences between the two conditions.

The Formal-No Formal Participation System Dimension

Contrary to what had been predicted, there were no significant differences on the dependent measure between groups that had access to a formal system for participation and groups that did not have access to such a system. The expected differences were based on the belief that the presence of a formal system designed to promote participation would encourage innovative behavior.

The lack of support for this prediction might be taken as an indication of non-support for the model presented in Figure 3, which attempted to expand upon the model presented in Figure 2 by adding a formal PDM dimension. In essence, the results would point to the conclusion that whereas having leaders with participative styles of management would promote the innovative behavior of work-group members, the installation of a formal system of PDM to promote and process such behavior would be fruitless. However, because of some potentially limiting factors regarding this study, such a conclusion may be premature. These factors are discussed in the next section.

Limitations on Interpretation of Findings

One possible limitation on interpreting the results of this study concerns the "formality of PDM system" manipulation. Subjects in the formal system condition were not made aware of such a system until the task was completed. Upon completion of the task, the subjects in both formal conditions (authoritarian and participative) were given idea/suggestion forms and then told that an idea/suggestion system had been established "in which all ideas and suggestions regarding improving any aspect of the task process will be given serious consideration." They were further informed that the (written) ideas would be processed through a committee system in which their group would be represented. The perception of such a formal system was expected to, but

did not, increase the suggestion-making behavior by sub-
jects.

Though the subjects in the formal system conditions
were informed of the existence of such a formal system, they
never actually experienced it. That is, they never did get
to participate on a committee or see their suggestions
proceed through a formal process. This may have been a
critical omission. It is possible that such formal systems
of PDM may indeed increase and facilitate idea/suggestion-
making behavior--but only after organization members have
the chance to see a successful system in action, i.e., the
chance to see that such a system works. Once they see that
it does, innovative behavior might then increase. In this
study, subjects' expectancy that their suggestion-making
efforts would lead to their ideas being seriously considered,
and possibly implemented, may have been low, thus lowering
their motivation to contribute such ideas.

In addition, the fact that subjects were informed of
the formal system of PDM and then immediately asked to write
their idea/suggestions may not have given the subjects
enough time to consider the potential benefits that might
accrue from submitting idea/suggestions through such a
system. That is, subjects may not have had time to develop
beliefs of potential advantages of a PDM system, and then
provide idea/suggestions in accordance with such beliefs.

A further manipulation concern involves the "no-formal
PDM" conditions. The subjects in these conditions were

not informed of any formal PDM system to process their written ideas or given idea/suggestion forms. However, they were given the opportunity to write their task-related suggestions in the questionnaire that they filled out (see Appendix C). Possibly, some subjects saw this open-ended question (i.e., question 5) as a part of a formal system for PDM. That is, the mere existence of a question asking for task-related idea/suggestions may have been enough to encourage idea/suggestion-making behavior in some of the subjects.

In addition to the issues raised above, there are the concerns inherent in conducting a study using a simulated manufacturing task with college students as subjects in artificially-created groups. While it was possible to more stringently control the independent variables than would typically be possible in field settings, whether the results would generalize to field settings (i.e., work groups in real organizations) is open to question. As stated by Ralsky (1976), "Student subjects receiving [extra class credits] for working in groups in which they have minimal historic relationships among themselves and their leader surely respond to experimental conditions in a different manner than ongoing work groups" (p. 84). It is also conceivable that variables not measured in this study such as group size (e.g., an eight-person as opposed to a four-person group), type of task (e.g., a strictly cognitive as opposed

to a building construction task), etc., may have influenced the results.

Implications for Organizations

The results of this research provide some support for the view that work groups whose leaders use a participative style of leadership will typically display more innovative behavior (i.e., generate more task-related ideas and suggestions) than groups whose leaders use an authoritarian leadership style. This research support demonstrates the practical usefulness of a participative style of leadership and decision-making—not only in terms of the possible intrinsic rewards provided those who participate, but also in terms of the increase in verbal, task-related, potentially productivity-improving ideas and suggestions elicited. This would suggest the need for participative leadership training in those job situations in which task-related input from work-group members is thought to be beneficial.

The contention that groups with access to a formal system of participation will be more likely to display innovative behavior than groups without access to such a system was not supported by this research. As noted in the previous section, though, a question remains as to whether the "formal participation system" dimension was adequately tested, i.e., whether the subjects actually perceived such a formal system, and even if they did, whether it was necessary for the subjects to see the formal system "in

action." Perhaps another attempt to test this dimension, taking the noted concerns into account, would result in support for the hypothesis. Such support would show the potential usefulness of formal systems for participation in organizations (preferably in addition to already existing informal mechanisms for participative decision-making). Indeed, it would indicate that organization members may be more motivated to contribute productivity-improving ideas and suggestions in such organizations because a formal system of participation would provide a clear and responsive medium for their ideas.

