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COMMUNICATION AND ORGANIZATIONAL CHANGE: A CASE STUDY AND EMPIRICAL ANALYSIS

BY

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ABSTRACT

COMMUNICATION AND ORGANIZATIONAL CHANGE: A CASE STUDY AND EMPIRICAL ANALYSIS

By

James Allen Taylor

This dissertation reviews the limitations of organizational theory in terms of communication and change behaviors prescribed by the bureaucratic school, the human relations school, rationality theorists, and organizational development theorists. A reconceptualization of the change process is proposed. Essentially the author argues that change is a perceptual process which is least disruptive when perceived deviations from prior organizational norms and beliefs are minimized.

Five major hypotheses are tested, along with numerous correlaries in a time-series field test of the model. Data are gathered from a state-wide system of administrators in Special Education. Research used network analysis to separate population into communication roles. Metric-multidimensional scaling was used to study attitude change over time. Some support for the model is found, however, implementation difficulties prevented precise observations. Accepted by the faculty of the Department of Communication, College of Communication Arts, Michigan State University, in partial fulfillment of the requirements for the Doctor of Philosophy degree.

Rechard V. Farace

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This dissertation is dedicated to my wife Judy, and my daughter Katherine, since without them it would not have been written.

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INTRODUCTION

This doctoral dissertation is concerned with the nature of organizational change, the nature of organizations, models which have been proposed as either adoptive or predictive mechanisms for organizations experiencing change, and the role of communication in management approaches to change.

Communication and change cannot stand as constructs independent of production processes. Organizational change affects directly the kinds of inputs which are selected and processed, and the nature of outputs. Secondly, change, particularly planned change, takes place not only within the organization as a series of adoptive and coping mechanisms, but is also interaction with the environment, the recognition of environmental cues, and internalizing those inputs into the organizational planning process. Third, it is held that change takes place at both the individual and the system's level within organizations.

This dissertation is not concerned with changes which are direct impositions of the environment -- e.g., changes which result from economic recession, acts of God, war -- and hence are not subject to the control of organizational managers. Rather we are interested in purposive change -- the planned introduction of innovation into an organization.

Therefore, this thesis focuses on traditional models of organizational structure, the relationship posited by these models between structure and change, and theories on the diffusion of change within

the organizational environment. Each of these theoretical elements will be examined for the implications it holds for organizational communication scholars.

It is worthwhile to note that while management theory has emerged as a social science of its own, change and change behavior are fundamentally communication problems. At the most simplistic level change cannot be perceived if it is not communicated. Since the value of theory ultimately rests on its predictive utility, and predictions necessarily imply periodic change, there can be no theory of organization which does not deal with communication phenomena. As Barnard has stated (1938, p. 91): "in an exhaustive theory of organization, communication would occupy a central place, because the structure, extensiveness and scope of the organization are almost entirely determined by communication techniques."

This thesis does not introduce a new theory of communication in organizations. It seeks to identify some of the functions of communication under conventional organizational models. From these models, principles will be abstracted which will be utilized in the formulation of an intervention strategy, to provide managers with the tools to control and coordinate communication aspects of the change process. This intervention strategy offers a distinctly novel approach to the implementation of change in complex organizations.

The dissertation includes a discussion of the nature of change, an introduction to a communication perspective on bureaucracies, an examination of rational organizations, communication perspectives on the diffusion of innovations, and a cybernetic model of organizational

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change. Five major hypotheses, derived from the model, and numerous corollaries are evaluated in a time-series field test conducted on a large organization.

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CHAPTER 1

CONCEPTUAL APPROACHES TO ORGANIZATIONAL CHANGE AND COMMUNICATION

1.0 THE CONTEXT OF CHANGE

It is such a truism of modern society, that change is inevitable, continuous, and omnipresent, that it almost seems trivial to discuss the gross features of change taking place in the world today. For purposes of this dissertation, however, social change, and particularly organizational change, must be placed into context. Toffler (1970) argues persuasively that the next 20 years will bring an explosion in the rate of change taking place in the institutions which govern society. Drucker (1975) argues that we have entered a period of "postindustrial" expansion for which the only appropriate historical analogue is the late 19th century.

Drucker indicates that the period between 1870 and 1914 saw the growth of a major new industry every decade. The metals, oil, chemicals, electric power, automobiles, fibers, telephone and aircraft industries emerged during that period as dominant economic institutions, and as principal consumers of raw material. Similarly, this period ushered in the expansion of information and communication industries--which has continued unabated to this day.

Similarly, the 1950s ushered in a new era, not only of economic expansion, but expansion in the diversity of alternative industries. For example, in the 1950s we saw the emergence of the computer industries, in the 1960s the advanced space industries; both decades witnessed the development of the nuclear industry. These decades have also seen

rapid growth in information technology.

Information technology has grown during both these historical epochs concomitant with low institutional stability. As organizations developed and expanded, they became subject to new institutional uncertainties. These uncertainties, arising from unstable sources of supply and instabilities in demand, aroused the need for greater and greater amounts of information exchange, both between the organization and its environment, and among organizational members. As the uncertainties associated with rapid growth and expansion increased, traditional approaches to organizing human behavior--assumptions derived from laissez-faire economics--became increasingly incapable of meeting the challenge of organizational change.

Drucker notes that some organizations have grown proportionately with these changes in the basic structure of societal and global sociopolitical relationships. He characterizes these organizations as innovative companies, and argues that while such organizations are very different from one another structurally and functionally, they possess common characteristics in their managing philosophies which distinguish them from "managerial companies."

By managerial organization, Drucker indicates organizations which are directed through a traditional bureaucratic structure. By innovation, Drucker means a strategic alteration in either organizational form or function characterized by planning. The principle characteristics distinguishing the traditional "managerial organization" from the innovative organization is the way intra-organizational communication is managed. Traditional managerial organizations require that members

minimize their communication contacts, conform communicatively to a rigid hierarchical structure which specifies the individuals with whom persons may communicate and the kinds of information they may receive, and which minimizes the variability of informational inputs from the environment.

Huse (1976) indicates that the organization which deals with change most successfully is the organization which structures itself in such a way that changes in society and unanticipated changes in the organization may be observed and responded to. In this sense, the innovative organization restructures its internal communication network to maximize the number of alternative inputs any single employee may receive, consonant with productivity values. Metaphorically, this means that one is put in a position of the tree climber who can see the trees and the forest.

Brewer (1971, p. 479) describes the position of Blau:

"communication flow in organization hierarchies is the combined result (1) of the structurally induced communication needs of managers and operating personnel; and (2) of the opportunities that the organizational structure provides for communication between them."

The differences between the traditional managerial organization and the "innovative company" lie principally in the flexible communication alternatives provided by the organizational structure.

It is increasingly clear that all organizations are subject to what Huse and Bowditch (1973, pp. 379-389) call "the accelerating pace of change." Huse and Bowditch argue that change, as an observable phenomena, occurs most rapidly and with the greatest consequence for organizations in five principal macro-level areas:

- <u>Knowledge</u>: 90 percent of the scientists who ever lived are living today. The rate of both knowledge generation, and the utility of information is increasing. <u>Hence, the</u> <u>value of information declines rapidly and</u> <u>the need for communicative efficiency is</u> <u>increased</u>.
- 2. <u>Rapid Product Obsolescence</u>: As new knowledge is acquired old products and processes are rapidly eliminated or are rendered obsolete. This imposes a tremendous demand on workers whose skills rapidly become obsolete, and on organizations for increased flexibility and communication efficiency.
- 3. The Changing Character of the Labor Force: The U.S., and the rest of the world continue to become more organized, better educated, and more dependent on service workers. This has two communication implications. First, the sophistication with which the average worker can process informational inputs is rapidly increasing. Workers demand more and more information both about their jobs, and about the behavior of the firm (Bureau of National Affairs, 1975). Second, service institutions are essentially information processing organizations. As the number, size, and proliferation of service organizations increases, the gross quantity of information which is circulating within the society, and particularly information which is circulating between organizations, is growing. This means that the efficiency of communication technology is being continuously upgraded, and the amount of redundancy that organizations can tolerate for informational inputs is rapidly decreasing.
- 4. <u>Growing Concern Over Personal and Social Issues</u>: Huse and Bowditch note that, "younger, more mobile, more highly educated workers show an increasing desire to 'do their own thing.'" (p.211) Organizations are more sensitive to the political consequences of their behavior. Government has shown a greater willingness to impose policy--environmental, racial, and ethical--on free enterprise organizations than in the past. This means that the communication environment which the organization must cope with is itself growing. It is not only that they must cope with this environment, but the organization must participate interactively in the deliberations over policy at local, state, and national levels. For

those managers educated in the 1950s and before, the fact of the changes, never mind the question of implementation, has had tremendous implications for their job performance, their perception of the world, and their perception of the nature of organizations. Boulding (1973), in fact, cautions that in measuring organizational attitudes, one must be careful of deviations, since it is always possible that norms themselves are shifting.

5. <u>Increasing Internationalization of Business</u>: Huse and Bowditch argue that the multi-national characteristic of international business imposes alien norms, expectations, legal systems, and political reference systems which affect the behavior, structure, concerns and information-seeking of the modern firm. In addition, multi-national enterprises impose a new set of constraints upon the ethnocentric character of communication between members of the firm.

There are two ways change may be viewed: from the decision-makers to the environment, or from the environment to the decision-makers. Implicit in this distinction is an assumption made by two great schools of organizational theory about the nature of uncertainty. The traditional, bureaucratic model of organizational behavior assumes that the data upon which organizations make decisions, and the consequences of organizational decisions, are known, understood, and predictable. This is, by definition, <u>behavior under certainty</u>. The alternative is to assume that the organization does not have full access to all data which affect decisions, cannot control the environment, and that organizational decisions have unforeseen consequences. This is <u>be</u>havior under uncertainty, and is the characteristic assumption of the rationalist school of organizational theory.

1.1 BUREAUCRATIC ORGANIZATIONS

In the classical, structural-functional view of Weber (1947), the Organization is a hierarchy of supervisor-subordinate relations in which all activity derives from the decisions made at the top. It is a centralized model of organizational behavior which operates from a closed-system perspective (Miller, 1965). By "closed-system" it is meant that the organization secures from the environment a set of stable, known resources, processes these resources through an internal system in which all relationships are well-defined, and produces an output which is highly redundant, and relatively inflexible. Having defined the system of inputs, throughputs, and outputs, the bureaucracy attempts to minimize all other environmental input.

Downs (1967) defines a bureau (bureaucracy) as a collection of related large organizations characterized by full-time workers who depend upon the organization for their income; promotion and hiring based exclusively upon merit; and the organization is not evaluated by outside markets. In the traditional view, government, heavy industry, suppliers of raw material, and the suppliers of capital are not subject to market constraints.

This view is supported by empirical research. Woodward (1965) looked at over 100 organizations, and found that highly bureaucratized firms tend to cluster around traditional enterprises such as heavy industry, mining, and capital suppliers, which are not subject to wide variations in demand.

Bureaucracy is more than just a system of classification. Downs treats bureaucracy as a continuous variable depending upon the degree to which an organization adopts a formal bureaucratic system. In the Aston studies, Hickson, Pugh and Phesey (1969) found that the degree of structure, or the degree of standardization and formalization of

of the rules and procedures--i.e., bureaucracy--correlated highly with organizational size and found that differences in bureaucratic structure, especially differences in structure across nation states, are a function of type of product manufactured, technology, and size (Hickson, Pugh and Phesey, 1969; Inkson, Pugh and Hickson, 1970).

All organizations are somewhat bureaucratic. The bureaucratic model implies that communication necessarily flows upward through an organization, and is screened by a series of gate-keepers at each successive level within the hierarchy. Without this screening process, all information collected from all points in the organization would flow to the decision makers, and the organization would bog down in a morass of information overload (Farace, Monge and Russell, 1977). The nature of that gate-keeper relationship thus becomes crucial to the development of an efficient bureau. If a bureau remains relatively small, and the organization is fractioned into a minimum of levels, the amount of redundancy allowed to flow up through the hierarchy protects decision-makers from uncertainty.

As the number of sub-units increases, however, the amount of information screened by each gate-keeper also increases, and hence, information which flows up contains increasing amounts of equivocality. As the equivocality of input increases, as the technology of the firm increases, and as the stability of markets decreases, the amount of communication taking place within a bureaucracy will increase, and the equivocality of those communication events will correspondingly increase. Thus it is not surprising that as organizations have become dominated by advanced technology, the bureaucratic model, and its implicit communication network array, has been largely abandoned.

The bureaucratic model of management is insufficient by itself because it cannot meet the demands of rapid institutional change. Thompson (1967) argues that organizational structure, particularly the impediments to the free flow of ideas within bureaus, inhibits innovation. Downs (1967) points out that if a bureaucracy is large, is dominated by conservative management, has a stable budgetary basis, and exists in a politically stable environment, it will be highly resistant to change.

Change, Downs (1967) notes, is facilitated by rapid personnel turnover, tolerance of a diversity of opinions, and the organizational tendency of bureaucracies to aggrandize, or to engage in organizational imperialism. Such characteristics are anathema to the bureaucrat. The bureaucrat emphasizes tenure, merit, authority, and responsibility to a well-defined organizational mission.

Emery and Trist (1955) argue that organizations <u>respond</u> to the demand for change in the environment. They claim that as the environment changes, so must the organization. If the management model held by the organization fails to provide the flexibility required for the organization to respond to external demands, the organization will either change its managerial structure, or cease to exist.

I have noted that we are living in a time of rapid change and high environmental uncertainty. Environmental uncertainty interfers with an organization's formulation of its rules and procedures, since the environment in many instances changes at a greater rate than any organization can make policy adjustments. Lawrence and Lorsch (1969) point out that when the environment is changing rapidly, one of the consequences is differentiation in management styles as a cognitive

and emotional variable; i.e., as the environment changes, the organization tolerates a greater degree of variability among its personnel, and hence the bureaucratic model becomes increasingly irrelevant.

Thompson (1969) points out that creativity (or operationally, the degree of innovativeness in employees) is a function of five conditions which are antithetical to the bureaucratic model: (1) psychological security and freedom; (2) a greater diversity of inputs available to any single individual; (3) internal commitments to the search for solutions; (4) a certain amount of structure or limits to the information search situation; and (5) a moderate amount of benign competition. To the bureaucratic manager personal freedom is irrelevant, and, given a reliance upon rules, undesirable. Communication inputs are minimized in the pursuit of routine work processes; decisions are made at the top, and hence, the search for solutions is constrained, and competition within the organization is minimized and discouraged. The initial theoretical response to the weaknesses of bureaucratic management systems was first articulated by Chester Barnard (1938), and has been subsequently elaborated by Herbert Simon (1958), and James March (1965). They developed the principle of organizational "rationality" based upon the need for flexible decision-making and communicative interdependence among organization members.

1.2 THE RATIONAL ORGANIZATION

The rational organization conceives of itself as a system of relations, both productive and communicative, which are derived from system goals. A goal is a statement of organizational purpose to which behavior and policies of the organization refer. It is a fundamental indication of an organization's expectation of a future state.

Goals provide both guidelines to organizational action, and the test by which the satisfactoriness of any behavioral proposition may be judged. From goal statements, management derives policy. Rationality, then, is operationally defined as the degree to which any policy, attitude or behavior is instrumental to the achievement of a goal.

The organization's management seeks to minimize the uncertainties surrounding the achievement of a given goal state. Rather than assuming that all inputs relevant to the achievement of a goal are known, the managers assume that such inputs are, to some degree, unknown. The organization is organized in such a way that uncertainties associated with the goal state are minimized over time. Rationality and rational behavior refer to the means by which goals are realized (Simon, 1958, p. 40). The individual employee acts rationally when, in the judgment of others, his behavior increases the probability that a goal will be realized. Thus the rules for acting within the organization are not fully defined by pre-existing organizational communication structure, but are derived more from the demands imposed upon the individual by the goal itself. In this sense, organizations which are "rational" unfreeze their communication structure.

As Simon (1958) notes, a theory of rational, goal-pursuing organizational behavior must deal with the differences between individuals. Implicity a goal demands that certain objectives and actions be undertaken in order to realize a goal; these objectives and actions may not be the same as those an individual holds for him/herself. Thus entering into the process of goal selection are such variables as internal value systems of the individuals who make up the organization, the concept of organizational norms, ethical considerations, and variations in individuals' personal communication effectiveness.

Barnard (1938) and Simon (1959) shift the focus of organizational theory from formalized mechanisms of control to deliver known and wellunderstood services, to maximizing directed behavior at the individual level in pursuit of goals which are themselves subject to change over time. The environment is an interactive external element which is not assumed to be stable and which is not assumed to be under the control of the organization. The emphasis is on the interplay between technological, sociological, cognitive and psychological factors of behavior within the firm, and on the nature of extent of equivocality external to the firm (March and Simon, 1958).

March and Simon (1958) point out that the fundamental difference between bureaucratic models and rational models is that the bureaucratic model assumes that the organizational members are passive instruments, whereas the rational approach assumes that the individual brings to the organization attitudes, values, and goals which are themselves part of the resource pool upon which the organization draws in developing solutions (Krupp, 1961). Within the rational approach, the organization also brings to the individual a set of values and norms which Taylor (1975) has shown have a strong effect on an individual's perception of the work environment and the nature of appropriate behavior within that environment.

The rational approach may be characterized as an "open systems" model of organizational behavior (Miller, 1972). "Open systems" implies that the organization attempts to maximize the absolute number of total inputs available to decision-makers. After having received this input, decision-makers then apply patterns, usually casual, to the analysis of the data, and from these patterns abstract strategies which are applied as productive processes.

The open systems concept has been explored empirically by Burns and Stalker (1961), Chandler (1962), Emery and Trist (1965), Woodward (1965), Thorelli (1967), and Lawrence and Lorsch (1969). In brief, these researchers have argued that a comprehensive understanding of organization functioning and behavior requires an examination of the variety of energy transfers (inputs), both within the organization and between the organization and its environment. They have found that organizations and their management styles vary along a continuum from closed and mechanistic, to open, organic-organizational structural designs. As we would expect, from the comments of Drucker and others, this continuum tends to reflect the degree of innovativeness of organizations (Lawrence and Lorsch, 1969).

Simon notes that as organizations become "more rational," in rough correspondence to the continuum noted above, the organization adopts a model which is essentially divided into two sub-parts: (1) a theory of motivation which explains the decisions of people who participate in and remain in organizations; and (2) a theory of decisionmaking within organizations comprised of such people.

In the motivational theory formulated by Simon, it is postulated that the motives of individuals can be divided into inducements and contributions. Inducements are positive rewards desired by the members of an organization; contributions are participant inputs to the organization's productivity, but generally have negative utility to participants. In other words, inducements are the benefits one receives from work in an organization, and contributions are the things one gives up as part of the exchange. To the extent that this equation is

maximized, each individual maintains his position and productivity within an organization.

Inducements refer to more than monetary benefits. There are also benefits such as vacations, health plans, etc., and perquisites such as the size of the office, the extent and range of control, responsibility and social experiences. In order to maintain the balance between the individual's inducements and contributions such that motivation to produce is maximized, the organization is compelled to allow employees to "negotiate" the discrepancy between their internal value system and the value system implicit in the choice of organizational goals. Thus, communication between subordinate and supervisor becomes less a process of simple directives from the supervisor to the subordinate than a negotiating process on the most mutually beneficial supervisor-subordinate relationship.

From this perspective, organizational change takes on a new meaning. A change in predominant organizational goals means a change in the predominant assumptions an individual makes about his/her work. The organization management's response must be an increased willingness to provide information which relates to the goal-state of the individual. To the extent that organization managers can communicate the relevance of a change in goals to the instrumentalities (inducements) of the individual, the disruption caused by change will be minimized. Secondly, to the extent that an organization experiences a great deal of change in a short period of time, the amount of energy or communication necessarily expended will be proportionately greater.

1.3 COMMUNICATION AND CHANGE: THE ORGANIZATIONAL DEVELOPMENT PERSPECTIVE

Organizations traditionally have not looked upon change as a continuous process. Despite the best efforts of organizational change theorists, change continues to inhibit system performance. Organizational researchers, concentrating largely on group process models of change behavior (Bennis, 1966, Dickson, 1966, Marrow, 1967), have developed techniques of consultant intervention--<u>organizational development</u>--which are employed by organizations undergoing either shifts in behavior or shifts in policy. These intervention strategies emphasize the need for interpersonal communication among managers, both laterally and horizontally, to maximize congruity between organizational goals and the personal goals of individuals acting to achieve the organization's goals.