APPENDICES

APPENDIX A

TASK DIRECTIONS

APPENDIX A

TASK DIRECTIONS

In this task you will have an opportunity to construct a
building. The success of your group will be measured by
the profit you make in your project. Profit is determined
by subtracting costs from the total appraised value of the
finished structure. As you will see, several factors are
involved in determining the appraised value. Therefore,
it is essential that your group analyze this task carefully,
set some objectives, and plan the best possible organiza-
tion that will allow you to meet them.

Your group will be required to construct a building out of
computer cards and to "sell" it at the end of the con-
struction time. The sale price will be the total appraised
value as determined by the real estate board evaluation
standards outlined below. While the appraised value of the
building may be heavily considered, it is still essential
that your group try to make as much profit as possible.

Materials and Tools

     The raw materials and tools available are: computer
cards, one ruler, one scissors, one stapler, and one roll
of tape. Extra staples and tape will be available, upon
request, without extra charge. The cost of computer cards
(raw materials) is described below.

Cost of Cards

     Cards cost $70.00 each. At the beginning of the task
session, your group will receive a package of 100 cards and
be charged $7,000 as an initial, start-up investment.
Additional cards may be purchased from the supplier at the
regular price. At the end of the task session, you may
redeem any unused cards for $50.00 each. If you need to
purchase or redeem cards, one person and only one person
from your group must go to the supply depot to carry out
the transaction. The experimenter will designate the supply
depot at the beginning of the task session.

Construction and Delivery Time

At the beginning of the task session, the experimenter
will announce the amount of time you will be allotted to
construct your building. Your team is not allowed to build
until the experimenter announces "Begin production." When
the time is up, the experimenter will announce "Stop pro-
duction." No construction is allowed after this point.
You will have one minute in which to deliver your completed
structure to the real estate board for appraisal. Buildings
received after one minute will not be appraised. No team
members are allowed to remain with the building after it is
delivered.

Real Estate Board

The board is composed of assistants to the experimenter.
They are responsible for appraising each building and
assuring that building codes are met. The board will con-
vene during the construction period to decide on criteria
for the "drop-shock" test and quality and aesthetic values.
Once a building is appraised, it cannot be reappraised later.
The Board will also be responsible for computing the profit
for your group.

Building Code

All buildings must be fully enclosed (floors and roofs).
They must also have ceilings that are 3 inches from the
floor, and be capable of withstanding a "drop-shock" test.
The drop shock test may consist of dropping the building or
dropping an object (e.g., heavy book) on the building. It
will be the real estate board's responsibility to decide on
the test.

Appraisal Values

Buildings are appraised on the basis of quality and
aesthetics. The total of the quality and aesthetic values
is then multiplied by the total square inches of floor space
in the building to obtain the total appraised value.

Quality Valuation

Quality is determined by subjecting the building to
the "drop-shock" test. Various qualities are assigned values
as follows:

        Minimal Quality: $12.00 per square inch of floor space
        Good Quality: $14.00 per square inch of floor space
        Better Quality: $16.00 per square inch of floor space
        Top Quality: $18.00 per square inch of floor space

Aesthetic Valuation

The real estate board can set this anywhere from zero to $3.00 per square inch, depending on their appraisal of aesthetic value.

Other Instructions

Once construction begins, you will not be allowed to ask the experimenter to clarify any rules. You are on your own. Five minutes before construction is to stop, the experimenter will notify you of the time remaining. While the real estate board is appraising the buildings, your group, according to instructions, will be responsible for cleaning up left-over raw materials and returning them to the supply depot. All unused cards should be redeemed.

Reminder

Your group will be performing the entire task today, and the entire task again in a few weeks.

APPENDIX B

ADDITIONAL STANDARDS AND RULES FOR PRODUCTION TASK

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ADDITIONAL STANDARDS AND RULES FOR PRODUCTION TASK

1. The table in the work area must remain exactly as it is
    --it should not be moved.

2. Each group member must remain at their designated
    position at the work area, unless their designated
    duties require that they leave that position (for
    example, see #3 below).

3. One, and only one, group member will be responsible for
    all of the following duties: (a) distributing tools
    and equipment, (b) going to and purchasing from the
    supply depot additional tools and equipment that may be
    needed, and (c) delivering the completed building to
    the Real Estate Board. This person is not permitted to
    assist in building construction.