Organizational development theorists emphasize the socio-personal processes associated with management. They look to the importance of "good supervision and leadership," defined as a supervisor's ability to obtain willing cooperation from a subordinate. From Simon, this would be the ability to utilize maximally an employee's inducements. Organizational development theorists (acting as change agents) attempt to train managers in the principles of effective communication: the importance of recognizing group norms and behaviors, the importance of inter-group relations, and the importance of what has been called the informal communication network (Bennis, 1966).

Typically, the organizational development consultant encourages knowledge and understanding of these process variables by the use of some form of group confrontation (Huse, 1976). One of the features

of the organizational development approach is its systematic approach. It may not incorporate many members of the system into the intervention activities, but the consulting change agent is interested in estimating the effects of intervention at one point on the overall system.

Lewin (1948) developed a three-step systems model in which the organization experiences a period of "un-freezing, changing, and refreezing." In the un-freezing stage the organization's members come to recognize the need for change, or the fact that it is changing independent of its own inclinations. When an organization is "un-freezing," managers are coming to understand that change <u>is</u> taking place, or the need to <u>intend</u> to change. This period is usually characterized by an increase in the frequency of informal communication within the system. As system members try to reduce their uncertainty, they seek out organizational others, most likely opinion leaders, in order to identify the range of alternative solutions, and the appropriate expectations which are associated with the change.

During the "changing" phase, the organization experiences any adjustments in structural re-alignment required to deal with the change, or which are themselves the manifestation of change. After the organization changes it freezes into a new form for some unspecified period of time.

Lewin looked upon change as not necessarily continuous, but cyclic and sinusoidal. Other organizational system intervention specialists, particularly Lippitt (1975), drew upon Lewin to develop a parallel model of consultant intervention for "planned change"; the resultant model is outlined below:

<u>Phase 1: Scouting</u>. In this stage the change agent and the client develop a relationship but remain uncommitted.

<u>Phase 2: Entry</u>. The client and the consultant develop a contract stipulating their expectations, mutual goals, the role of the change in the organization, the methods to be employed.

<u>Phase 3: Diagnosis</u>. The change agent identifies (1) the problems of the client; (2) the goals of the client as a response to the problem; (3) the resources the client can draw upon in solving the problems; and (4) the resources the change agent can apply to the change situation.

<u>Phase 4: Planning</u>. Having identified the problem and having identified the resources, the change agent develops the steps to be taken in instituting a planned change. At this point the change agent attempts to identify the problems the change will entail, and techniques for coping with these problems, particularly human problems.

<u>Phase 5: Action</u>. In the action phase the planned change is implemented, and intervention strategies, particularly communication strategies, are set forth.

<u>Phase 6: Stabilization and Evaluation</u>. Following the implementation of a change the change agent and the organization attempt to stabilize the situation and evaluate the effect of the change.

<u>Phase 7: Termination.</u> The change agent leaves the system.

Implementation of this model of system-wide organizational development has created perhaps as many problems as it has solved. First, organizational development is not based upon a theory of organizational change, but rather is designed to respond to acute situations. A change agent is rarely called prior to an organization's recognition, at least a tacit recognition, that dysfunctional change has already taken place. Such recognition is usually based upon an increase in the level of conflict, a drop in employee morale, and/or increasing instability in the labor force (Schein, 1967). Secondly, the choice of which individuals are to be represented in the change effort is made largely by the client, and not by the organizational specialist. Hence, key individuals, who themselves are resistant to change in pursuit of their own goals, are left out of the change negotiation process. Third, and most significantly, these models do not treat change as a continuous process. These models treat a specific change as terminal, both in its development and in its consequences. Finally, evaluation efforts tend to be one-shot quasi-experimental or field-study designs, and hence, little experimental validation exists.

Since the models do not take a process view of change, organizational implementation efforts have often failed (cf., Litwin and Stringer, 1964; Lawrence and Lorsch, 1965). I would argue that this is largely because in the organizational development model, most management innovation specialists do not see organizational change as an adaptive process, involving the negotiation of intrapersonal value states, organizational value states, and environmental value states, all within the context of some hierarchical structure.

Another perspective is provided by Lawrence and Lorsch (1969), who argue that change is a continuum which varies from changes in interaction patterns (least severe) to changes in key personnel (most severe) (Figure 1--Lawrence and Lorsch, 1969, p.187). Differences in interaction patterns, or restructuring, result in only modest behavior change; i.e., the observed changes here will be in terms of the formal communication network-the formal hierarchy--and are not significant for the organization. However, Taylor (1975) and Danowski and Farace (1974) have shown that an individual's formal communication patterns have long term consequences

Figure 1

Differing Effects of Change



From Lawrence and Lorsch, 1969, p. 117.

for attitude development and the individual's perceptual set. While this kind of change may represent the least amount of overt behavior change, from the network perspective it is likely to have the greatest long term effects.

At the second level of their change hierarchy, Lawrence and Lorsch place changes in role expectations. Operationally, this is a change in the activities performed on the job. While it is clearly a step up in difficulty from network restructuring, role redefinition is not independent of network structure. If one changes the job, hence changing the uncertainties associated with the job, one changes the information search behaviors, and the network.

At the third level of behavioral consequence, Lawrence and Lorsch argue for the effect of different orientations and attitudes. Never mind the weak relationship between behaviors and attitudes (Siebold, 1976), it is difficult to operationalize the distinction between changing values and changing role states.

At the fourth level, Lawrence and Lorsch look to variations in selection criteria and replacement of incumbents (particularly powerful incumbents) as resulting in the most fundamental behavior change. First, in any organization, particularly a large organization, replacement of powerful individuals does not often result in a significant redefinition of a firm's mission, and hence, in the short run it does not change much behavior. In the rational organization individuals are instruments for the achievement of goals, which are themselves instruments for the achievement of individual's goals. It is a cyclic process, and to the extent that norms about the organization are well institutionalized--

through agreement among large numbers of individuals--the system will be only marginally affected by personnel changes.

More fundamentally, motives are operationalized, as attitudes toward inducements. That is, a motive to perform an act emerges when an inducement approaches some threshold as a limit. The key point here is that Lawrence and Lorsch's list is not a list of different changes calling for different strategies, but a list of factors or variables which may all be present to a greater or lesser degree, in any change.

They assert that behavior change is associated with a continuum ranging from cognitive (objective) changes to emotional (subjective) changes; we can hypothesize that to the degree that a change involves the replacement of personalities--as opposed to the replacement of task--the emotional consequences of change will be greater. This means that the change agent would have to be more concerned with communication about intrapersonal instabilities than about interpersonal instabilities within the overall responding work force.

The two concerns are not easily distinguished. Changes in a worker's intrapersonal set (motives, attitudes, inducements), if negative, will carry over into the interpersonal communication behaviors. Their messages will change, their frequency of contact will change, and the people with whom they interact will change. This means that the position of Lawrence and Lorsch is not predictive of outcomes. It does not specify the manner in which changes diffuse, and the structures which might be designed to minimize disruption.

1.4 ORGANIZATIONAL CHANCE: A COMMUNICATION PERSPECTIVE

Communication research scholars, in the field of the diffusion of innovations, provide a second model which can be applied to the organi-

zation. Katz, Leavin and Hamilton (1972, p. 69), defined the diffusion of innovations as a process which may be characterized as the:

- 1. acceptance,
- 2. over time,
- 3. of some specific item--an idea or practice,
- 4. by individuals, groups or other adopting units, linked,
- 5. to some specific channels of communication,
- 6. to a social structure, and
- 7. to a given system of values or culture.

I take the perspective that the diffusion of innovations should be one of the principal activities of a manager's efforts. The organizational context, of course, differs somewhat from the societal context to which Katz, et al. (1972) referred. First, the manager may be required to make an independent decision to adopt. The decision to choose an innovation, then, is made by only one individual. Thus, the issue of acceptance, or instilling changes of policy, procedures, and product innovations into the employees' perceived inducements and contributions equation, becomes the focus of a manager's diffusion efforts.

The earliest articulation of an innovation model of change in organizations seems to be Graham Walas' (1914) formulation of the construct of creativity. Walas identified four phases in the development and implementation of a creative or innovative idea: (1) preparation (assembling) the inputs, identifying the problem; (2) incubation (the unconscious or pre-conscious combining and re-combining of internalized components); (3) illumination (sudden insight into the solution); and (4) verification (testing through communication). This is rather similar to the Rogers and Shoemaker (1972) model of the diffusion of innovations. Taylor, Farace and Monge (1976) summarized Rogers and Shoemaker's process as follows (p.12):
- Initially a subset of individuals within a culture must become aware of the existence of the new social object;
- 2. The culture must exhibit interest in the innovation;
- 3. There must be an opportunity to evaluate the characteristics of the innovation;
- 4. There must be a trial of the innovation within the social system; and
- 5. The innovation is formally adopted.

Adoption, as Taylor, et al., have pointed out, is "the point at which the innovation may be said to have been integrated into the body of belief which defines appropriate behavior." For the manager, this means determining the a priori inducements which are, at the time of adoption, balancing an employee's contributions. Any change which is not in some way related or evaluated in the light of pre-existing expectations about the nature of the job, or the work an employee performs, will very likely change that balance in favor of contributions. As we have noted, when contributions grow greater than inducements, the employee's motivation drops. Consequently, either his/her productivity drops such that contributions equal inducements, or the employee leaves the firm. Crucially, then, the manager must communicate the relationship between (1) past inducements, both psychological and financial, (2) new inducements or rewards associated with adopting change, and (3) the contributions an employee has already been sustaining.

The amount and kind of information needed to clarify the relationship between inducements, contributions and a new innovation is dependent upon the degree to which the recipients of the innovation perceive the innovation to differ from their existing belief and/or behavior system. The manager analytically determines the a priori relationships between

an innovation, past inducements, and past contributions. Once that relationship is established, pre-existing communication channels within an organization can be utilized to maximize the probability that change will be adopted with a minimum of social disruption.

This argument can be restated as a series of propositions:

- 1. A manager may "adopt" an innovation unilaterally;
- to the extent that an innovation is integrated into the body of belief (within an organization) about the appropriate balance between inducements and contributions, social disruption will be minimized;
- to the extent that a manager communicates that relationship, adoption is rendered more probable; and
- 4. the greater the discrepancy between prior behaviors and new behaviors, assuming no change in perceived inducements, the greater the resistance to change.

As Taylor, et al. (1976) have pointed out, these propositions have several implications. First, the organization's management may choose to adopt an innovation without notifying the rest of the hierarchy and install it, in effect, by fiat. However, the installation of a change, per se, does not guarantee its "adoption." Second, only when an innovation is related to the corpus of belief about appropriate behaviors, and the distinctions minimized, will organizational members change their behavior in some permanent manner. Third, as Newman (1965) pointed out, the uncertainties associated with organizational change are such that the consequences of altering beliefs and exchange equations within organizations are not always predictable. This means that the subordinate not only needs to be sensitized to the nature of the change, but also to the need for information search activities, and reporting on those activities in order that the consequences of change may be fully identified. This is rational behavior. The manager must be capable of reconciling an innovation both to the context in which it is to be employed and to the social system which will be artifactually altered.

In order to meet the demands imposed by the adoption of innovations, the manager must monitor the process of change while simultaneously facilitating the introduction of the change. We have noted that conventional organizational development theorists do not emphasize the continuous measurement of change. They make the assumption that all the variables, and all the elements associated with change, are either unknown initially, or never will be known. It is the case that the manager can a priori define some critical elements associated with the goal-state, which will be changed by the adoption of an innovation. The implication here is that the manager takes a "systems" view of the organization, and of the organization's expected behavior changes consonant with the change effort.

The manager attempts to monitor and incorporate many factors impinging upon an adopting individual, factors which arise from the constraints imposed by the organizational environment, external and internal. In this way the balance between inducements and contributions at the individual level, and the balance between programmatic pursuit of a goal state and institutional uncertainties at the organizational level, can at least be approximated, if not maintained.

This conceptual discussion of organizational change stresses that any change in organizational practices and behaviors occurs over time. Hage (1974) argues that it is possible to view changing organizations as systems which can be modified by cybernetic controls. According to Hage (cf., Monge, 1974), a cybernetic system is characterized by:

- 1. a measurable goal state
- 2. realizable parameters around that goal state
- 3. a system of control for maintaining the system within those parameters
- 4. feedback to verify that the system is within those parameters
- 5. a regulating mechanism which keeps the system within those parameters

Conventionally, cybernetics have been employed in the development of self-regulating production processes, but Hage (1974, p. 27) notes that the cybernetic theorist "start(s) with the simple assertion that the system of variables is a production process with inputs, throughputs, and outputs," and that there is no reason to assume that the concept of production needs to be limited to the creation of a well-defined product. In other words, in the management of individuals, it should be possible to maintain, through the adjustment of the inducements-contributions equation, a set of behaviors which maintain a steady state performance which over time collectively constitute the realization of a goal state.

Organizational development models, since they do not provide for continuous feedback, do not enable us to develop cybernetic models of organization. In order to monitor cybernetic systems (or any systems model) data must be gathered at multiple points of time, and the data must be regularly and repetitively fed back to the manager so that adjustments in the inducements-contributions equation can take place. We do not suppose that managers can automatically make changes in financial inducements; what instead is proposed is that the manager can adjust, through the input of information, the intrapersonal satisfaction elements which Simon (1958) indicates are part of the set of inducement factors. By gathering, from employees, attitude data concerning both the organization and an individual's job, a manager can input information, through opinion leaders, which relates activities performed on the job to organizational goal-states and to the intrapersonal goal-states of individuals. Once a range of satisfaction has been established (or a satisfaction parameter has been fixed) managers can determine when to take corrective action to restore inducement-contribution balance.

Communication is the means by which the manager can make regular adjustments in the instrumentality-contribution equation, or the balance between rewards and performance. Since the value of inducements is, in effect, culturally defined, the manager can take advantage of the organizational culture to redefine the value of various kinds of inducements. The re-definition process essentially involves relating objects which are known to be valued to objects which are not known to be valued, and to stress that relationship through communication provided over a considerable period of time. The key to this process, as Taylor, et al. (1976) note, is that change, both in terms of organizational behaviors and attitudes of organizational members, occurs through identifiable system structures and communication acts.

Huse (1976) points out that organizational change takes place both in formal and informal relationships within a larger social system. That is to say, there is a complex of social structures which is related to the change process. This complex enables employees to judge the critical factors associated with their work which become either inducements or contributions. In the next section, I will describe a conceptual and methodological approach to the change process which has its roots in the organizational development models we have discussed, but which

provides for the manager of change a communication approach to balancing interpersonal inducements and contributions among the labor force.

1.5 A CYBERNETIC APPROACH TO CHANGE

A system member's response to an innovation depends upon the degree to which that innovation is congruent with existing inducements. Therefore, we will say: an organizational innovation will be adopted to the extent that it is perceived to possess attributes congruent with the salient major inducements and contributions involved in individual's conceptions of their work. For the purposes of managing the dissemination of an innovation within an organization, I will dismiss monetary inducements and status perquisites from the list of inducements directly controllable by the manager. It is true, as many unions have found in their negotiations (Chamberlain and Kuhn, 1974), that technological change within organizations is often accompanied by either changes in the salary structure for specific job categories, and/or reassignment of employees to positions of higher status as a result of the technological change. These variables are subject to company-wide policy which may or may not be directly under the control of any given manager, but are assumed to be adjustable as a part of the change process.

An object becomes an inducement when the object is a pre-condition for performance on the job. The degree to which an object is a pre-condition to performance varies with attitudes about the object. It is the attitudes which can be changed through message input. In this sense an inducement can be an attitude about an attribute of the job from which the individual derives satisfaction. Studies of informal communication networks (Proctor and Loomis, 1951; Danowski, 1974; Taylor, 1976) have shown that these attributes are defined through interpersonal processes which take place informally within the organization. That is not to say that systems managers cannot define some key attributes and key sources of satisfaction as part of an individual's job description, but as we have noted, the value of a job's attributes is culturally determined.

On the surface, the assumption that an innovation will be adopted, to the extent that it's related to those aspects which an individual defines as cricial to his/her motivation to perform, seems relatively straightforward. It does not seem to reflect any radical departure from the commonsense notion that persons tend to adopt those things that are compatible with their own existing role view, and to shy away from those things that seem foreign or alien. What makes this assumption interesting is the logic that underlies an individual's concept of the work--his/her job--and the process by which an innovation comes to be seen as compatible with the job concept.

The concept of the job as a psychological and cognitive phenomenon has been studied by Taylor (1915), Hare (1967), Thompson (1969), and Pekar and Borrack (1976). The results of these largely base-line research efforts show that a person's job, his/her performance, the job's status and its characteristics play an important role in determining an individual's overall life satisfaction. In this view, the job becomes a central referent by which an individual defines his/her position visa-vis other actors in the social system. The individual observes other individuals responding to him/her and from that extrapolates his/her position in the world (Hare, 1967).

Like anything else, the concept of the job is open to change. Adopting a new machine, new technology, or new accounting practices fundamentally changes the way in which people behave on the job, and hence, their perception of their own position in the world. For people in the world of work, the concept "my job" typically is built up from a large repertoire of prior message experiences. Some of these occurred in early childhood socialization (through the mass media, and interpersonal sources). Some are culturally (or sub-culturally) delimited, and others are specific to the work history of the individual. The aggregate of all such message events yields the reinforcement schedule which lends power (instrumentality) to certain attributes. The power of the attribute lies in its degree of relatedness to the individual's overall psychological conception of self.

Barnett, Serota and Taylor (1974) indicate that for certain attitudes, the message history is so large that the attitude is "massive." This means that the number of messages which collectively have defined that attitude, its magnitude, and the relationship between the attitude, other attitudes, and the attitude's contribution to the definition of self is very large. I would argue that a person's perception of the job, and the attributes of the job which represent inducements for the individual, are very massive. They result from a great history of informational stimuli.

This suggests that the concept "my job," as a psychological phenomenon, and the instrumental attributes which are related to it, are not likely to be altered substantially by the volume and kinds of messages which a manager can produce in a change project. Given that one's con-

cept of "my job" is not readily changeable (or movable), how then can the manager take advantage of this cognitive phenomenon in a change effort?

I would suggest that the manager begin by determining those attributes of the job which are instrumental to an individual's performance, and selecting from that set the subset which on the average is "most instrumental." Then the job of the change manager becomes one of representing, through a series of messages, the degree to which an innovation possesses those attributes which are most instrumental in a person's job performance, and in their definition of self. We can restate this as two propositions:

- 1. To the extent that an attribute is instrumental to performance on the job, it will be closer to a person's definition of self.
- 2. To the extent that an innovation possesses attributes which are themselves close to individual's definition of self, the probability of adoption is increased.

These propositions provide the key to constructing a cybernetic model of organizational change. Monge (1974) argues that a cybernetic system essentially consists of (1) a phenomenon to be controlled--in this case an innovation; (2) the variables that affect the phenomenon-in this case a set of individuals representing alternative transmission units, each of whom is possessed of a set of instrumentalities or inducements and contributions; (3) a set of information about the system; (4) a goal-state which defines appropriate system level behavior; and (5) a control mechanism which monotors the degree to which this system is approaching a goal.

Cybernetic approach requires a system of gathering and monitoring data about the system and feeding it back. It means that one knows the parameters which are indicative of acceptable performance. Thus, the control center has the ability to respond and make changes in the system as a result of feedback originating from the system's members.

The model as outlined below (Figure 2) shows the manager in the center point of the system. At the initiating point the manager has information about attitudes which are instrumental to employee performance and motivation. Secondly, the manager has information about the nature of the change, and some prediction about the behavioral and attitudinal consequences of the innovation to be adopted. Finally, the manager has a goal-state, hypothetically a non-disruptive adoption, but clearly the goal is related to some overall expectation of system performance.

The initial responsibility of the manager is to provide information which defines the innovation in terms of those attributes which are instrumental for the employee. We note that the manager should ideally identify opinion leaders, or key communicators (operationally, individuals who are highly linked within the communication network), and allow them to pass information through the system interpersonally. Bennis (1966) notes that information about the organization is much more likely to register on individuals' perceptions if it is transmitted interpersonally. The model implies that opinion leaders, in some sense, define the values for the rest of the system. Taylor and Bauchner (1977) have proposed a test of the theoretical assumption that opinion leaders set the agenda on values for the rest of the organization. It is also possible

FIGURE 2





that opinion leaders become so because they have values which themselves are <u>a priori</u> valued by the rest of the system members.

By inputing this information, the relationship between an innovation and attitudes of system members (which are instruments of performance) is clearly defined. This has two effects: first, in a co-orientation sense, the manager and the group of subordinates experience perceived agreement on the nature of those system values, experience understanding about those system values, and become more accurate in their prediction of the relative magnitude of each other's position vis-a-vis the objects related to the attribute. Second, as Farace, Monge and Russell (1977) note, accuracy between supervisors and subordinates enables communication to take place at a high level of efficiency. This is because two individuals in a supervisor-subordinate relationship can avoid problems of communication which stem from a lack of understanding of the meaning of important objects which are the subject of the communication act.

Farace, Monge, and Russell (1977) caution against the existence of "monolithic consensus." By monolithic consensus they mean that there is agreement about the meaning of all objects, or agreement about the magnitudes of attitudes toward those objects among all members of the system. Certainly I am not advocating such a position here. What I am advocating is that for objects that are instrumental to a worker's perception of his job, the manager must recognize the importance of that inducement, and propose the innovation in the context of that inducement.

By continuously measuring inducements or attributes, and by applying appropriate time-series analytical procedures, the manager can determine the degree to which change in the perception of the innovation, and

change in the behavior of the system vis-a-vis the goal-state, is appropriate both in its magnitude and its direction. That is to say, the manager can ask the question, "Is this goal being met?" or alternately, "Are we tracking on our goal-state?" If the results of data show that the answer to that question is <u>no</u>, then the manager adjusts both the information levels and perhaps the kind and quantity of transmission channels the manager alternately employs. If the answer to the question is <u>yes</u>, the manager continues current activity levels and imposes no change.

Thus, in essence, this model proposes four key factors which will enable the manager to overcome many of the present deficiencies of current organizational change models.

(1) Time series analytical methodologies that provide for the continuous monitoring of critical inducements throughout the change process. Thus, changes in trends can be quickly spotted, and program efforts can be redirected accordingly.

(2) The change process should be conceived of as a complex phenomenon best represented in a multi-variate configuration, so that precise changes in key variables and their interdependent consequences can be tracked over time. This allows the manager to both make changes in the volume and quantity of information being input into the system, and assessments of the unanticipated (uncertain) consequences of an organizational innovation adoption.

(3) The objective of an adoption is to bring into congruence the instrumentalities by which people obtain satisfaction from their work and the innovation itself. To the extent that the innovation is perceived

to possess attributes which are highly instrumental in an individual's definition of self, adoption will occur more rapidly. To the extent that information specifying the relationship between the innovation and the attributes is diffused interpersonally, the information will be more efficient. If the discrepancy is large, significantly more communication resources will have to be expended.

(4) The focus of communication campaigns will be to link key instrumental attributes of persons' perceptions of their jobs, and the innovation; this can best be done by disseminating linking messages and separately gathering independent validation that the innovation in fact reflects the attributes the message purports it to possess. The innovation must be related to a person's perception of self, because a person's perception of self cannot be rapidly changed to reflect the attributes of an innovation.

The model does not cause change. The model is efficacious for the installation of planned change. By "efficacious" I mean that the model is one of a number of tools at the disposal of a manager planning the implementation of change.

This model is, however, particularly valuable. It provides a basis for linking specific changes to goals of the organization and goals of the individual. It provides criteria for specific messages of great power and utility for sponsoring perceptual changes. It calls for multiple measurements of change to allow for strategic changes in the message strategy in response to structured feedback. It allows for the observation of organizational structure, and sensitivity to organizational structural context in the initiation of change efforts.

Finally, and most crucially, it requires that managers be sensitive to the needs and expectations of system members.

Causing changes between attributes without providing evidence of the behavioral validity of the claim defeats the implementation effort. Similarly lack of funding, failure to sustain message flow, and policy changes can all unhinge change effort prior to adoption.

1.6 STATEMENT OF THE PROBLEM

Organizational change, to be rendered consistent, requires the continuous transmission of messages to guide the behavior and perceptions of system members. The proposed model stipulates that an observant manager, operating a "transforming" system, must dedicate some proportion of the communication message load toward the reduction of stress responses to perceived variation. By reducing stress, the manager reduces disruption and increases the probability of adoption.

If the manager has some fixed notion of the tolerable rate of change for the system under consideration, the manager can fix tolerable upper limits--i.e., the rate at which change can be imposed without significant dislocation of production processes. The goal is to push the system to the upper limits of tolerable deviation without substantially reducing production norms.

This addresses the way an innovation fits into a continuing cybernetic monitoring system. Generally, cybernetic controls are imposed upon stable systems. In this case, we are considering the imposition of change upon a theoretically controlled system, and pushing the system to its theoretical limits.

Having placed demands to change upon the system, one of three options seems most likely. Either (1) the system will reject the innovation and return to prior normative behavior; or (2) the system will adopt the innovation and return to prior values; or (3) the equilibrium ranges will be altered. Of the three options, the third seems most likely, particularly when the innovation represents a major shift in organizational processes.

Imposed change from either external or internal sources can redefine the acceptable tolerances within which the system may operate. That is, significant shifts in the demands of the environment for altered output imposes a new set of constraints upon system behaviors. The manager must "re-tune" the system while maintaining satisfactory performance levels. The program or process which represents the internal response to the demand for change is the innovation. Inducing adoption requires an increase in the amount of communication resources which are directed at new processes, and a consequent reduction in the communication resources directed toward conventional behavior.

The research question related to the argument above, which this dissertation addresses, is: To what extent can the systematic input of messages re-direct the perception of organizational members such that an innovation comes to be perceived as normative? The research reflects an attempt to systematically organize and implement a communication strategy which optimizes the directed effect of each message.

It is proposed that organizations consist of bureaucratic hierarchies, rational goal pursuing activities, and informal communication networks. By identifying the informal leaders through a reliable method, by providing opportunities for managers to participate in implementation

processes, and by creating a uniform goal-directed communication strategy, change can be effected.

First, the manager of the dissemination effort selects out those informal communication others who control the flow of information. Research by Jacobson and Seashore (1951), Likert (1961), Guetzgow (1965), and Farace, Monge and Russell (1977) has indicated that such individuals powerfully affect the perception of the system regarding new processes.

Information directed toward these "key communicators" can induce some change at a minimum of resource cost. If the messages are tied to the prevailing instrumentalities of the individuals, there is a high probability that change in the key communicators will be reflected in their ongoing interactions with network others. As shown in Figure 3, changes in key communicators at one point in time are likely to produce changes in non-key communicators at subsequent points in time.

The model shows that between T_1 and T_2 non-key communicators should minimally change (0), inasmuch as information does not filter down. Informational stimuli are provided to key communicators which cause change (Δ) between T_1 and T_2 . Between T_2 and T_3 , non-key communicators change to the position of key communicators at T_2 , hence the zero sign on the diagonal between X_2 and Y_3 , and the delta sign between Y_2 and Y_3 . A zero for the line between X_1 and Y_1 indicates an assumption of initial equilibrium.

Thus, by redefining the perceptions of key communicators, it is possible to strongly affect entire organization. The problem is initially isolating key communicators; i.e., separating them from normal relational processes. Since this cannot easily be accomplished, it is

expected that some information will continuously filter down. Therefore, the manager chooses points in time to monitor the system which are wide enough to allow change, yet small enough to detect differences between the two groups. The precise length of time is dependent upon the extensions, on potential for impact of the innovation, and the manager's ability to produce and introduce innovations, the criticality of rapid change, and the availability of funds and personnel for research purposes. Further, the manager recognizes the need to incorporate information about the innovation in memoranda slated for general distribution. This reduces the potential that non-key communicators will perceive obsequiousness vis-a-vis the innovation.

The purpose of this research is not to test the cybernetic nature of the system, since that would require involvement lasting over a period of years, but to test the efficacy of the innovation implementation strategy. This strategy was tested in an organization at three points in time, over a 19-month period.

1.7 RESEARCH SETTING

The proposed model of organizational change was tested within the state of Michigan, Department of Education, Special Education Services Unit, Mr. Murray Batten, Director. Included in the State-wide services organization are administrators in intermediate districts, and administrators at the local district level. All members of the system are tied to a common funding base, common legislative codes, and overlapping administrative jurisdictions.

The State Department and its corollary units at the district level provide administrative support for Special Education students. No teachers

FIGURE 3





non-key communicators

were directly employed in the research effort, although administrators in rural districts might well spend a percentage of their time as teachers. The focus of the research effort is on managers -- program managers or system managers -- and their collective responses to an innovation.

Considerable effort has been expended on explicating differences and similarities between <u>bureaus</u>, rational organizations, and changeoriented organizations. This effort was undertaken to provide the reader with a sense of the magnitude of effort involved in transforming bureaus into modern systems-oriented organizations. The present effort is directed at introducing a mechanism for participatory decisionmaking into the Special Education administrative framework. The innovation we will consider is a system for gathering the perceptions of administrators remote from Lansing, and systematically imputing that data into State Department decision-making processes.

Change has been a profound and continuing problem for administrators in special education since 1968 (Kay 1976, p. 1) notes:

> These forces for change have affected the individual child level in the form of alterations in the procedures for determining eligibility and placement. Changes in the scopes and type of program for the handicapped have also occurred at the individual child level. At the system level these changes have affected the nature of the relationship between general and special education. At the state level, both intermediate and school system relationships have been altered from a service relationship to a monitoring and compliance one. These changes have affected the way in which local and intermediate units relate to each other and to the State Department of Education. Other areas that have been affected include the philosophy of special education, resource allocation, staffing patterns, and training.

In 1972, in response to increasing parental litigation and in

compliance with new legislation (P.A.198), the State Department of Education created the Special Education Simulation Consultation Project. This group developed goals for special education through 1980. Among the recommendations was one which indicated the need for an organization which could systematically address administrative needs in special education, respond to those needs, and provide input into state decisionmaking processes. As Burillo (1975, p. 9) noted, the fundamental purpose of this project was to determine the steps necessary to "stimulate the development of more integrated service delivery models for handicapped children within their own school buildings."

My personal observations are that special educational administrators traditionally apply local standards to special education. In more sophisticated and wealthy districts, this means richer and more variegated special education. In rural districts particularly, and poor districts generally, the quality of special education is substantially lower. Parents, through the courts and through political pressure, have compelled the State Department of Education to require more uniform standards of education and a more equitable distribution of services. Districts have been required to provide individual instructional plans for each special education student; a program to reintroduce the student to normal academic careers (mainstreaming); a precise method for identifying non-organic learning disabilities; and a method of accounting for teacher productivity. Finally each program was subordinate to statewide standards and the review and approval of the State Director of the Special Education Services Agency (SESA).

Fundamentally, this policy shift affected the administrators of special education who are responsible for funding and program direction. First, they had to conceive of themselves operating in concert with a wider political and cultural reference base. Specific local inclinations were made subserviant to state priorities. The legislature passed laws which set minimal standards and required the application of regional planning models. Each child within the special education milieu was to have an individualized program which, to the extent possible, allowed the child to enter into the regular curriculum. This meant a reduction in traditional separate classrooms and a higher emphasis on counseling and therapy.

Secondly, the special education administrator was compelled to be less a special educator and more of an administrator. Interviews with special education administrators which I conducted indicated that special educators derive most of their job satisfaction from working directly with the children. Planning, needs assessment, evaluation, and responding to the requirements of the State left little time for active classroom involvement. Special education administrators perceived the changes in their own role performance negatively--or, imposed. In the logic of the model explicated above, planning and administrative functions were highly discrepant from those attributes of the job closest to the core psychological definition of self among these administrators.

As confusion and consternation mounted, the state adopted the recommendations of the Special Education Simulation and Consultation Project, and adopted a specific strategy for the encouraging reforms in special education administrative practices (Kay, 1976). The department,

responding to a proposal from faculty of the University of Michigan, allocated funds for the creation of Project STANSE -- the State Technical Assistance Network in Special Education. STANSE is an administrative innovation which involves the provision of organizational training at the district level and the creation of a specialized management task-force which is dedicated to identifying and solving administrative problems in Special Education.

The management task force was composed of personnel from the local, intermediate and state levels. Individuals were selected after peer nomination and review by a "blue-ribbon" panel which included a representative of the State Director, permanent STANSE staff, and prominent persons in the field. The management task force -- State-wide Management Task Force (SMTF) -- was the key element in the STANSE concept. Prior to STANSE, there existed no formal mechanism for moving perceptions, information, and contributions from the bottom of the system to the top without reference to complicated procedural protocols. New State legislation (P.A. 198) and Federal legislation (P.L. 94-142) required that the State provide a mechanism for planning which utilizes input from all administrative levels and which is independent of the resource base of the district or level. This means that local rural districts must be included in state planning processes on an equal basis with large districts that command disproportionally larger amounts of funds.

STANSE included local district administrators, intermediate district supervisors, and State Department personnel on the SMTF. Monthly meetings, regional meetings, and meetings at the State Department emphasized communication across hierarchial levels aimed at state-wide

goal formulation, accountability and technical assistance. In short, STANSE was the vehicle for promoting rationality in Special Education administration. Thus, change/diffusion efforts shifted from what Havlock (1973) called "natural diffusion" to what he refers to as "natural communication network utilization."

The notion of utilizing a communication network as a method of encouraging area planning -- or coordinated behavior -- requires some degree of formal organization. The State, therefore, funded the creation of the state-wide technical assistance network in special education, project STANSE. STANSE was conceptualized as both an innovation in itself -- i.e., a new organization which would link all special education administrators regardless of system level -- and as an arena within which innovative planning activities could take place.

STANSE organized itself as a participatory decision making organization. Figure 4 reflects the overall pattern of institutional and organizational relationships. A project director fulfilled project management responsibilities. He was assisted by a project coordinator who directed the research staff, and coordinated the day-to-day planning activities of the wider special educational administrative group. Additional project staff consisting largely of three organizational development trainers worked with the SMTF. No position could be taken, and no decision could be made which did not reflect the consensus of the SMTF staff, and the State Department.

STANSE focused on analyzing three administrative phenomena (Kay, 1976, p. 9):

- 1. The interaction processes within and between the three organizational units, with particular emphasis on management functions at the three levels;
- 2. Communication within and between levels of the system; and
- 3. Identification of specific problems and recommendations for solutions.

The idea was to use the SMTF as linking pins in the sense of Likert (1961). The SMTF, through their contacts in the field, would specialize in the development of procedures for identifying the problems, and methods for attacking those problems. Each month, STANSE would hold an SMTF meeting at a different location throughout the state. SMTF members, usually between 25-30, would attend the meetings, and discuss problems of mutual interest. Over time, the SMTF split into sub-committees, each of which was dedicated to a specific concern of special education administrators; e.g., State reorganization of special education administrative units, implementation of new laws, and identifying new curriculum programs.

The results of STANSE meetings was to be "products" and positions. A product is some item, such as a comparison of all compliance procedures in administrative law affecting special education administrators, which could be disseminated to the field. A position is an advocacy statement regarding some issue in the field of special education administration. First, the results would be communicated directly to the state director for consideration and state planning, state decision-making, and the selection of state fiscal priorities. Secondly, the results would be communicated back down to the field for "coordinated implementation." FIGURE 4

Organizational Chart of the

State Technical Assistance Network

in Special Education



Arrows indicate assigned direction of authority

"Coordinated implementation" meant that a large number of districts heretofore operating independently would adopt uniform management and operating protocols, and hence develop interdependency. The SMTF could "cause" such adoption by virtue of the prestige of its membership and the rationality of its strategies.

STANSE began its activities in late 1973. All administrators in the state were invited to join the SMTF. Thirty-five of five hundred and sixty-four administrators agreed to join. The STANSE attempted, using the Delphi technique and various other T-group (Bennis, 1969) strategies, to effect a high degree of cohesion and establish working goals (STANSE Goals, 1975).

Kay (1976) indicates that initial diffusion efforts were based upon an explicit application of the work of Havlock (1973) and Rogers (1971). They argued that once problem solvers (administrators) became acquainted with "need" to change, change would occur systematically and logically.

The problem was, first of all, that "need" to change was a function of the sophistication of the district and its geographic isolation. Since early efforts were sponsored by the larger districts, smaller rural districts and their own specialized concerns tended to be underrepresented in decision-making. In pursuing the research effort, STANSE staff and the SMTF were to be kept explicitly informed of research results, and the interpretation applied to such results. Staff members accepted responsibility for planning and disseminating messages, with editorial assistance from Dr. Farace and myself. Plans called for extensive dissemination of information throughout the course of the

project. As I have noted, the model requires that energy be invested in information and message dissemination continuously if an innovation is to become adopted.

The research design called for infrequent formal position papers, bulletins, and explanations to be disseminated to the network, and many specific messages to be disseminated through "key communicators" identified within the organization. Staff were to use a combination of mass channels and interpersonal channels to maximize the overall visibility of their information, and hence, improve the probability of attention and subsequent response.

The model calls for repetitive measurement events within the organization, and information decisions based upon observations from the measurement event. Therefore, three points in time were studied during the nineteen months of the research reported here--a measurement approximately every six months. After measurement and analysis, the researchers discussed results with staff and SMTF, and decided upon a message strategy and appropriate implementation strategy. STANSE staff, then prepared messages, such as in Appendix A, referred them for approval to the SMTF, and disseminated the messages. At crucial junctures (usually concerning a crisis of some sort), SMTF members would be directed to telephone or contact personally three "key communicators" and either deliver a specific piece of information or ask for a response to an SMTF proposal.

Between the first point in time and the second point in time, STANSE staff and SMTF members cooperated fully with the procedure. No precise record was kept, but at least seven formal position statements were distributed to all members of the organization, three telephone

messages were disseminated, and numerous bulletins and newsletters were released. Results will show that considerable positive change was effected during this period.

Between Time 2 and Time 3, however, STANSE lost the staff member who served as the liaison between Dr. Farace and myself, and as a result, the message campaign ceased abruptly. The researchers were told that efforts were proceeding normally, but we found out that between September of 1976 and April of 1977, not a single formal message was authorized or disseminated. As will be shown, the change in level of effort had a profound effect on the outcomes of the STANSE project.

Dr. Farace and I were asked to participate in STANSE change efforts in January of 1976. We were engaged as consultants, and charged with providing assistance in the development of a state-wide communication strategy. The model discussed here was developed early in the project.

My participation in the STANSE program included measurement, message design, group counseling, and organizational development. These responsibilities allowed considerable editorial control over the context, timing, and distribution of promotional developmental messages.

1.8 SUMMARY

Change and innovation processes in organizations are important social and managerial phenomena. It is argued that communication research methods and paradigms offer insight into the mechanics of the process of organizational change. Bureaucratic and rational schools of organizational theory are contrasted in terms of their treatment

of change, and the role of communication in management under the alternative models.

In bureaucracies change is antithetical to the assumptions of stability and control which are fundamental. Communication is assumed to be upward, structured, and characterized by relatively inflexible relationships and communication rules.

The rational school admits to flexibility in communication relationships and rules, as a function of the rational goals of the firm. Change is treated as a constant to be dealt with as a part of normal managing behavior. Rational management models, it is argued, led to the emergence of organizational development, and its humanistic assumptions about the behavior of people in the world of work.

Organizational development theorists made explicit the importance of attitudinal attributes in human performance, while taking a simplistic view of the change process. Drawing from communication attitude research it is argued that attitudes toward the job, and related phenomena are the elements in an inducement-contribution balance which can be modified through communication strategies.

A model is proposed which holds that the key to organizational change lies in the recognition of the discrepancy between prior behavior, and new behavior imposed by a change. It is argued that this discrepancy is a perceptual variable which depends upon the attributes associated with the definition of self in the job, and the degree to which those attributes may be assigned to innovative objects within the environment. By identifying the attributes associated with work in a specific environment, which are also close to the definition of self, it becomes possible

to design a communication strategy which, over time, will reduce the perceived discrepancy between the objects of change, and prior behavior. This is accomplished by assigning attributes which are close to self, to change object in an over-time communication campaign.