4. The supply depot will be open evey five minutes for
    one minute. You must watch to see when it opens.
    Materials and supplies may not be purchased at other
    times.

APPENDIX C (PART 1)

TASK QUESTIONNAIRE

APPENDIX C (PART 1)

TASK QUESTIONNAIRE

Please answer the following questions by placing an "X" above the one option that you choose. Do not put your name anywhere on this questionnaire. Only the experimenter will see your responses.

1. I cared about whether or not my group performed well on the task.

Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree

2. I contributed a great deal to help my group perform well on the task.

Strongly Agree	Agree	Slightly Agree	Neither Agree nor Disagree	Slightly Disagree	Disagree	Strongly Disagree

3. I tried, to the best of my ability, to help the group perform well on the task.

Strongly Agree	Agree	Slightly Agree	Neither Agree nor Disagree	Slightly Disagree	Disagree	Strongly Disagree

4. I tried to make my opinions known during the task.

Strongly Agree	Agree	Slightly Agree	Neither Agree nor Disagree	Slightly Disagree	Disagree	Strongly Disagree

5. Think about the task that your group just performed. What ideas or suggestions do you have that you feel would help to make your group more effective and/or efficient in performing the same task again--in other words, ideas/suggestions that would make it easier to achieve the goals of your group? The ideas/suggestions may deal with the actual production process, materials, intragroup relations, etc. They may involve quality, speed, cost savings, managerial aspects--virtually anything--but they must be <u>task-related</u>. Be specific!

Write as many ideas/suggestions as you feel are necessary. (There are two sheets of blank paper attached.) If you need more paper, you may obtain it at the supply depot. Please number your ideas/ suggestions.

6. There was much disagreement among members of the group.

Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree

7. My opinion was given adequate consideration by the other members of the group.

Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree

8. I was quite satisfied with being a member of this group.

Strongly Agree	Agree	Slightly Agree	Neither Agree nor Disagree	Slightly Disagree	Disagree	Strongly Disagree

9. On the whole I was satisfied with my group's performance.

Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree

10. I felt inhibited from expressing my feelings during the group discussions.

Strongly Agree	Agree	Slightly Agree	Neither Agree nor Disagree	Slightly Disagree	Disagree	Strongly Disagree

11. I had considerable influence in determining my group's method of performing the task.

Strongly Agree	Agree	Slightly Agree	Neither Agree nor Disagree	Slightly Disagree	Disagree	Strongly Disagree

12. I felt a real sense of involvement with the group.

Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree

13. If I were taking part in another task, I would like working with these same people.

Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree

14. Rather than working as one unified group, it seemed the group worked in sub-groups or as individuals on the task.

Strongly Agree	Agree	Slightly Agree	Neither Agree nor Disagree	Slightly Disagree	Disagree	Strongly Disagree

15. The group had a great deal of influence on my final ideas about what would be a good way to perform the task.

Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree

16. To what extent did the leader try to influence the decisions made by the group?

Very Great Extent	Great Extent	Some Extent	Little Extent	Very Little Extent	To No Extent

17. To what extent did the leader encourage communication among all members of the group?

Very Great Extent	Great Extent	Some Extent	Little Extent	Very Little Extent	To No Extent

18. To what extent was the leader considerate of the feelings of other group members?

Very Great Extent	Great Extent	Some Extent	Little Extent	Very Little Extent	To No Extent

19. To what extent did the leader stimulate members of the group to make contributions to the task process?

To No Extent	Very Little Extent	Little Extent	Some Extent	Great Extent	Very Great Extent

20. To what extent did the leader ask for suggestions from the group?

Very Great Extent	Great Extent	Some Extent	Little Extent	Very Little Extent	To No Extent

21. To what extent did the leader use the suggestions of other members of the group in attempting to complete the task?

To No Extent	Very Little Extent	Little Extent	Some Extent	Great Extent	Very Great Extent

22. To what extent did the group, excluding the leader, actually derive the most effective way of completing the task?

To No Extent	Very Little Extent	Little Extent	Some Extent	Great Extent	Very Great Extent

23. I would like the same leader for the next session.

Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree

APPENDIX C (PART 2)

IDEA/SUGGESTION FORM

APPENDIX C (PART 2)

IDEA/SUGGESTION FORM

Ideas/suggestions may deal with the actual production process, materials,
work-group structure, etc. They may involve quality, speed, cost
savings, managerial aspects--virtually anything--but they must be task-
related. Be specific!

Proposed Idea/suggestion:

Potential Benefits:

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