It is proposed that this constitutes a cybernetic model, because the relationships between change objects, self, and attributes of the job can be measured and adjustments in the communication strategy can be introduced at various points in the change effort. By so doing, the manager controls the perceptions of employees about change objects, the organization, and messages which positively and adversely affect those balances -- without having to alter monetary inducements.

The model is held to be efficacious because it takes into account the needs and expectations of message audiences in the planning and formulating of communication strategies. Communication is held to be the mechanism by which concepts become "meaningful" in the organizational environment, and programmatic approaches to the development of specific attitudes have been successful in the past. Secondly, the manager controls the process in terms of key organizational goals, hence, change efforts have long-term beneficial consequences.

A research design is proposed in which hypotheses derived from the model can be tested. Network analysis is identified as a method for identifying key actors in the communication system, and time-series metric-multidimensional scaling is proposed as an acceptable method for observing change and developing message strategies. A research setting is identified and described, and the consulting role of the research staff, including the author, is elaborated upon. It is noted that the

author had responsibility for the design and dissemination of messages directed at the achievement of non-disruptive change in the proposed organization.

CHAPTER 2

RESEARCH HYPOTHESES

The discussion in Chapter 1 suggests that change occurs most reliably and predictably when:

- the discrepancy between an innovation and the prevailing beliefs, attitudes and values of organizational members is minimized;
- the attitudes, beliefs, and values which define a member's perception of the job are linked to the innovation;
- the attitudes, beliefs, and values linked to an innovation are instrumental to the performance of the job;
- 4. when communication is specific in establishing linkages between attitudes and innovations; and,
- 5. when the organization during the change effort is treated as a cybernetic system.

Thus, extraneous information and noise is minimized, consensus is encouraged, and a programmatic--or, goal-defined--change is rendered more probable. "More probable" is stated so that the concept of resistance to change is explicit. It is possible that the concepts or social objects which are targets for redefinition are so "massive" that no amount of information can induce change. A caveat to this research which must be borne in mind is that in changing the relationship between object and self, we are attempting to redefine the "meaning" of the object.

The redefinition of meaning occurs in a generalized cultural setting. Culture may be taken to the common, shared, ritualized experiences of an aggregate of people (Gillham, 1972). This definition can be extended to normal information experiences. Through interactions among a fixed

group of people or common information experiences, people come to observe which objects are important to the largest proportion of the population and the attributes by which those objects are known, defined, and hence, made meaningful. As Woelfel (1972, p. 10) notes,

> ... if the concept of culture is to have any meaning, then there must be some central tendency of opinion around which individual beliefs may be seen to cluster themselves more or less cohesively.

Culture is thus the tendency of individuals engaged in common ritualistic--or repetitive, symbolic--behavior to define phenomena in similar terms, and to understand the meaning of terms in a common way. Without such common systems of meaning, communication would be problematic, or at least extremely tedious, and cohesive interdependent behavior would not be possible. In short, without consistent shared definitions, organizations, like cultures, would not exist.

Thus, the meanings of attributes in terms of relation to self are idiosyncratic, i.e., dependent upon individual experiences, but the commonality of individual experiences across a culture provides that some meanings are largely culturally determined. Organizations, by isolating individuals into structured communication roles and relationships, develop unique systems of meaning which can be called "culture." So also do professions--e.g., law, medicine, teaching. In the present case, we are considering an organization which has been imposed upon a professional network. From the point of view of the system members, both STANSE and its primary goals may be taken to be the innovations. Innovation is operationally defined as concepts and objects for which meaning is largely undefined or inappropriately

defined within a given system of relations -- in this case the concept "STANSE." The job of the change process is to affect a definition of the objects such that the dissimilarity between object and self is minimized. In my view, this is best accomplished by minimizing the dissimilarity between innovation, objects and those attributes of social objects which are also close to self. That is, to define an innovative object, or to express the relationship between an innovative object and objects which are already important to people as very similar (or very close).

Operationally this implies a triangulation of relations (see Figure 5). To the extent that the innovation is close to an attribute of self, it is ideally close to self. Figure 5, however, describes an optimal relationship. It is also possible that this distance between innovation and attribute could be equal to the distance between attribute and self (as in Figure 6) while self and innovation can remain far apart.

Figure 5 Figure 6 Distance between Distance Between Concepts: Optimal Concepts: Non-Optimal Relations Solutions Self Innovation Attribute Self Attribute Innovation

In the case of Figure 5, the dimensionality, and hence the complexity of the defined relationship, is reduced with respect to that of Figure 6, but the innovation remains relatively unimportant in the definition of self. Hence, the function of information reducing the
distinction between self and innovation is to provide linkages (definitions) which unambiguously establish similar meaning among concepts for self, attribute, and innovation. By establishing such a relationship, the number of dimensions of meaning for the innovation is increased (in this case from one dimension to two dimensions), and hence relations are more complex while dissimilarity is reduced.

Assuming the distribution of information which indicates specific relation between an innovation, the attributes of self, and self, we should find:

> H1: Over time, the number of positive dimensions within which the relationships among key concepts can be represented will increase.

A positive dimension is a factor which contributes variance to the solution.

We should test the hypothesis that decreasing the dissimilarity between self and innovation should increase productivity vis-a-vis the innovation. This is, however, impossible in the present case. No prior data exists inasmuch as the organization is a new one, and hence any activity would reflect an increase. However, I will document some of the products which STANSE developed, in my concluding remarks.

The conceptual discussion above also suggests that individuals differ in their receptiveness to communicate as they differ in the degree to which attributes are present and <u>salient</u>. Rather than moving information through an organization via mass channels such as "memos" and training aids, it is preferable to utilize the existing informal information structure, and allow messages to "disseminate." The function of the linking pin (Likert, 1967) in an organization is to link large numbers of individuals whose relationship (or communication) pattern form dense clusters (or groups). Farace, Monge and Russell (1977), in their work with networks, suggest that these linking pins may exist in two communication network roles:

- Liaisons: Individuals who are not themselves members of groups, but who link groups or cliques.
- Bridges: Individuals who are members of groups or cliques, who are connected to members of one or more other groups.

After isolating these individuals, information can be disseminated through interpersonal channels which will augment information distributed via other media. Even without specifically addressed information, the individuals tend to access information earlier and use information most efficiently (Allen and Cohen, 1969). In effect, it is hypothesized that "key linkers," or "key communicators," by virtue of their unique communication network roles of positions, are organizational "opinion leaders."

The dissertation presents an examination of the question: To what extent can the impact of specific message stimuli cause an innovation to become integrated into the job perceptions of the members of an organization? This question can be translated into the following working hypotheses:

- H₂: The magnitude of the attitude A toward innovation I will be significantly reduced between T_1 and T_3 for the whole population.
 - The second hypothesis indicates that implementation of a message strategy will eventually produce key changes in the perceptions of the whole system

during the three points in time. This is crucial to the demonstration of the effectiveness of the proposed change strategy. Successfully changing the aggregated perceptions of the organization is, however, contingent upon producing and disseminating an appropriate flow of targeted information.

H₃: To the extent that information is directed toward key communicators, (K), the magnitude of their attitudes with respect to advocated positions will be less than that of non-key communicators (N) at T_2 and T_3 , or:

$$H_{3a}: A_{T_2K} < A_{T_2N}$$

and

$$H_{3b}: A_{T_3K} < A_{T_3N}$$

and it follows

 $H_{3c}: A_{T_1K} > A_{T_2K} > A_{T_3K}$

and

$$H_{3d}: \qquad A_{T_1N} \geq A_{T_2N} > A_{T_3N}$$

2) Hypothesis 3, and its corollaries indicate that the magnitude of change on individual experiences at each point in time is, in part, contingent upon their communication role. The model of implementation is time-phased to suggest that key communicators change their perceptions, alter the content of subsequent interactions, and then change occurs throughout the remainder of the organization.

Since we are proposing a two-step flow of information, i.e., to the general group through key communicators, change in non-key communicators should lag behind changes in key communicators across time intervals, or: H₄: The magnitude of attitude (A) toward the innovation held by non-key communicators (N) at successive time intervals (t+1, t+2, t+3...t+4) will approach the magnitude of attitude (A) held by key communicators at previous time intervals (t, t+1, t+2,... t+n-1), or:

$$H_{4\dot{a}}: \qquad A_{T_1K} = \qquad A_{T_1N}$$

$$H_{4\dot{b}}: \qquad A_{T_2K} \ll \qquad A_{T_2N}$$

$$H_{4c}: \qquad A_{T_2K} = \qquad A_{T_3N}$$

This is to say, that assuming that the system is nearly at equilibrium initially, changes in key communicators will be followed by changes of equal magnitude for non-key communicators.

Should these hypotheses be upheld, there remains the question of casuality. Do people enter roles as linking pins or key communicators because they are similar to the population they represent, or are changes in their attitudes predictive of subsequent change in the larger organization?

A theory developed by Lewin (1961) illustrates the latter point. Organizations go through periods of change which begin, diffuse, and end. Change is associated with an initial flurry of activity, a period of substantial change, and a period during which the change becomes fixed. In the Lewin perspective, and also in the Rogers and Shoemaker (1971) perspective, change is brought about by a cycle involving early adoption, testing, and installation. It can be argued that central to the process is the opinion of key communication linkers. If they support a change effort, they are more likely to pass along information about the change. By examining specific patterns of obtained correlations, it will be possible to review the efficacy of key communicators to facilitate change. At T_1 , we expect to observe only small differences between key communicators and non-key communicators. Key communicators and non-key communicators, through normal attitude formation processes should be relatively homogeneous. By inputting information which takes advantage of key communicators' positions in the network, key communicators should change, and those changes should be observed in changes in the non-key communicator group over Time 2 and Time 3. By continuing to direct messages through key communicators, it should always be the case that key communicators change more than non-key communicators er:

 $H_{5a}: \quad \overline{X}_{T_3K} - \overline{X}_{T_1K} > \overline{X}_{T_3N} - \overline{X}_{T_1N}$

and

$$H_{5b}: \quad r_{1}KN > r_{2}KN > r_{3}KN$$

Given a time lag between key communicator change and the rest of the network, we should observe.

and H_{5c} : $r_{T_1KN} = r_{T_1KT_2N} \implies r_{T_2KT_3N}$ and H_{5d} $r_{T_1KT_2N} > r_{T_1NT_2K}$ $r_{T_2KT_3N} > r_{T_2NT_3K}$ This argument means that key communicator's attitudes from a previous point in time predict the attitudes of the rest of the network at a subsequent point in time better than non-key communicators' attitudes can predict key communicators' attitudes. Finally, the attitudes of key communicators and the rest of the network will always be more similar under conditions of relative informational (change) stability (T_1) .

An opposing hypotheses for each of these conjectures would constitute a casual argument for the validity of the argument that key communicators occupy their positions because they are representative of the general position of the organization. If values, beliefs and attitudes of the larger information network cause key communicators to adopt minimally discrepant positions, we should find:

$$H_6: \quad r_{T_1NT_2K} > r_{T_1KT_2N} \quad and \quad r_{T_2NT_3K} > r_{T_2KT_3N}$$

and

$$H_{6a}: \overline{X}_{T_3N} - \overline{X}_{T_1N} > \overline{X}_{T_3K} - \overline{X}_{T_1K}$$

Thus, the attitudes of network members are better predictors of the attitudes of key communicators than the attitudes of key communicators are of the rest of the network.

In neither case should we find:

$$\overline{\mathbf{x}}_{\mathbf{T}_{3}K} - \overline{\mathbf{x}}_{\mathbf{T}_{1}K} = \overline{\mathbf{x}}_{\mathbf{T}_{3}N} - \overline{\mathbf{x}}_{\mathbf{T}_{1}N}$$

or the complete absence of differential rates of change.

The hypotheses test the assumption that change can be systematically introduced through message developed on the basis of measurements taken at an earlier point in time. We test the assumption that the system is initially at an equilibrium, and information is constructed and input into the system. The researcher controls the perception of systems members with respect to the innovation, by directing the largest proportion of messages at the key communicator directly. Ideally, subsequent measures would cause changes in the message program which would cause the organization to continue changing in an optimal direction.

CHAPTER 3

METHODS

3.1 INTRODUCTION

The analysis of the hypotheses requires:

- a) a measurement of communicator influence--or a measure which enables key communicators to be unambiguously discriminated from the balance of the population;
- b) a measurement of the dissimilarity between an innovation and perceptions of self by members of the system;
- c) a measurement of the dissimilarity between key job attributes and members of the system;
- d) a technique for determining a reliable set of key attributes of the job;
- e) a method of examining changes in relationships between the attributes over time; and
- f) a methodology for identifying an effective message; i.e., a message which is likely to optimally reduce perceived dissimilarity over time.

It is key to this effort that measurements maximize the total amount of information which can be derived from a single measurement event; and it is important that measurements be independent, particularly measurements of cognitive structure and network roles. The technique used to isolate key communicators cannot rely upon methods used to isolate dissimilarities. If that were the case, the research efforts would be confounded by tautology. Therefore, two separate methods were chosen: network analysis and metric multidimensional scaling.

3.2 NETWORK ANALYSIS

The concept of communication systems as being comprised of networks, or patterns of interpersonal interactions, was originally noted in the

work of Weber (1947). Weber noted the necessity of prescribed communication roles as a method of achieving control over production processes. By specifying the hierarchy of relations--or the chain of command through which information should flow--Weber argued that extraneous data would be eliminated and production efficiency would be maximized. Downs (1969), in studying the actual functioning of bureaucracies, noted a strong tendency for communication within bureaucracies to follow subformal or non-prescribed information pathways.

A network is, therefore, the system of overlapping dyadic relationships, both formal and informal, which collectively constitute the sum of all possible communication pathways within a bounded social system (c.f., Richards, 1947a). Organizations differ from non-formal social systems in the extent and reliability of assigned or prescribed information pathways. In an organization, the assignment of authority and responsibility tends to govern, to a greater or lesser extent, the nature of the network.

In this discussion, a "pathway" will be called a link. Two individuals are linked if:

- a) they communicate directly, or
- b) there exists a set of communicators between person A and person B such that information can flow between A and B.

Thus, individuals are highly linked if they are:

- a) linked directly to many other individuals; or
- b) connected to a few individuals who are highly connected to many other individuals. (Monge and Lindsey, 1974)

Network techniques have been described in research literature for more than two decades (Schwartz and Jacobson, 1977). The particular

technique employed here was first described by Jacobson and Seashore (1951), and subsequently elaborated by Weiss and Jacobson (1955). Richards (1974a, 1974b, 1974c) wrote a computer program (1976) which is predicated in part on the Jacobson and Seashore formulation.

Richards' analytical methodology uses dyadic interaction frequencies in order to detect underlying organizational structure. Individuals are asked to indicate how frequently they interact with other individuals within a given organization or bounded social system. This data are arrayed into an N x R data set where N is the number of nodes or persons in the organization, and R is the number of reported contacts. Cluster analysis techniques enable the data set to be decomposed, and based upon one's position in the re-ordered data structure, and the pattern of one's links, an individual is assigned to a communication role. Thus, the model allows for the classification of individuals based upon the extent, frequency, and duration of their communication behavior (Farace and MacDonald, 1970; MacDonald, 1971; Monge and Lindsey, 1974).

Nodes, or individual members of the organization, are assigned one of five possible communication role states (Richards, 1975). Inasmuch as STANSE is a very "flat" organization, or it lacks many hierarchical levels, net link strength is probably a better indicator of overall importance than formal occupational position. The roles are:

 Group member: a node with more than some minimal percentage of interaction within the group (here, equal to 50.01%); and constructed such that no single node or link can be removed from the group and cause collapse of group structure; and the group is linked such that a path exists which connects all group members by some minimal number of steps.

- Bridges: nodes which are members of groups, but which are also connected to another group, and hence, link two or more groups.
- 3) Liaison: nodes which link two or more groups but are not themselves members of any group.
- 4) Isolates: nodes which have no links (Type 1 isolate) or nodes which are connected to only one other node (Type 2 isolate).
- 5) Other: nodes which fail to meet the criteria for role assignment.

Of particular interest here are the classifications of bridges and liaisons. Bridges and liaisons allow information to flow between large groups of people. A bridge could serve within a group as the source and receiver of information from the rest of the network. By exercising discretion, the individual who is a bridge can allow or block information flow, and hence influence the course of events. Similarly, liaisons, by virtue of their position between two or more groups, significantly influence the flow of information.

Likert (1961) noted the position of the individual who links large chains or groups of other links. He described such an individual as a "linking pin" and attributed to that individual authority independent of hierarchial position.

Since such an individual could exercise choice in allowing information to flow, and since information is the mechanism of control and coordination within an organization, a linking-pin could effectively manipulate information flow to personal ends (Likert, 1961). Of course, this capacity varies from organization to organization, and depends upon the degree of autonomy, flexibility, and coercion within a system (Whittmore and Yovits, 1973). In the case of STANSE, with its reliance on participatory decision making and its basically ad hoc nature, we can assume that coercive control is minimal and flexibility and autonomy are maximal. Therefore, in STANSE, linking pins, or operationally, liaisons and bridges, should exercise a great deal of influence on attitudes and behavior within the organization.

Guetzkow (1965) argues that liaisons are important to the functioning of a communication network, and further that they are aware of their prominent role. Weiss (1956) supports the argument that liaisons have higher relational reciprocity, and hence, are acknowledged by others as important. Wagner (1972) indicated that liaisons function as sources of organizational news. Schwartz and Jacobson (1977) found that network liaisons (as opposed to hierarchically determined liaisons) are aware of their influence, have highly discrepant information acquisition behaviors, know critical information earlier, and have higher influence than other members of the organization.

Essentially, Schwartz and Jacobson (1977) demonstrate that liaisons embrace both dimensions of informational leadership described by Katz and Lazarsfeld (1955). Katz and Lazarsfeld argued that individuals could be gatekeepers, or in positions to influence the flow of information to others, in two senses (pp. 113, 119):

- 1) as information transmitters to influence the distribution of information; and
- 2) as opinion leaders, who influence the interpretations applied to information and its subsequent use by a group.

Allen (1969) provides support for the findings of Schwartz and Jacobson (1977). He found that some individuals have highly discrepant environmental information searching behaviors. These nodes maintain

diverse contacts with individuals outside the organization--personal contacts, journal subscriptions, and participation in membership groups--and are accorded high status as a result. In addition, in the scientific laboratory, Allen found that the "technology gatekeepers" were more likely to publish, held significantly more patents, and, in general, they tended to occupy higher supervisory positions than peers of the same age and with the same educational background.

While the research literature on the role of liaison is relatively sparse, there is a consensus on the importance of the role. Here, that important function is also accorded to bridges. As we noted, bridges link two or more groups while being members of communication groups or cliques themselves. Studies (Festinger, Schacter and Back, 1951; Danowski, 1974; and Taylor, 1975) indicated that cliques have strong influences on the attitudes and beliefs of members about the function of the social system of which they are a part. Findings of Allen (1969) indicate that the gatekeeping function maintained by bridges within their clique give them many of the opportunities and functions of liaisons.

Communication networks can be constructed according to simple frequency of interaction, or they can be made specific to content (Farace, Monge and Russell, 1977). The present research is concerned with the effect of information on changes in the perception of a node's job, and changes in the perception of innovations. Specifically, STANSE adopted the dissemination of information about change or innovation as a goal; information about planning as a goal; and information about the nature

and function of the role of special education administrators as a goal. The SMTF, the management task force group, felt that the rate and magnitude of change in the job required special educators to redefine their definition of role performance. Therefore, three networks were studied (Appendix B):

- 1) A network based upon interactions about the concepts of change and innovation.
- 2) A network based on discussions of planning.
- A network based on discussions of the day-today responsibilities of special education administrators.

These data were utilized to identify and assign communication roles. For purposed of this research, key communicator is operationalized as any person who functions as a liaison or bridge in one or more of these overlapping communication networks.

3.3 METRIC MULTIDIMENSIONAL SCALING (MMDS)

Metric multidimensional scaling (Woelfel, 1972: Serota, 1974; Barnett, Serota and Taylor, 1974, 1976) provides a methodological framework for the evaluation of change in cognitions over time (Woelfel, 1976). Based on the psychological work of Gullickson (1946) and Torgerson (1951, 1958), multidimensional scaling uses judgments of distance or dissimilarity between concepts (or stimuli) to place concepts in a spatial representation.

Multidimensional scaling generates a picture or map which represents the relationships among a set of objects $0_1, 0_2, \ldots, 0_n$. The method utilizes a symmetrical data matrix whose rows and columns correspond to objects $0_1, 0_2, \ldots, 0_n$. The <u>ijth</u> cell contains the dissimilarity, or the observed differences between object 0_i and object 0_j . In general, the smaller the distance or dissimilarity between objects 0_i and 0_j , the greater the perceived relationship between the two concepts.

The method of data collection employed here utilized measures of the perceived dissimilarity for (N) \times (N-1) / 2 object pairs, where N is the number of concepts.

The metric method differs from the nonmetric method (Shepard, 1962; Kruskal, 1964). Nonmetric MDS employs proximity judgments based on an ordinal scale; metric MDS utilizes proximities measured on at least an interval scale (Torgerson, 1958; Tucker and Messick, 1963). Thus, the metric method allows one to apply subtraction and multiplication rules to data.

The significance of the MDS technique lies in its power to represent various influences in the projection of psychological structures simultaneously (Taylor, Barnett and Serota, 1974). According to Torgerson (1958, p. 248):

> . . . the notion of a single underlying continuum is replaced by a notion of an underlying multidimensional space. Instead of considering the stimuli to be represented by points along a single dimension, the stimuli are represented by points in a space of several dimensions. Instead of assigning a single member (scale value) to represent the position of the point along the dimension, as many members are assigned to each stimulus as there are independent dimensions in the relevant multidimensional space. Each number corresponds to the projections (scale value) of the points on one of the axes (dimensions) of the space.

The number of dimensions is equal to the number of stimuli or concepts. Data are aggregated and averaged into a distance matrix which is trans-

formed into a scalar products matrix. This matrix is factored using a direct iterative unstandardized procedure. Factoring yields a coordinate matrix consisting of orthogonal axes with rows which are the projections of concept locations on the axis or dimension.

The procedure allows for the rotation of multiple data sets. At each point in time, spaces are rotated about the centroid of the previous point in time to a least-squares best fit criterion to provide precise approximations of concept motion over time. From this time series approximation, it is possible to apply curve fitting and other methods to describe relational changes in the set of concepts.

The procedures for generative metric MDS analysis are described in complete detail in Barnett, Serota and Taylor (1974) and Woelfel and Barnett (1974). However, a brief description is provided here. Subjects are given a complete (N) x (N-1) / 2 set of paired comparisons. They are asked to make a judgment of the form:

If \underline{x} and \underline{y} are \underline{u} units apart, how far apart are concepts \underline{a} and \underline{b} ?

The respondent is, therefore, asked to provide a distance estimate with reference to a standard referent. Although the precise perceived size of that standard may vary, the Law of Large Numbers and the Central Limits Theorem allow confidence in the representational value of the aggregate mean. Barnett (1974) indicates that pair-wise judgments of this form become reliable with samples as small as 35 respondents.

Metric MDS has been used to study differences in cultural response to television characters (Wigand and Barnett, 1975); political attitude formation (Barnett, Serota and Taylor, 1976); the development of belief

systems (Danes, 1976); occupational choice (Gordon, 1977); mass communication processes (Woelfel and Barnett, 1974); and cognitive complexity in language development (Barnett, 1975).

Using another computer algorithm, but the Torgerson solution, Stager, Schultz and Klein (1966) were able to account for cognitive complexity, and gradepoint averages in student judgments of art. Goldstein, Blackman and Collins (1966) studied army leadership characteristics while Jones and Yancy (1972) investigated student-faculty relationships and found them to be a function of status, political ideology, and methodological interests.

The interpretation of MMDS spaces rests not so much on the distribution of projection on the axes, as in conventional principal-components factor analysis, but on the relationships between points. Barnett, Serota and Taylor (1976) show that the distances between concepts in the resulting factor space can be utilized to predict voting behavior. By summing the distances for a concept representing the average selfposition ("me") and candidate concepts, they were able to predict the results of an election within one to two percent of accuracy. Woelfel and Taylor (1976), in a study of educational administrators, were able to develop strategies which greatly decreased perceptions of the appropriateness of change among educational administrators. This resulted in dramatic increases in interest in products and hence, sales for the organization which commissioned the study.

By examining carefully the relationship between points in space, it is possible to detect which concepts or stimuli are significant for the individual and which are not. In addition, by examining the same

relationships it is possible to abstract a message strategy which will maximize the probability of change.

3.4 MESSAGE STRATEGY

This effort is directed at the determination in measurement of the efficacy of a message which will induce a positive acceptance of the concepts of "innovation," "planning," and "STANSE" among special education administrators. By conducting a network analysis, key communicators were identified. Messages could then be transmitted through the SMTF interpersonally to the key communicators, and then to their field. In addition, memoranda and "white papers" advocating positions on the innovation were distributed to the entire network. The success of a message strategy is dependent upon the method of selecting a concept, and the method of selecting a message. If a concept set is chosen which does not reflect important or instrumental attributes and job-related phenomena, measurements will not provide acceptable representations of judgmental criteria. Hence, derived messages will have minimal chance of accomplishing change in people's perceptual sets.

Concepts were identified and selected in an analysis using members of the SMTF under the direction of Dr. Farace and myself. Thirty-two SMTF members attended a two-day workshop conducted in November of 1975. They were arranged into five-person groups. Each group was asked to submit a list of concepts related to <u>organizational aspects of the job</u> of special education administrators, sources of satisfaction, difficulties on the job, factors affecting the job, and changes they had recently <u>observed</u>.

The lists were then gathered and collapsed into a single list of 40 concepts. The concepts or items were accepted only if they could be reduced to a single word or a short phrase. The list of 40 concepts was grouped into a single questionnaire. The questionnaire required SMTF members to judge the importance of each item for his/her job on a seven-point Likert-type scale. Those items which were rated as most important, and which had the largest standard deviation, were retained for further consideration. Items were selected for importance, because we were interested in at least having a number of items which we knew were "close to" people's perceptions of their jobs. Items with large standard deviations were selected because those concepts which exhibit low variability are unlikely to be changed or subject to much subsequent change by the kind of message campaign we were able to mount.

Final concept selection was made in a series of meetings with the STANSE personnel. Several concepts were dictated by the research effort. These were:

- 1) My job
- 2) STANSE
- 3) Planning
- 4) Change

Concepts selected from data provided by SMTF members were:

- 5) Management systems
- 6) Efficient
- 7) SESA (State Department of Education, Special Education Services Area)
- 8) Planning
- 9) Frustrating
- 10) Mainstreaming
- 11) Influence
- 12) PA 198 (Public Law Affecting Special Education)
- 13) Helpful

14) PAC (Parents' Advisory Council)15) Efficient16) Collective bargaining

Explanations of individual concept choice criteria appear in Table 1.

It should be noted that in repeating the measurement three times, some concepts were eliminated or replaced. In the administration for Wave 2, the concept "collective bargaining" was eliminated. Prior to Wave 3, STANSE staff and SMTF members required that some unused concepts be eliminated and replaced by some new issues which had developed during the intervening time (1 year). Thus, data analyzed in this research consists of a subset of 12 of the total number of concepts, and these 12 appeared in all instruments (Appendix A).

The final concept list used for this report is:

My job
 Child centered
 STANSE
 Management systems
 Efficient
 SESA
 Planning
 Change
 Mainstreaming
 Influence
 PA 198
 Helpful

All strategic messages employed only concepts selected from this list. The remaining concepts represented the specific interests of either SMTF's subcommittee, or STANSE's staff, and were purely informational. Copies of the three instruments can be found in Appendix A.

3.5 MESSAGE SELECTION

Sherif and Sherif (1967) have shown that a receiver's response to a message is a function of social judgment. In general, responsiveness to a message is a function of the dissimilarity between a receiver's attitude and that attitude articulated in the message, the receiver's involvement with the topic, and the degree to which the message possesses structure in its organization (c.f., Bettinghaus, 1969). It has been argued here that interest in a message, particularly a message about an innovation, is aroused by relating the attributes of the object of the message (innovation) to attributes of the receiver. That is to say, messages will be maximally efficient when highly discrepant perceptions of social objects are related to common, comfortable judgments about the self.

MMDS provides a method of determining which attributes are close to the receiver and, hence, their approximate relationships. Woelfel, Cody, Holmes, Fink and Taylor (1975) have developed a procedure first suggested by Taylor, Barnett and Serota (1976), which provides criteria for the optimization of a concept's motion through an MMDS space over time. The object is to cause a concept to converge with the average self-position of the sample, or the "my job" concept in the present case. In general, the lower the perceived similarity between self and an object, the greater the importance of that concept as a determinant of behavior and attitudes (Marlier, 1976; Woelfel, 1976; and Danes, 1977).

The procedure suggested by Woelfel, et al., 1975, uses vector addition to determine which set of attributes will, when linked to an object, cause a predicted line of motion through the space, and at subsequent points in time minimize the discrepancy between the object and the perceived self. Figure 8 provides a hypothetical case.

TABLE 1

RATIONALE FOR CONCEPT SELECTION*

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CONCEPT	RATIONALE
1. Му Јођ	The concept is needed to identify the respondents' self perception. This self perception was used to compare the interrelationships of all other concepts.
2. STANSE	To gather data on variability of the organizational innovation. To pro- vide base line data for further research as dissemination plans were developed.
3. Management Systems	As managers, how did the respondents view a management system in relation- ship to their job. Represented the organizational aspect of the delivery system. Concept also represented the concept of the providers of the ser- vice. Wide variability was also con- sidered.
4. Child-Centered	The concept represents the receiver of the services of Special Education. Had questions about the relationship be- tween the providers and the consumers.
5. Efficient	A positive attribute (descriptor) for other concepts.
6. SESA	Part of the delivery system which pro- vides leadership, sets policy, and monitors the system. Question of per- ceptions about the effectiveness and relationship with other concepts was considered.
7. Planning	Would provide data as to how related planning is to a manager's job.
8. Frustrating	A negative attribute (descriptor) for other concepts.
9. Change	Had wide variability among SMTF. Would provide data about the relationship between change and the manager's job.

10. Mainstreaming	High variance and much emotional discussion. Represents a program alternative and potential for Special Education/general educa- tion interface.
ll. Influence	A positive attribute (descriptor) for other concepts.
12. P.A. 198	Low variability. Provides basis for all that Special Education is required to do.
13. PAC	Parent Advisory Committees represented the parent involvement that is critical to Special Education planning and imple- mentation.
14. Helpful	A positive attribute (descriptor) for other concepts.
15. Labeling	High variability and high emotional responses. Represents the philosophical considerations within Special Education.
16. Collective Bargaining	Very high variance. Represents poten- tial concerns related to programming, training, philosophy, and funding.
	*Also appears in Kay, 1976, p. 219

The attempt is to move object <u>A</u> through the space, roughly along the dotted line towards "me." By indicating that <u>A</u> is <u>B</u>, and <u>A</u> is <u>C</u>, "force" is exerted which causes simultaneous motion in both directions (Figure 8).

FIGURE 8

MOTION VECTORS AS LINES OF FORCE



The actual vector may deviate slightly; however, in general, when the number of concepts is large, a message can be identified for which the cosine of the angle between the desired vector and the actual vector will approach 1.0. These criteria were employed as a method of conveniently identifying a message strategy. Therefore, we should observe the greatest changes in both the dissimilarity matrix and the factor matrix in terms of the concepts employed in the message. In evaluating the hypotheses, data from concept pairs will be used individually, as well as the entire dissimilarity and factor matrices collectively.

Figure 9 provides a more precise depiction of the message choice process. For any given vector combination, five different pieces of information are available as criteria for selecting among the many combinations which emerge from the analysis. In the figure, Line A is the maximum length of a motion vector. If a message strategy works as predicted, motion continues until such time as vector forces are equalized and further motion is problematic. Line B is the actual distance between the concept one wishes to move (START) and the concept one wishes to move it toward (TARGET). Interrelatedness of concepts is directly related to closeness of concepts to one another. If two concepts lie in the same position on all dimensions, the two concepts are, by definition, identities. Line C is the point at which the distance between the TARGET and the START concepts are minimized for a particular strategy. This line is large or small depending on Θ , the cosine of the angle between the predicted actual motion vector (Line A) and the desired optimal vector (Line B). Line D is the distance by which it is theoretically possible to exceed the target for a particular strategy. For purposes of this research, the innovation STANSE is the start concept, and the average self perception of the job, MY JOB, is the target.

The factor and the distance matrices have never been used in precisely this manner. Since we are anticipating fundamental changes in the way factors associated with the job of special educators are perceived and evaluated, it is reasonable and logical to look at the collective impact of change on all cognitive spacial relationships present in the data set. Thus, correlational analysis of key communi-



Optimizing Criteria for Message Selection



A - Resultant length
B - Length of target concept vector
C - Target to right angle point
D - Distance the concept can exceed the target
-O - Cosine of the angle

cator and non-key communicator judgments will be conducted on factor spaces across time.

From data set to data set, correlations of the separate orthogonal factors will be obtained and average across the n-dimensions. Both the average correlation will be calculated, and a second correlation coefficient weighted by the mean explained variance of each constituent factor will be generated. Since the size of the factor loadings for each variable and the sum of the squares for each factor are covariants, simply comparing entire matrices would bias the coefficients upward. This correlational analysis is appropriate in this case since interest is directed toward the gross amount of change occurring from one point in time to the next, and between key communicators and non-key communicators.

A continuing problem with MMDS as well as other large sample research methods is statistical significance. No acceptable method exists for evaluating the significance of difference between two (or more) coordinate matrices rotated to least squares minimizing criteria. Given the theoretically potential range of an MMDS distribution (00 to t-test differences of means tests bias the interpretation of discrepancies in favor of finding "significant differences." In this research significance tests are not reported.

3.6 RESEARCH DESIGN

The design used in this research is a three-stage quasi-random panel design. Three points in time are measured and no control groups are used. Initially, a network analysis was conducted and an MMDS questionnaire was distributed. A second point in time was conducted

using the MMDS measurement roughly six months after the initial measurement, and third point in time was conducted six months later. Following each measurement, the researchers would report back to the SMTF and the STANSE management message strategies and techniques for disseminating messages. It was left to the staff to conduct the actual dissemination exercises, although the researchers participated in criticizing the actual messages released.

The first point in time involved a census of the entire organization. Since network analysis requires that all members respond, the entire organization was used for the first wave. The second wave was a 20% random sample of the entire organization. Random assignment was used to fill out key communicator and communicator cells. This means that the sampling procedure pooled all respondents, and was based upon an "equal opportunity" without replacement criterion. The third wave was again a 20% random sample of the entire population without replacing second wave respondents. Thus, no respondent was measured more than twice, and many respondents were only measured once.

Questionnaires were administered by mail with telephone and letter follow-ups. Administration periods involved between one and two months.

3.7 SUMMARY

Research reported here involved the use of network analysis and metric multidimensional scaling. Network analysis was employed as a method of operationally detecting key communicators and non-key communicators. Concepts relevant to the job of special educational administrator were identified and incorporated into a 12-concept MMDS instrument. These instruments were administered at three points in time along with

a single administration of the network analysis instrument. A spatial configuration derived from the first point in time was employed to develop a message strategy, and this message strategy was operationalized by the STANSE management staff. The results of subsequent measurements were fed back to the STANSE staff and utilized in monitoring the continuing change as suggested in the proposed model.

CHAPTER 4

RESULTS AND INTERPRETATION

This chapter is divided into three principal sections. The first section will be an analysis of response rates, dissimilarity matrix and factor structure reliability for three waves of complete pairs data. The second section is a discussion of the results of the network analysis, the message strategy and dissemination procedures. The third section is an evaluation and an analysis of the hypotheses offered above.

4.1 RESPONSE RATE

In developing its organizational posture, STANSE managers, or the SMTF, conceptualized their task as one of creating a conducive environment within which change could take place. In their view, the goal of the SMTF would be accomplished if and only if STANSE became positively associated with change and became crucially instrumental for the performance of administrative functions in special education. They conceived of their task not only as one of facilitating the implementation of these STANSE goals, but one of introducing the notion of change as a permanent attribute of the job of special educators.

Secondly, recognizing that recent thrusts in federal law have placed greater and greater burdens upon special educators for planning, SMTF personnel indicated a need to emphasize the increased role of planning in special educational administration activities. Therefore,

the analysis of communication networks focused on three principle issues (see Appendix B). Respondents were asked to indicate how frequently they interacted with all possible other special education administrators in the following areas:

1. Discuss Change: New Ideas, Programs, Procedures;

2. Discuss Planning: Programs, Services, Implementation;

3. Discuss My Job: Day-to-day Responsibilities.

Respondents were asked to estimate how frequently they talked with any of five hundred and twenty-nine individuals identified as being members of the organizational communication network. The principle discriminating criteria used to separate organizational members from non-organizational members was formal identification of a professional administrative role within the State of Michigan in the area of special education, or special education services. It should be once again emphasized that STANSE was an innovation designed to represent the separate interests of all special educational administrators, and to provide input into State-wide planning processes for these individuals through the action of SMTF. Over time, administrators would come to understand STANSE itself as being a key component of the job of special educational administration and, hence, adopt this innovation.

Five hundred and twenty-nine questionnaires were distributed in the first wave of data collection. Each respondent received a cover letter, a network analysis instrument with a set of instructions, and a fifteen concept MMDS questionnaire (105 pairs). Respondents were included in the network if they were:

1. ISD Directors: Directors Intermediate School District Programs;

- 2. ISD Supervisors: Senior administrators of Intermediate District Special Education Program;
- 3. LEA Directors: Directors of Special Education Programs at the local district level;
- 4. LEA Supervisors: Supervisors of local district programs within specialty areas (e.g. programs for the blind, programs for the multiply handicapped, etc.);
- 5. SESA Director: Director of the Special Education Service Area for the State of Michigan;
- 6. SESA Staff: Michigan Department of Education personnel associated with special educational planning;
- 7. STANSE Staff: Full- and part-time professionals employed by the STANSE Project.

Table 2 provides rate of return figures for each of the groups named above by occupational category for Wave One. Three hundred and eightysix individuals returned complete network analysis instruments out of a possible five hundred and twenty-nine, or a return rate of 73 per cent. In general, larger school districts (Macomb, Washtenaw, and Muskegon) showed a somewhat lower rate of return than did smaller districts (Table 3). Due to requests for increased confidentiality of the data, identifying respondent codes were eliminated for subsequent waves after the identification of whether respondent was a key communicator or a nonkey communicator and, thus, are not reported.

Network analysis results are based on a less than one hundred percent rate of return. Therefore, the network analysis was performed using unreciprocated links in order to maximize the total number of usable links within the communication network. This means that non-respondents were admitted to the network if they were identified by any respondent as a contactee. Return rates for the metric multidimensional scaling measure ments for each of three waves is presented in Table 4.

TABLE 2*

PERCENT OF RETURNS BY ROLES

ISD	Directors		53	out	of	58	=	91%
ISD	Superviso	rs	9 8	out	of	148	=	66%
LEA	Directors	1	.02	out	of	140	=	73%
LEA	Superviso	rs 1	.04	out	of	152	=	68%
SES	A Director		1	out	of	1	=	100%
SES.	A Staff		19	out	of	21	=	90%
STA	NSE Staff		9	out	of	9	=	100%
		-						
		TOTAL 3	<u>86</u>	out	of_	<u>529</u>	=	<u>72.97%</u>

*Also appears in Kay (1976) p. 222

TABLE 3*

PERCENT OF RETURNS BY INTERMEDIATE SCHOOL DISTRICT

Intermediate School District

Percent returned

SESA, STANSE Staff	87%
Ingham ISD	80%
Kent ISD	80%
Macomb ISD	77%
Muskegon ISD	67%
Oakland ISD	60%
Washtenaw ISD	43%
Wayne ISD	75%
Allegan ISD	100%
Alpena-Montmorency-Alcona ISD	100%
Barry ISD	100%
Bay-Arenac ISD	100%
Berrien ISD	73%
Branch ISD	64%
Calhoun ISD	87%
Cass ISD	67%
Charlevoix-Emmit ISD	100%
Cheboygan-Otsego-Presque Isle ISD	100%
Eastner Upper Peninsula ISD	100%
Clare-Gladwin ISD	100%
Clinton ISD	72%
Delta Schoolcraft ISD	100%
Dickinson Iron ISD	100%
Eaton ISD	87%
Genessee ISD	73%
Gogebic-Ontonagon ISD	100%
Traverse Bay Area ISD	100%
Gratiot-Isabella ISD	100%
Hillsdale ISD	100%
Copper Country ISD	100%
Huron ISD	100%
Ionia ISD	100%
Iosco ISD	100%
Jackson ISD	100%
Kalamazoo Valley ISD	50%
Lake ISD	100%
Lapeer ISD	100%
Lenawee ISD	100%
Livingston ISD	34%
Manistee ISD	50%
Marquette-Alger ISD	82%
Mason ISD	100%
Mecosta-Osceola ISD	100%
Menominee ISD	100%

Intermediate School District

Midland ISD Monroe ISD Montcalm ISD Newaygo ISD Oceana ISD Ottawa ISD Coor ISD Percent returned

100%
67%
50%
50%
100%
80%
100%

*Also appears in Kay (1976) p.222

TABLE 4

Sample Response Rates for Three Waves of Metric Multidimensional Scaling Data

	<u>Time 1</u>	<u>Time 2</u>	<u>Time 3</u>
Instruments distributed	529	150	161
Instruments returned	326	97	120
Percentage	73	65	75

For Wave One, an average of 293 observations were obtained per cell; for Wave Two an average of 91 observations were obtained per cell; and for Wave Three an average of 115 observations were obtained. Complete samples for each data wave are found in Appendix D.

Note that for Waves Two and Three, respondents were randomly sampled from the total pool of respondents to Wave One, without replacement. This means that all Wave One respondents were returned to a sample pool, from which two simultaneous random samples were pulled. Individuals were classified on the basis of network analysis data into either non-key communicator or key communicator roles, and were assigned either to the Wave Two sample group or the Wave Three sample group. The population from which the samples were drawn consisted of 529 individuals. This means that no single individual could have been drawn more than twice. Additionally, personnel changes were included in Waves Two and Three if a personnel change caused the replacement of an individual on a titled basis.

Reliability of Dissimilarity Matrices

Random split-half reliability tests were conducted on data from each point in time (Table 5). The "split-half" procedure required that a given sample be randomly divided into two sub-samples of equal size.
Mean dissimilarities were then computed and a correlation coefficient of means calculated. Wave One data obtained a split-half correlation coefficient of .96. Wave Two, with 97 respondents, was the least reliable data set (R = .81), but was within acceptable tolerances.

TABLE 5

Random Split-Half Reliability Coefficients For Three Waves of MMDS Data

	<u>Wave 1</u>	Wave 2	<u>Wave 3</u>
Sample Size	389	97	120
Split-Half Correlation Coefficient	• 96	.81	.86
*Random split-half correlation of m	nean dissir	nilarities.	

Barnett (1974) indicates that scree tests are an appropriate reliability indicator of MMDS factor spaces. Studies by Klahr (1969), Spencer and Ogleby (1973) and Stenson and Crow (1969) computed spatial representations of random data input proximities (dissimilarity estimates). The results of these three studies indicated that to the extent that the shape of a stress curve deviates markedly from that pictured in Figure 10, the representation of dissimilarities will be increasingly random. Thus if a stressed distribution shows a sharp elbow in the curve, that distribution is likely to represent reliable and accurate proximity estimations. Barnett (1974) showed that for the MMDS algorithm employed here, input of random data produces an increasingly flat stress distribution.

The analysis in Figure 10 was performed by Barnett (1974) on random data. The curve labeled "Ideal" is suggestive of a data set which reflects underlying structure. (Note the axis for Figure 10 and subsequent







FIGURE 11

SCREE LINES FOR WHOLE SAMPLE DATA





SCREE LINES: KEY COMMUNICATORS ONLY





SCREE LINES: NON-KEY COMMUNICATORS ONLY

FIGURE 13

stress tests indicates variance explained by the specific dimension on the axis labeled "Stress").

The curves represented in Figures 11, 12, and 13, should be compared to the curve labeled Ideal in Figure 10. For each constituent data set a stress curve is provided. Figure 11 gives stress curves for total sample data; Figure 12 gives stress curves for key communicator groups only; Figure 13 provides stress curves for non-key communicator groups. Clearly the figures in all cases support a high degree of apparent underlying proximate reliability. In fact, despite relatively small samples of key communicators in Wave Two and Wave Three, the shape of the stress curves consistently conform to the "Ideal" pattern indicated by Spencer and Ogleby (1973). Table 6 provides sample sizes for key communicator groups and non-key communicator groups for Waves One through Three. In general, non-key communicator groups provided high random split-half reliability coefficients on the dissimilarity matrices.

TABLE 6

Sample Sizes for Key Communicator and Non-Key Communicator Groups for Three Waves of Pair Wise Data

	Wave 1	Wave 2	Wave 3
Non-Key Communicators	252	87	87
Key Communicators	80	10	33
Population	529	518	401

The sample figures indicate that the Wave I sample was drawn from an organizational population of 529 individuals. Between Wave I sample draws and the sample draw for Waves II and III, eleven individuals were replaced or left their positions. These new individuals were <u>not</u> added to the population, hence a population of 518. The Wave II and Wave III

samples were drawn randomly from this group, hence, the population available for the Wave III sample was 401 persons. Note that ten staff members were measured at each point in time, hence, the discrepancy in the figures when they are compared with those in Table 4. Complete sample sizes for key communicator data is provided in Appendix E. Complete sample sizes for all possible pairs for non-key communicators are provided in Appendix F. In general, non-key communicator groups are acceptably reliable (Table 7). Split half reliability coefficients for each response group are given below.

TABLE 7

Split Half Reliability Coefficients*

	Time 1	<u>Time 2</u>	<u>Time 3</u>
Key Communicators	.87	• 20	.76
Non-Key Communicators	.96	.83	.81

*Random split-half correlations of mean dissimilarities.

Key communicator responses, due to small sample sizes, are considerably less reliable. The only group which is unacceptably weak in terms of reliability coefficient is Wave Two key communicators. The small sample here is due to a combination of chance factors, a small draw due to the random sampling procedures, and a lower response rate (See Table 4). Unfortunately, there was no statistically acceptable way of boosting Wave Two key communicator response rate. The researcher was, at the time, principally concerned with the acceptability of the sample as a random draw, and did not discover the shortage of key communicators until several months following Wave Two questionnaire administration. With the possible exception of Wave Two key communicators, it is believed that samples provide sufficient latitude of variance to permit a high degree of reliability in the estimate of concept similarities. Wave Two key communicators' responses will be treated as reliable for two reasons: scree tests for Wave Two key communicator point to an acceptable underlying factor structure; and an examination of unmanipulated dissimilarity judgments (Table 8) between my job and unmanipulated concepts indicates that the Wave Two responses for key communicators are correctly patterned.

TABLE 8

Comparison of Sample Nonmanipulated Dissimilarity Estimates for Key Communicators and Non-Key Communicators in Wave Two

				Non-Key Communicators	Key Communicators
My	Job	and	Management System	29.29	36.40
My	Job	and	Efficient	27.18	31.00
My	Јор	and	Change	27.30	22.40
Му	Job	and	Influence	38.77	42.00
Мy	Job	and	P.A.198	15.24	18.40

The pairs My Job and SESA, and My Job and Mainstreaming were considered manipulated since they were utilized in several important messages. t-tests revealed all results to be significantly different (p < 05). The observed discrepancies are of roughly the same size as the discrepancies between the two matrices at Times 1 and 3, and ranks are preserved.

4.2 NETWORK ANALYSIS RESULTS

Respondents were asked to indicate with whom they talked or discussed:

1. Change in their job;

- 2. Planning;
- 3. Day-to-day events in their job.

Seventy-three percent, or three hundred and eighty-six respondents, provided results for each of the three networks. Results of the analysis performed on each of these three networks were used to select key communicators.

Change Network

A separate analysis of the Change Network provided a highly structured network consisting of sixteen groups. Table 10 shows that fifty-three individuals were identified as bridges or liaisons within the Change Network, of which forty-eight individuals are bridges and three are liaisons.

Planning Network

The Planning Network provided the least differentiated communication structure. Thirteen groups emerged from the analysis of the Planning Network, of which one group consisted of one hundred thirty individuals. For this reason, Table 10 includes two breakdowns of Planning Network. Within the Planning Network we found fifty-seven key communicators, ten liaisons and forty-seven bridges.

My Job

Twenty-one communication groups were identified within the "My Job" network. Supporting these groups were twenty-five bridges and three liaisons. "My Job" network is the least dense of the three communication systems. Unlike the Change Network, in which liaisons linked 75 percent of the communication groups, in the "My Job" network, liaisons only link 38 percent of the groups.

TABLE 10*

PERCENTAGE OF RESPONDENTS IN ROLE BY NETWORK

	Change	Mar Joh	Plann	ling
	change	My Job	Without Group 12	With Group 12
Group Members	n=129	n=141		n=238
	33.41%	36.53%	41.73%	61.66%
Liaisons	n=5	n=5		n=10
	1.30%	1.30%	4.72%	3.11%
Other	n=169	n=82		n=94
	43.78%	21.24%	37.01%	24.35%
Tree Nodes	n= 2	n=7		n= 0
	.52%	1.81%	00.00%	00.00%
Dyads	n.0	n=0		n=0
	00.00%	00.00%	00.00%	00.00%
Isolates T ₂	n=45	n=65		n=18
	9.33%	16.84%	7.09%	4.66%
Isolates T _l	n=36	n=86		n=24
	11.66%	22.28%	9.45%	6.22%
TOTALS :	100.00%	100.00%		

*Also appears in Kay (1976), p. 224

TABLE 11*

ENTIRE NETWORK

			Chang	e My Jo	b Plannin	g
Number	of	Groups	16	21	13	
Number	of	Liasions	3	5	10	
Number	of	Bridges	48	50	47	

*Also appears in Kay (1976), p.224

BRIDGES IN N	ETWORK A	AND	STANSE
--------------	----------	-----	--------

	Total Bridges	Network Bridges	STANSE Bridges
Change	48	32	16
My Job	32	25	7
Planning	18	14	4
TOTALS:	98	71	27

	Total Liaisons	Network	STANSE
Change	5	3	2
My Job	5	3	2
Planning	10	7	3
TOTALS:	20	13	7

*Also appears in Kay (1976), p. 226

Table 9 provides a listing of group members, and liaisons for each network. Table 11 provides a list of respondent network bridges and liaisons. Of five hundred and thirty-six individuals within the network, ninety-eight, or 20%, were classified as unique (non-redundant) bridge links, and twenty persons (or 5%) were classified as liaisons. Hence, approximately 25% of the total network was split into the key communicator group and subjected to specialized information flow.

Of 98 bridges, 27 individuals were either on the STANSE staff, or were a part of the SMTF (Table 11). Seven of 20 liaisons were members of the STANSE staff, or the SMTF. STANSE management personnel were told by the researcher that this finding supported the conjecture that the self-nominating principle utilized in selecting SMTF members resulted in both a group which was disproportionately key-communicator, and which was possessed of exceptional information dissemination resources and capabilities.

In conclusion, the network analysis provided 118 key communicators, of whom 80 are included in the respondent population. Of the 118 key communicators, 98 individuals were bridges and 20 were liaisons. Results of the network analysis from three networks were used to differentiate individuals into key communicator and non-key communicator groups. A key communicator is any person who was identified as a liaison or a bridge in any of the three networks measured.

Message Selection

The complete sample dissimilarity matrix for Wave One is provided in Table 12, Table 13 is the coordinate matrix which resulted from factor analysis on that data set. The distance between 'My Job" and the

Con	cept	-1	17	ωI	41	νI	9	7	∞I	<u>6</u>]	위	티	<u>12</u>
	My Job	00.00											
7	Child Centered	29.09	00.00										
ŝ	Stanse	66.04	71.18	00.00									
4	Mgt. Sys.	27.54	53.28	31.97	0.00								
Ś	Efficient	26.81	42.64	45.12	31.22	0.00							
9	Sesa	47.10	59.24	35.13	45.48	65.82	0.00						
7	Planníng	14.97	27.13	27.70	23.61	22.94	49.23	0.00					
œ	Change	25.99	31.25	36.91	38.11	42.15	47.90	23.42	0.00				
6	Mainstreaming	39.20	31.88	63.37	45.96	49.11	49.00	33.88	33.76	0.00			
10	Influence	36.31	45.92	53.60	35.58	37.67	38.38	36.80	36.69	46.24	0.00		
11	PA 198	14.40	26.91	40.65	34.38	55.48	21.48	28.49	34.27	42.73	29.59	0.00	
12	Helpful	16.35	17.99	44.49	32.33	26.84	40.67	20.84	32.81	37.15	30.58	39.81	0.00

TABLE 12

TIME 1 DISSIMILARITY MATRIX: COMPLETE SAMPLE

1 2	1
TADIE	IADLE

TIME 1 FACTOR COORDINATE MATRIX: COMPLETE SAMPLE

Con	cept	1	19	ς Γ	41	νI	اف		α	0	10	1	12
1	My Job	-17.94	-1.49	12.76	-9.79	7.94	-2.04	6.75	04	70	1.24	-2.76	17.44
7	Child Centered	-30.00	-8.54	-7.14	-5.85	-9.98	-2.39	-4.11	07	.58	-3.21	9.22	11.54
ŝ	Stanse	39.30	12.88	-11.94	-2.39	-4.70	61	-1.41	60.	05	-1.17	-5.04	19.27
4	Mgt. Sys.	11.22	12.64	8.66	-1.81	15.16	-2.20	40	.03	1.27	78	5.42	-2.59
5	Efficient	-8.45	30.83	6.19	4.69	-2.65	68	-1.56	02	79	-6.67	1.64	-10.30
9	Sesa	25.54	-26.20	4.18	6.03	-1.68	-6.99	3.38	90.	52	-1.28	11.38	-5.56
٢	Planning	-1.71	11.23	-7.82	-7.60	.88	-1.86	-5.06	00	51	9.35	5.80	-8.63
œ	Change	-1.93	.40	-14.46	-3.48	-1.37	14.60	9.39	00	.20	49	1.73	-9.24
6	Mainstreaming	-15.80	-10.75	-16.25	17.05	12.60	-1.27	-2.82	04	20	39	-5.70	2.68
10	Influence	1.72	-4.62	19.06	11.87	-6.26	13.36	-3.93	00.	.14	3.38	77	6.02
11	PA 198	5.39	-20.71	4.04	-14.60	1.08	1.76	-5.62	.01	04	-3.12	-11.11	-13.07
12	Helpful	-7.34	4.31	2.70	5.88	-11.01	-11.67	5.39	02	.62	3.15	-9.79	-7.55
Eig	envalues	3957.74 2	1 1748.80	408.03	946.48	747.49	600.14	276.19	.02	-4.06	178.89	568.70 -	1383.71
Per	ent of Variance	37.05	25.73	13.18	8.86	7.00	5.62	2.59	00.	04	-1.67	-5.32	-12.95

innovation, STANSE, is 66.4 units. A "unit" is the measure of dissimilarity. It is established by the respondent as a function of the statement:

If a history class and a math class are 100 units apart, how far apart are: (concept A and concept B).

Respondents are instructed that the differences between a history class and a math class taken together add up to 100 units. They are also told that while there are differences between a history and a math class, there are also similarities (e.g. setting, material, context, etc.). Hence, without saying so directly, the 100 unit criterion is supposed to be a "middle range" value.

The task of identifying a message is based on the assumption that concepts converge with other concepts with which they are publicly associated. By identifying a small number of concepts which are distributed about the concept "My Job" it should be possible to create a message system which would increase the perceived similarity between the job of special educators and STANSE.

Messages, as mentioned, are selected on the basis of the degree to which a projected line through multidimensional space correlates with the optimal "perfect" vector. Secondary criteria are distance traveled to optimizing point, and the estimated distance by which concept motion exceeds optimality.

Analysis was performed on a complete data set from Wave One; 790 possible messages were generated. Of these, 19 messages met the three criteria referred to above. These are presented in Table 13. The final selection of a message was based upon reasonableness vis-a-vis the organization's mission. STANSE management were given considerable



FIGURE 13

MESSAGE STRATEGY FOR STANSE:

flexibility in the final choice. Some messages could not be used because the combination did not make intuitive sense. Other messages were rejected because they were far too complex. Finally, messages were rejected because they were not institutionally defensible.

The message strategy chosen includes three concepts: Child-centered, Planning, Helpful. Figure 13 provides a graphic representation of the spatial relationships among these concepts. Planning is 14.9 units from "My Job", Child-centered is 29.08 units from "My Job", and Helpful is 16.349 units from "My Job". The closest concept in the data set to "My Job" was the concept P.A.198, the state law governing special education.

In order to understand how these concepts are used, perhaps it is best to conceive of a combination as a sort of a motto. The message becomes, for the organization, a value and a perceptual screen through which information is evaluated, as well as a constituent part of each statement the organization makes about itself. Clearly, STANSE cannot eliminate the other concepts in the concept set from its messages. The object is that, however, when STANSE refers to STANSE, or more importantly the SMTF, that STANSE indicate the relationship between that organization, its activities, and these three concepts. When we refer to an "unmanipulated pair", we are referring to a few rare pairs for which there can be no effect. These largely involve the concepts "Management System", "Efficient", "Influence", and, ironically, "Change". Decisions were made that these concepts would not be used at all in messages so as not to bias the message strategy. While we can expect that changes will occur in the perceived relationship between these concepts and the manipulated

message concepts, there should be little change in the distance between "My Job" and these concepts. Other concepts, such as "P.A.198", "Mainstreaming", and "SESA", continue to be issues throughout the research. The state government (SESA) is reorganizing the special education service group; the federal government is passing law (PL 94-142) which requires that students classified as special education be returned to the regular classroom to the extent medically possible; and P.A.198 is requiring an involved process of committee hearings and administrative detail. STANSE's organizational function is to assist administrators in the solution of some of these problems. However, the message strategy provides STANSE with guidelines as to what attributes STANSE ought to associate itself with, and what things it ought to be identified with by its population. An unmanipulated pair is, therefore, a pair of concepts for which there should be no movement because, about which, there is no information.

Implementation and acceptance of the "message" proved to be a difficult obstacle. SMTF members were uncertain as to the relationship between "their job" and "children". In addition, the messages imposed stress on the group, which had to conceptualize itself in a common, systematic fashion. As discussed in the conceptual section, the selection of a message becomes the dynamic around which the organization focuses its activities. Implementation, therefore, requires interpretation, agreement, and a broad based consensus that both the message is true and an activity plan can be developed to implement it.

Following extensive discussions with STANSE staff and SMTF members, the following descriptions of the message concepts were developed

(1976, p. 148-151). SMTF members agreed that, in the context of STANSE, planning was:

- 1. Developing format and content for the state-federal plan;
- 2. Developing a method for obtaining input from the entire network for STANSE decision making processes;
- 3. Developing dialogue on the responsibilities for planning at the state, intermediate, and local levels;
- 4. Providing information on how planning levels interact with one another.

Helpful meant:

- Defining roles of state, intermediate, and local administrative units;
- 2. Identification of network-wide priorities for resourse use;
- 3. Providing uniform data coding;
- 4. Identification of federal and state resources to minimize interdistrict competition.

Child-centered meant:

- 1. Defining the parameters of special education;
- Providing consistent planning across the state to guarantee equal access of all special education students to quality services and programs;
- 3. Identification of responsibility for delivery of special education programs and services to handicapped persons 0 to 25 years and older;
- 4. Assisting in the delivery of services.

These positions became the mission of the organization. Reflecting on the message selection process, the researchers were struck by the demands that the message selection technique placed upon system planners to decide who they were and what they represented. The SMTF was encouraged to develop more specific task functions - i.e., define helpful as the performance of a survey for administrators in the network. The organization, however, has to live with the position adopted, and of course, had the last word on message selection and the interpretation applied to that selection.

4.3 MESSAGE DISSEMINATION ACTIVITIES

STANSE staff incorporated the key concepts in a series of messages released to special education administrators. A sample message is included in Appendix C. A researcher assisted the staff in the preparation and production of messages.

STANSE conducted monthly SMTF meetings, during which policy would be discussed. Periodic reviews of these activities were released to the general network. In addition, each SMTF member was assigned three names, all of whom were key communicators within the region of the SMTF member's authority. At three different points, in response to important issues, telephone call protocols were designed and SMTF members were asked to contact their three key communicators and discuss the issues.

During the second year of the research effort, the principle contact between the researcher and the STANSE staff left STANSE. This substantially reduced the input the researcher had into message and dissemination activities. Records were not kept on the kind of messages that were distributed during these periods, and near the conclusion of the second year, it was revealed to the researcher that despite assurances to the contrary, no messages had been released for seven months prior to the collection of the third wave of data. As we will see, this had rather dramatic effects on the perceptions of network members.

TABLE 14

TIME 2 FACTOR MATRIX: COMPLETE SAMPLE

Con	cept	-1	17	ωI	41	νI	اف		∞ ۱	٥I	9]	11	<u>12</u>
-	My Job	-9.92	2.88	5.55	-17.08	4.27	3.55	-9.09	-1.09	02	.77	-3.89	-14.47
2	Child Centered	-27.47	-7.73	-6.12	-7.86	-9.35	1.05	4.97	1.18	07	-2.06	9.67	-6.48
e	Stanse	32.13	10.97	-13.95	3.78	-9.11	.76	1.95	.27	.08	-1.00	-7.03	-12.01
4	Mgt. Sys.	12.26	15.61	-3.71	-5.86	15.88	-7.29	1.17	2.50	.03	22	4.78	.85
5	Efficiency	-9.88	32.78	5.11	3.92	-2.56	40	-2.94	-1.86	02	-2.78	.01	11.55
9	Sesa	24.70	-21.65	6.39	8.15	-2.52	-2.16	-8.71	59	90.	67	10.33	.57
7	Planning	-1.21	8.22	-11.07	75	-2.24	-1.66	3.41	-2.32		4.33	6.24	3.62
80	Change	1.13	-1.27	72	7.54	6.51	18.04	1.27	1.07	00.	97.	.68	4.87
6	Mainstreaming	-25.33	-15.67	-8.68	17.54	8.74	-5.37	40	81	- • 06	55	-6.09	-5.26
10	Influence	6.93	-2.88	24.69	1.88	.72	-1.80	10.73	75	.02	.30	-1.77	-6.21
11	PA 198	8.34	-24.12	-5.07	-15.36	.29	-1.13	2.30	64	.02	97	-7.33	16.53
12	Helpful	-11.68	2.87	7.56	4.09	-10.63	-3.59	-4.65	3.03	03	2.39	-5.59	6.45
E18	envalues	3640.98 2	1 888.80	.234.04 1	105.00	690.94	446.70	352.42	30.04	02	-40.10	452.20	-947.95
Per	cent of Variance	35.05	27.81	11.88	10.64	6.65	4.30	3.39	.29	00	39	-4.35	-9.13

15
TABLE

TIME 3 FACTOR MATRIX: COMPLETE SAMPLE

Concept

1	My Job	-16.63	.02	6.77	.30	-10.25	8.53	-3.87	13	.02	2.43	-2.14	12.93
7	Child Centered	-29.71	7.63	-10.17	10.70	-4.03	-6.65	4.05	53	03	-1.45	5.63	13.95
n	Stanse	46.12	-17.45	-11.96	2.01	2.89	-1.08	2.62	52	03	.03	-7.84	12.34
4	Mgt. Sys.	10.58	-18.31	10.88	-4.57	-1.82	9.35	.19	-3.59	.03	-1.87	10.25	-1.76
Ś	Efficient	-15.15	-24.84	15.83	-1.45	3.05	-4.63	-3.75	6.02	.05	-1.14	-3.67	07
9	Sesa	31.83	28.48	2.63	4.27	3.89	-2.56	-6.23	2.54	10.	.15	8.74	1.37
2	Planning	1.59	-14.49	-5.32	5.14	46	-1.21	6.33	2.63	02	2.38	7.92	-11.86
œ	Change	40	-4.85	-15.01	-11.69	-12.29	-9.14	-4.88	-2.95	04	.03	-1.30	-9.27
6	Mainstreaming	-20.97	7.64	-21.62	-15.06	14.60	6.34	25	1.02	06	06	56	.25
10	Influence	.46	17.42	25.62	-13.59	3.49	-5.90	5.72	-2.23	.07	.57	-3.14	1.45
11	PA 198	4.61	20.52	-1.80	5.56	-10.04	7.43	3.28	2.57	01	-1.44	-8.49	-10.89
12	Helpful	-12.35	-1.76	4.16	18.38	10.97	49	-3.22	-4.84	.01	.38	-5.41	-8.44
Eig	envalues	5256.38 3	2 1145.81	:065.49 1	102.74	754.78	448.89	208.83	107.76	02	-21.04	468.75	-937.85
Per	cent of Variance	40.15	24.03	15.78	8.42	5.77	3.43	1.60	.82	00	16	-3.58	-7.16

4.4 HYPOTHESES

Hypothesis 1:

Over time, the number of positive dimensions within which the relationship among key concepts can be represented will increase.

Tables 13, 14, and 15 provide factor coordinate matrices for each MMDS measurement. At time 1 (Table 14) seven positive factors are generated and four negative factors. A negative factor is a factor with an eigen root which results from the square root of a negative number. The dimensions are not "real" in the mathematical sense, but they are useful in the interpretive sense. A negative factor results when there is inconsistency in the data. For example, consider the estimates below:

- 1. A and C are 25 units apart
- 2. A and B are 10 units apart.
- 3. C and B are 250 units apart.

There is no straight line which can link B and C; hence, a curve is imposed, a negative eigenroot emerges, and the dimensionality expands from two planes to three. Negative factors indicate inconsistency of judgment - or, the absence of information establishing meaningful interrelationships. At Time 1, negative variance accounted for 19.98% of the variance, reducing the total variance explained by the factor matrix to 80.02%. At Time 2 (Table 14), eight positive dimensions emerge from the factor analysis. Four negative factors reduce total variance explained by 13.87% or 86.13% of the variance in the sample at Time 2 is accounted for by the factor structure. At Time 3 Table 15) 10.9% of the variance is accounted for by the four negative factors, or Time 3 data account for 89.1% of the variance in the sample. Figure 14 shows the trajectory of the increasing positive explained variance.



Representation of Increasing Variance-Explained for 3 Points in Time



The trajectory demonstrates the increasing positive variance established across points in time. As noted, increased positive variance is an indication of underlying consistency in respondent dissimilarity estimates.

One suspects that the trajectory has reached an apogee at Time 3; however, the factor structure has undergone significant change during the course of the research effort. Because the judgment situation is complex, MMDS pair-wise instruments are relatively immune to test-retest sensitivity (Barnett, 1976), and since no respondent was required to provide more than two sets of data, changes in variance explained are regarded as an indication of an increase in underlying relational structure among the concepts. This means that the concepts have become more meaningful, and relationships are better understood (Barnett, Serota and Taylor, 1976) 21 0.00 듸 34.02 0.00 의 52.38 43.82 0.00 9 33.24 38.48 36.40 0.00 ωI 31.91 36.91 26.54 37.27 0.00 2 52.50 38.74 22.83 35.17 45.24 0.00 9 52.89 29.19 41.48 63.25 47.55 49.41 38.80 42.61 63.13 0.00 5 35.99 25.96 39.82 47.78 29.47 67.41 53.63 35.19 0.00 4 38.69 35.48 27.58 29.94 39.00 45.48 0.00 52.67 31.68 3 38.26 43.78 59.35 30.61 61.62 0.00 2 54.22 26.76 45.45 30.41 19.22 45.66 27.93 27.04 20.77 37.47 0.0 -4 Child Centered Mainstreaming Efficient Influence Mgt. Sys. Planning Stanse 1 My Job Change PA 198 Sesa Concept 2 6 10 2 11 4 ო ŝ ø 9

TABLE 16

TIME 2 DISSIMILARITY MATRIX: COMPLETE SAMPLE

121

0.00

41.68

29.69

35.21

31.89

41.74 22.90

30.37

39.57

17.93 19.77 46.53

Helpful

Hypothesis 1 is supported by the data.

Hypothesis 2:

The magnitude of the attitude A toward Innovation will be significantly reduced between Time 1 and Time 3 for the whole population, and the Innovation I will converge with those concepts with which it is associated in messages.

Tables 12, 16, and 17 provided dissimilarity matrices for the whole population (Time 1) and sample measures (Time 2, Time 3). Since the matrix is symmetrical, with $D_{ij}=D_{ji}$, only the lower half of the total dissimilarity matrix is provided. Distances along the diagonal are always equal to zero since, by definition, the dissimilarity between a concept and itself is an identity. The matrix is square symmetrical with column numbers (1-12) indicating the same concepts as listed along the rows.

At Time 1, STANSE was 66.04 units from "My Job". At Time 2, the distance between STANSE and "My Job" was 54.22 units, a change of 11.82 units in the predicted direction. At Time 3, STANSE shifted in the opposite direction, to 69.74 units from the concept "My Job", or a change of 15.52 units away from the definition of self.

Figure 15 gives a graphic representation of the observed changes.

Figure 15

Changes in the Distance Between STANSE and My Job: Three Points in Time



Con	cept	-1	12	ωI	4	νI	9	-	∞ ۱	0 ا	91	11	<u>12</u>
1	My Job	0.00											
7	Child Centered	29.66	0.00										
e	Stanse	69.74	79.70	00.00									
4	Mgt. Sys.	28.80	54.68	38.01	0.00								
Ś	Efficient	30.14	44.33	67.19	29.47	00.00							
9	Sesa	57.18	66.71	47.19	54.99	71.57	00.00						
٢	Planning	17.27	29.92	35.22	22.71	27.00	53.12	00.00					
œ	Change	27.03	33.31	48.66	36.15	43.80	53.27	27.14	0.00				
6	Mainstreaming	39.82	34.34	74.28	54.87	54.37	65.78	42.16	39.27	0.00			
10	Influence	38.72	51.97	69.65	42.13	49.26	44.60	45.66	49.03	55.66	0.00		
11	PA 198	20.23	29.46	54.66	38.61	55.19	27.57	33.74	38.22	45.52	36.73	0.00	
12	Helpful	20.92	19.02	62.23	36.75	34.53	53.75	26.58	45.03	44.15	45.64	39.58	0.00

TABLE 17

TIME 3 DISSIMILARITY MATRIX: COMPLETE SAMPLE

This rather surprising result corresponded with a failure in the message strategy. Between Time 1 and Time 2 STANSE converged with Child-centered, changing from 71.18 units at Time 1 to 61.62 units of Time 2. STANSE did not converge with Planning or Helpful between Time 1 and Time 2. (Planning, 27.70 units at Time 1 and 27.58 units at Time 2; Helpful, 44.9 units at Time 1 and 46.53 units at Time 2). However, between Time 2 and Time 3, STANSE moved markedly away from all three key message concepts (Table 18).

TABLE 18

Distances from Concept STANSE for Target Concepts and Messages Concepts

	Time 1	Time 2	<u>Time 3</u>
Му Јођ	66.04	54.22	69.74
Child-centered	71.18	61.62	79.70
Planning	27.70	27.58	35.22
Helpful	44.75	46.53	62.23

The results reveal that as the factor structures become more stable, STANSE increased the distance between itself and those issues with which it was publicly associated, and the distance between STANSE and My Job. In short, STANSE was less valued at the completion of research than it was initially - i.e., when it was effectively undefined. As alluded to earlier, this strong reversal in direction occurs when no messages are being disseminated. Hypothesis 2 is partially supported at Time 2, but not supported overall, Time 1 - Time 3.

Hypothesis 3:

To the extent that information is directed toward key communicators

TABLE 19

TIME 1 DISSIMILARITY MATRIX: KEY COMMUNICATORS

Con	cept	-1	19	ωI	41	νI	9		ωI	61	10	티	<u>12</u>
1	My Job	0.00											
2	Child Centered	23.61	0.00										
e	Stanse	61.68	61.34	0.00									
4	Mgt. Sys.	22.06	49.68	30.17	0.00								
\$	Efficient	25.68	39.18	47.02	21.88	0.00							
9	Sesa	42.56	53.36	32.80	41.40	57.48	0.00						
2	Planning	13.05	24.82	25.75	14.50	17.92	37.16	0.00					
æ	Change	21.82	27.51	34.21	27.89	40.26	44.56	20.62	0.00				
6	Mainstreaming	35.73	26.12	61.38	41.13	42.70	48.43	30.77	30.21	0.00			
10	Influence	28.76	43.17	51.19	32.13	33.07	35.89	34.48	39.57	43.88	0.00		
11	PA 198	11.79	19.91	43.79	27.21	50.33	19.64	25.36	27.48	33.78	26.40	0.00	
12	Helpful	14.13	16.93	43.32	25.21	24.28	34.79	14.99	29.93	31.41	26.52	31.35	0.00

TIME 2 DISSIMILARITY MATRIX: KEY COMMUNICATORS

TABLE 20

Con	cept	1	17	ლ	41	νI	9	-1	∞I	91	의	비	12
-1	My Job	0.00											
2	Child Centered	22.10	0.00										
ŝ	Stanse	60.30	60.10	0.00									
4	Mgt. Sys.	36.40	58.60	38.10	0.00								
Ś	Efficient	31.00	42.40	48.50	31.70	0.00							
9	Sesa	37.20	51.90	39.70	40.70	51.00	00.00						
٢	Planning	24.30	34.30	23.70	16.20	22.00	33.50	00.00					
œ	Change	22.40	25.50	31.20	22.00	39.50	16.00	28.50	0.00				
6	Mainstreaming	25.90	17.30	62.50	43.60	38.00	29.00	30.40	32.00	0.00			
10	Influence	42.00	31.20	43.90	33.60	34.50	23.50	32.60	24.70	32.00	0.00		
11	PA 198	18.40	15.60	42.70	42.50	48.60	7.10	29.30	19.00	38.50	21.90	0.00	
12	Helpful	16.80	13.60	30.30	33.50	25.50	21.30	24.70	31.80	33.30	32.50	31.30	0.00

듸 의 **0**| ωI 2 9 0.00 ŝ 22.52 0.00 41 72.35 32.06 0.00 **m**| 56.81 45.85 89.72 0.00 2 85.00 29.55 31.76 0.0 19.78 -1 Child Centered 4 Mgt. Sys. Stanse 1 My Job Concept

2

ო

0.00 31.91 30.13 35.97 0.00 40.76 37.26 38.47 0.0 34.81 30.88 31.41 41.49 0.00 24.70 38.38 37.22 22.28 0.00 19.88 25.20 40.83 41.87 69.48 40.33 42.43 00.00 23.55 46.09 44.19 39.70 33.97 27.28 62.31 56.06 17.58 33.64 33.28 29.58 29.19 34.73 36.10 46.17 67.07 80.79 71.86 56.55 66.63 63.13 35.46 52.97 33.79 39.30 23.85 19.67 59.53 14.03 17.76 40.55 17.94 38.31 23.58 Mainstreaming Efficient 10 Influence Planning Helpful Change PA 198 Sеза δ 11 12 ŝ 9 œ

TABLE 21

KEY COMMUNICATORS TIME 3 DISSIMILARITY MATRIX: 12

127

00.00

TABLE 22

TIME 1 DISSIMILARITY MATRIX: NON-KEY COMMUNICATORS

Con	cept	-1	61	ωI	41	νI	१	~	ωI	6 ا	위	피	12
1	My Job	0.00											
7	Child Centered	30.80	0.00										
ŝ	Stanse	67.45	74.54	0.00									
4	Mgt. Sys.	29.29	54.52	32.61	0.00								
Ś	Efficient	27.18	43.78	44.41	34.26	0.00							
9	Sesa	48.58	61.23	35.96	47.02	68.87	0.00						
2	Planning	15.58	27.89	28.40	26.78	24.66	53.45	0.00					
8	Change	27.30	32.47	37.94	41.62	42.78	49.06	24.35	0.00				
6	Mainstreaming	40.32	33.75	64.15	47.66	51.31	49.20	34.96	34.93	0.00			
10	Influence	38.77	46.85	54.45	36.83	39.29	39.23	38.60	35.77	47.02	0.00		
11	PA 198	15.24	29.17	39.53	36.88	57.24	22.12	29.54	36.41	45.75	30.66	0.00	
12	Helpful	17.08	18.33	44.92	34.83	27.70	42.70	22.79	33.73	39.07	31.87	42.56	0.00

.

TIME 2 DISSIMILARITY MATRIX: NON-KEY COMMUNICATORS

TABLE 23

Б С	icept	1	19	ωI	41	ν	اف	-	ωI	91	9]	티	12
1	My Job	00.0											
2	Child Centered	28.60	0.00										
e	Stanse	53.51	61.81	0.00									
4	Mgt. Sys.	29.71	51.98	30.88	0.00								
S	Efficient	26.59	43.94	45.07	35.63	00.00							
9	Sesa	46.66	60.24	34.94	48.67	64.68	0.00						
2	Planning	20.37	30.18	28.08	27.16	30.09	46.74	0.00					
80	Change	27.26	39.77	39.67	37.76	41.72	41.54	26.31	0.00				
6	Mainstreaming	47.70	30.92	68.08	54.94	54.75	55.59	38.13	39.30	00.00			
10	Influence	36.94	49.47	50.13	39.44	43.60	36.67	37.44	34.31	55.06	0.00		
11	PA 198	19.32	31.64	38.50	39.47	65.06	24.85	32.24	38.61	44.49	35.58	0.00	
12	Helpful	18.06	20.49	48.64	40.34	30.96	44.36	22.68	31.90	35.46	29.32	43.01	0.00

TABLE 24

TIME 3 DISSIMILARITY MATRIX: NON-KEY COMMUNICATORS

Con	icept	1	7	e	4	5	9	٢	80	6	10	11	12
7	My Job	0.00											
7	Child Centered	33.29	0.00										
ŝ	Stanse	63.68	75.69	0.00									
4	Mgt. Sys.	28.52	53.87	40.31	0.00								
ŝ	Efficient	29.52	43.70	65.20	32.20	0.00							
9	Sesa	56.29	68.10	47.60	54.57	75.18	0.00						
2	Planning	18.49	28.43	34.87	24.71	28.36	56.94	0.00					
8	Change	30.55	32.47	41.90	38.71	47.71	57.53	28.97	0.00				
6	Mainstreaming	39.54	32.41	71.76	63.21	57.59	64.44	43.61	42.26	0.00			
10	Influence	38.87	51.59	68.82	45.54	51.19	46.16	48.92	54.57	62.70	0.00		
11	PA 198	21.09	31.62	53.93	42.20	61.20	28.42	37.21	41.11	47.41	39.26	0.00	
12	Helpful	19.90	18.76	60.56	37.53	37.30	58.48	29.18	46.43	46.31	49.43	42.50	00.00

(K) the magnitude of their attitude would be less than that of non-key communicators (N) at T2 and T3.

This hypothesis holds that since key communicators would be receiving information through interpersonal channels and through their normal communication network channels, they should be more affected than nonkey communicators. Hypothesis 3 is broken into four sub-hypotheses which are examined below.

$$(H_{A}^{3})$$
 $A_{T2K} < A_{T2N}$

Table 19 through Table 24 give the dissimilarity scores for key communicators and non-key communicators for each point in time. Table 20 and Table 22 are the matrices for key communicators and non-key communicators groups respectively at Time 2. The data from key communicators at Time 2 are, for various reasons acknowledged earlier, less reliable than those for non-key communicators.

The data provide equivocal support for this hypothesis. Network members received information which stipulated that STANSE was Childcentered, Helpful, and was related to the introduction of Planning into administrative decision-making. In particular, messages stress that STANSE would support learning among children by providing a systematic vehicle for special educational administration input into newly formed state planning processes. In that way, the messages stressed that STANSE would be helpful to administrators. Table 25 summarizes changes among the perceived dissimilarities for these concepts for both key communicators and non-key communicators.
Changes in Message Pairs for Key Communicators and Non-Key Communicators at Time 2

	Key Communicators	Non-Key Communicators	Difference
STANSE & Child-centered	60.10	61.81	-1.81
STANSE & Helpful	30.30	48.64	18.34
STANSE & Planning	23.70	28.08	4.38
STANSE & My Job	60.30	53.51	-6.79

The predicted inequality holds for the concept pairs STANSE and Helpful, and to a lesser extent, STANSE and Planning. Note that both groups are in fairly close agreement on the relationship between their jobs and Planning (K=24.30, N=18.49), and their jobs and Helpful (K= 16.80, N=19.90). A somewhat larger discrepancy exists for the pair Child-centered and "My Job" (K=22.10, N=33.29); however, the novel use of the concept in the message strategy may have increased the relevance of the concept for the key communicators.

While the inequality is supported for two of the message pairs, drawing STANSE closer to the attributes failed to substantially alter the perceived relationship between STANSE and the job of the special educators. Hypothesis 3_A is partially supported by the results.

$$(H3_B) A_{T3K} < A_{T3N}$$

Hypothesis 3_B extends the same inequality hypothesis through the third point in time. If messages continue to flow most heavily through key communicators, greater change should be sustained. Table 21 and Table 24 provide the raw dissimilarity matrices for key communicators and non-key communicators, respectively, at Time 3. Table 26 displays the dissimilarities for the messages concepts in the pair "My Job" and STANSE.

TABLE 26

Dissimilarities for Message Concepts Between Key Communicators and Non-Key Communicators at Time 3

		Key Communicators	Non-Key Communicators	Difference
STANSE	& Child-centered	89.72	75.69	(13.03)*
STANSE	& Planning	36.10	34.87	(1.23)
STANSE	& Helpful	66.63	60.56	(6.07)
STANSE	& My Job	85.00	63.68	(22.32)

*Values in parentheses are opposite of prediction.

 ${
m H3}_{
m B}$ is not supported. In every case, the inequality opposes prediction. At Time 3, key communicators strongly differ from non-key communicators; however, the direction of the discrepancy is away from STANSE. ${
m H3}_{
m B}$ is not supported.

$$^{(H3}c)$$
 $^{A}T1K > ^{A}T2K > ^{A}T3K$

 ${
m H3}_{
m C}$ proposes that concepts associated in a continuous flow of messages should minimize the magnitude of attitudes across successive time intervals. Obviously, this means that a message input effort can sustain the directionality and the degree of change over time.

In the present case, this simply did not occur. Table 27 provides comparisons of key communicators at each point in time for the message pairs and the pair STANSE and "My Job".

Change in Message Concept Pairs

Among Key Communicators Time 1 to Time 3

		<u>Time 1</u>	<u>Time 2</u>	<u>Time 3</u>
STANSE	& Child-centered	61.34	60.10	89.72
STANSE	& Planning	25.75	23.70	36.10
STANSE	& Helpful	43.32	30.30	66.63
STANSE	& My Job	61.68	60.30	85.00

The data show that some change occurred between Time 1 and Time 2, although the changes that did occur were in the predicted direction. Between Time 2 and Time 3, however, large changes did take place, all of which oppose prediction. The key communicators changed negatively overall with respect to STANSE, and with respect to the positions advocated in the messages. H_{3C} is not supported by the data.

$$(H3_D) \qquad A_{T1N} - A_{T2N} > A_{T3N}$$

The proposed model predicts that change for secondary receivers (non-key communicators) will occur in the same general direction as the change for key communicators, but less rapidly. Since information is filtering down through the key communicators, it is likely that little change will occur between Time 1 and Time 2, and substantial impact should be observable by the third point in time. Table 28 provides the results for non-key communicator group for manipulated message pairs from Time 1 through Time 3.

Change in Message Concept Pairs Among Non-Key Communicators Time 1 to Time 3

	Time 1	<u>Time 2</u>	<u>Time 3</u>
STANSE & Child-centered	74.54	61.81	75.69
STANSE & Planning	28.40	28.08	34.87
STANSE & Helpful	44.92	48.64	60.56
STANSE & My Job	67.45	53.51	63.68

Again, the inequalities across the three time periods are in the opposite direction of prediction. As with key communicators, some predicted changes between Time 1 and Time 2 occurred; however, between Time 2 and Time 3 the direction of change is strongly reversed.

The amount of change between Time 1 and Time 2 for the pair "My Job" and STANSE is somewhat surprising (13.94 units). It is possible the secondary effect of filtered information is greater due to the credibility of the key communicator sources. More remarkable, however, is the size of the shifts between Time 2 and Time 3 for all message concept pairs. The changes average approximately 10 units, but more importantly, the shifts represent changes of twenty percent or more in every case. Hypothesis 3_D is not supported by the data.

Hypothesis 4:

The magnitude of attitude A toward the Innovation held by non-key communicators (N) at successive time intervals, T+1, T12, T+3... T+n will approach the magnitude of attitude A held by key communicators at previous time intervals (T, T+1, T+2...T+n-1). This hypothesis and its corrolaries stipulate that attitudes of key communicators will change, and through normal attitude development or socialization processes, they will cause the attitudes of the balance of the system to change. It is, in effect, a two-step flow hypothesis (Lazersfeld and Barrelson, 1951). One difference between this model and the classic two-step flow model, is that directed information which flows through key communicators changes both the attitudes of the key communicators themselves, as well as the probability that information will be disseminated to secondary receivers.

$$(H4_A) \qquad A_{T1K} = A_{T1N}$$

This hypothesis tests the assumption that key communicators and non-key communicators initially hold identical perceptions of the dissimilarity of the concepts. As proposed, the dissimilarity is an indication of the degree to which concepts are interrelated into a system of meaning; the observation of identity will allow us to assert an equilibrium state at the initiation point in the change effort. Table 29 provides rounded differences for all possible pairs of concepts between the matrix for key communicators at Time 1 and the dissimilarity matrix for non-key communicators at Time 1.

Rounded Discrepancies for Key Communicators and Non-Key Communicators at Time 1* 2 7 3 6 - 13 4 5 5 -7 2 4 + 3 - 13 2 6 6 8 -6 - 11 3 7 2 3 - 12 --3 7 - 16 8 6 5 -3 -14 -2 -5 -4 9 6 3 6 ---9 -1 -5 4 -4 10 10 -3 -3 --6 -4 3 -4 -4 -- 4 11 9 + 4 -9 -7 -3 -4 3 - 12 -4 4 --9 -12 3 -1 -1 3 -6 -8 -8 8 5 11 4 5 2 3 6 7 8 12 9 10 11 $Diff_{ii} = K_{ii} - N_{ii}$

The results clearly indicate that key communicators perceive the concept set to be somewhat more interrelated than do the non-key communicators. The correlation between the two dissimilarity matrices (.93) indicates that, overall, there is a high degree of association. It is possible that the differences indicate different perceptions of the meaning of the criterion pair; however, it is more likely that key communicators report smaller values, because they have a greater understanding of the relationships among the concept sets. Table 30 provides a comparison of perception of message concepts between the two groups.

TABLE 30

Comparison of Message Concepts for Key Communicators and Non-Key Communicators at Time 1

STANSE & Child centered	Key <u>Communicators</u> 61.34	Non-Key <u>Communicators</u> 74.54	Difference -13.20
STANSE & Planning	25.75	28.40	- 2.65
STANSE & Helpful	43.32	44.92	- 1.60
STANSE & Me	61.68	67.45	- 5.77

These findings support the contention that, while the groups are close in their perception of the concepts, they are not identical. Therefore, $H4_A$ is not supported

$$(^{H4}B) \qquad \qquad ^{A}T1K \simeq ^{A}T2N$$

This hypothesis holds that the attitudes and perceptions of non-key communicators at Time 2 should be very similar to the perceptions of key communicators at Time 1. This is because the information should not have had sufficient time to filter down to impact the entire network and, hence, if key communicators are related in the way proposed by the model, to attitude formation processes, we should find that there should not be much change between Time 1 and Time 2 for key communicators and non-key communicators.

TABLE 31

Rounded Discrepancies Between Time 1 Key Communicators and Time 2 Non-Key Communicators

		1		2		3		4		5		6		7		8		9		10	, iii	11	• 12
12	-	4		4		5		15		7		10		8		2		4	-	3	-	12	
11	-	8	-	12	+	5	-	12	-	15	-	5	-	7	-	11	•	11	-	9			
10	-	8	-	6	+	1	-	7	-	11	-	1	-	3	+	5	-	12					
9	-	12	-	4	-	7	-	13	-	13	-	7	-	8	-	9							
8	-	5	-	13	-	5	-	10	-	14	+	3	-	6									
7	-	7	-	5	-	3	-	13	-	12	-	9											
6	-	4	-	7	-	2	-	7	-	7													
5	-	1	-	5	+	2	•	14															
4	-	8	•	2		0																	
3	-	8		0																			
2	-	5																					
1																							

Table 31 provides a matrix of the rounded discrepancies between the dissimilarity matrix for key communicators at Time 1 and the dissimilarity matrix for key communicators at Time 2. A negative number indicates that the value for key communicators was smaller than the value for non-key communicators. The results do not support the hypothesis. Again, non-key communicators systematically report larger distances than key communicators. In addition, both groups have changed considerably their evaluation of many of the objects within the space.

 $H_{4c}: A_{T_2K} = A_{T_3N}$

Table 32 gives differences of mean scores for dissimilarity matrices between Time 2 key communicators and Time 3 non-key communicators. Again, we are proposing serial change, in which non-key communicators change subsequent to key communicators.

TABLE 32

Comparison of Dissimilarities Matrix for T₂ Key Communicators and T₃ Non-Key Communicators

	1	2	3	4	5	6	7	8	9	10	11	- 12
12	- 3	- 5	- 30	- 4	-12	-37	- 5	-15	-13	-17	-11	
11	- 3	-16	-11	- 0	-13	-21	- 8	-22	-11	-18		
10	- 3	-20	-25	-12	-17	-23	-16	- 30	- 30			
9	-14	-15	- 9	-20	- 9	-35	-13	-10				
8	- 8	- 7	-10	-16	- 8	-41	0					
7	- 6	- 6	-11	- 8	- 8	-23						
6	-19	-17	- 9	-14	-24							
5	- 2	- 1	-17	- 1								
4	- 8	- 5	- 2									
3	- 3	-15										
2	-11											
1												

In this comparison we can see that the discrepancies are aggravated. The average discrepancy has grown from 7.6 to 14.3, and hence, the attitudes of key communicators are even less of a predictor than previously. Part of the differences are attributable to the differences

OBTAINED CORRELATIONS TIME 1 TO TIME 3



34	
TABLE	

Calculations Between Key Communicators and Non-Key Communicators Factor Structures: Three Points in Time

	KI	[N]	-	K2N2	ł	K ₃ N ₃	I	K ₁ N ₂
Factors	Pearson r	% of Variance Explained	Pearson r	%x	Pearson r	%×	Pearson r	%×
1	.98	37.34	62.	36.39	.92	42.73	.93	36.96
2	.98	25.24	.82	25.79	(-) .75	22.70	.97	25.38
ę	.94	14.46	(-) .23	13.43	.18	15.79	.82	11.99
4	.27	8.70	(-) .56	10.35	90. (-)	7.48	.61	9.55
S	.61	7.11	+0° (-)	6.70	79. (-)	6.16	.74	6.51
9	.71	4.58	.14	4.45	.23	3.64	.31	4.29
7	.85	2.08	.22	2.87	.61	1.44	(-) .46	2.14
œ	00.	0.16	(-)	.03	(-) .15	.05	(-) .26	.04
6	• 39	(-) .22	.76	(-) .12	(-)	(-) .39	.25	(-) .22
10	.94	(-) 2.18	(-) .24	(-) 7.54	.39	(-) 1.62	.07	(-) 1.57
11	.84	(-) 6.31	744. (-)	(-) 5.44	.61	(-) 4.80	.67	(-) 5.50
12	.97	(-) 12.03	.59	(-) 11.37	.68	(-) 8.55	(-) .92	(-) 9.73
Average r	.71		.42		.47		.58	
Weighted Average r	.88		.70		.65		.85	

	K2	L ^N	K ₁ K	2	NIN	2	K ₂ 1	°,	
Factors	Pearson r	%x	Pearson r	×%	Pearson r	%X	Pearson r	%X	
1	(-) .15	37.04	.91	37.81	.95	35.91	.75	37.19	}
5	.82	24.86	0 6 ·	24.23	.97	26.80	.70	24.76	
ę	.20	13.26	(-) .37	15.39	(-).68	12.50	.48	16.67	
4	(-)	9.50	(-) .65	9.04	.72	10.01	(-) .34	8.40	
2	.10	7.30	60.	7.19	.67	6.62	.79	6.57	
Q	.14	5.09	(-) .33	4.28	(-) .45	5.10	.93	4.14	
7	90. (-)	2.80	(-) .39	2.08	(-).50	2.87	(-) .17	2.22	
80	(-) .14	.16	•	00*0	(-).68	.20	(-) .40	.05	
6	(-) .35	(-) .12	(-) .67	(-) .34	90°(-)	0.00	• 60	(-) .12	
10	(-) .65	(-) 3.18	90. (-)	(-) 3.94	.05	(-) .78	(-) .58	(-) 2.64	
11	(-) .54	(-) 6.25	(-) .37	(-) 7.16	.70	(-) 4.59	.80	(-) 5.50	
12	(-) .27	(-)13.59	.61	(-)11.74	46 •(-)	(-)11.58	.82	(-)10.14	
Avera	 вег.39	_	.46		.61		.55		
Weigh Avera	ited ige r .39		.66		.78		.66		

	K ₃ N ₂		K ₂ K ₃		N ₂ N ₃		
Factors	Pearson r	x%	Pearson r	x%	Pearson r	х%	
1	•89	41.93	£6°	43.05	.98	36.06	
2	(-)	23.74	(-).78	21.80	.92	26.69	
e	.41	12.55	(-)	13.32	.78	15.90	
4	.07	9.43	.14	8.72	.35	8.91	
S	.42	6.29	(-).87	6.97	(-).18	5.89	
9	(-).28	3.99	(-).49	3.93	.15	4.16	
7	(-).11	2.58	00.	1.99	.41	2.29	
8	.13	•04	7 9•(-)	00.	.19	60.(-)	
6	(-)	.34	(-).03	(-) .51	.41	.00	
10	.23	(-) 1.52	(-),01	(-) 3.93	+0.(-)	((-).23	
11	(-) .34	(-) 5.91	(-).13	(-) 7.07	.89	(-)3.16	
12	(-).42	(-) 9.78	.27	(-)11.79	(-).81	(-)8.13	
Average r	.34		.40		.51		
Weighted Average r	.59		.62		0.78		

in reliability between the two measures, however, the patterns of gross negative attitudes shift established earlier seems to have asserted itself once again. H_{Lc} is not supported.

Hypothesis 5:

(A)
$$\overline{\mathbf{X}}_{3}^{K}$$
 - $\overline{\mathbf{X}}_{T_{1}K}$ > $\overline{\mathbf{X}}_{T_{3}N}$ - $\overline{\mathbf{X}}_{T_{1}N}$

This hypothesis indicates that mean changes on a manipulated attitude should be greater between Time 1 and Time 3 for key communicators than changes for non-key communicators. Ironically, this hypothesis is supported. Table 33 provides a comparison of the change score for each of the message concept pairs and an average change score for key communicators and non-key communicators.

TABLE 33

Change Score Difference for Key Communicators and Non-Key Communicators for Message Concept Pairs: Time 1 to Time 3

	Key Communicators	Non-Key Communicators	Difference
STANSE & Child-centered	28.94	1.05	26.99
STANSE & Planning	10.35	6.47	3.88
STANSE & Helpful	23.31	15.64	7.67
STANSE & My Job	23.32	3.77	19.55
Mean Changes	21.26	6.73	15.52

Considerably greater amounts of change were experienced by key communicators than were experienced by non-key communicators. It is noted that obtained changes were not in the desired direction; however, the hypothesis is predicated on the unique information resourses of key

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TABLE	

TIME 1 FACTOR COORDINATE MATRIX: KEY COMMUNICATORS

Galileo Coordinates of 12 Variables in a Metric Multidimensional Space for Time 1

Con	cept	T	12	m	41	νI	او	-1	∞I	61	10	11	12
٦	My Job	-16.80	.34	9.86	12.12	-3.17	-5.20	2.36	.04	-1.92	08	-5.37	15.67
7	Child Centered	-24.71	-6.76	-10.63	-4.37	-11.39	2.32	-2.34	.02	1.14	-2.70	11.79	6.57
e	Stanse	37.81	6.32	-12.38	-2.93	-3.20	2.66	-1.04	.04	.51	67	-6.29	14.30
4	Mgt. Sys.	10.50	12.96	5.19	10.63	8.01	-4.36	42	00	3.09	.24	11.80	30
S	Efficient	-5.85	28.48	6.37	-5.51	57	10	-1.74	02	-1.36	-8.73	-3.37	-7.67
9	Ѕевв	21.66	-23.16	7.58	-6.35	.56	-5.68	2.02	01	-2.05	-4.29	8.18	-3.83
2	Planning	2.43	8.21	-6.82	05	-3.82	-4.93	-3.57	02	-2.36	10.45	2.10	-7.92
ø	Change	61	02	-15.90	10.11	1.41	8.79	5.26	02	-1.22	81	1.54	-8.42
6	Mainstreaming	-18.67	-6.62	-11.38	-8.29	18.13	-1.64	79	.01	10	.51	-3.88	5.02
10	Influence	.12	-2.37	22.65	-4.24	2.47	12.17	93	.01	17	4.77	1.82	2.86
11	PA 198	29	-20.44	2.24	8.69	-2.25	.01	-4.68	02	1.65	-2.42	-11.54	-9.96
12	Helpful	-5.60	3.06	3.23	-9.79	-6.18	-4.05	5.86	01	2.78	3.74	-6.79	-5.34
E18	envalues	3322.54 2	1 145 . 08	445.29	718.43	609.41	359.48	117.52	-,01	-38.36	-	629.05	-879.37
Per	cent of Variance	38.11	24.61	16.58	8.24	66.99	4.12	1.35	- 00	44	-2.93	-7.22	-10.09

	Galileo	Coordinat	es of 1	2 Varia	ıbles in	ı a Metr	ic Mult	idimensi	lonal S	pace fo	r Time	2	
Con	cept	1	17	n	41	νI	৩	7	∞i	61	10	비	12
-	My Job	-17.66	7.37	-2.96	-16.89	15	-4.65	.52	01	.36	-7.75	12.35	4.64
7	Child Centered	-27.89	-1.70	16.44	3.48	-5.41	3.49	-1.85	.06	79	.75	-6.05	17.94
e	Stanse	35.27	-6.14	15.28	1.25	1.51	4.30	74	.05	.47	1.71	11.95	6.68
4	Mgt. Sys.	19.39	13.14	-15.47	-5.39	-6.45	35	-1.87	05	-2.42	5.67	-2.96	8.04
Ś	Efficient	1.50	27.68	1.52	7.20	.80	-6.48	.17	.01	2.53	5.12	-3.26	1.50
9	Sesa	5.85	-21.41	-12.17	38	12.49	-2.73	.58	04	66.	-2.09	-7.73	13.72
٢	Planning	8.60	10.02	2.96	-3.11	.06	7.92	9.41	.01	10	-8.20	-8.60	-6.69
œ	Change	2.99	-8.62	-3.61	-4.71	-9.62	4.69	-9.13	01	1.61	-3.35	-5.42	-11.55
6	Mainstreaming	-20.99	2.78	-11.92	7.24	7.87	10.54	21	04	08	5.99	8.46	-6.09
10	Influence	.11	-7.27	-5.52	19 • 09	-7.41	-6.36	1.29	02	89	-8.42	5.16	-3.71
11	PA 198	-6.68	-19.21	3.35	-6.06	-6.67	-4.99	6.58	.01	.17	11.17	10	-9.91
12	Helpful	47	3.36	12.08	-1.73	12.99	-5.39	-4.74	.04	-1.86	60	-3.81	-14.57
E18	envalues	3314 . 51 2	1 107.78	253.76	868.53	652.35	391.80	247.42	02	-21.10	- 436.63	626.97	1182.32
Per	cent of Variance	37.51	23.85	14.19	9.83	7.38	4.43	2.80	00	24	-4.94	-7.10	-13.38

TIME 2 FACTOR COORDINATE MATRIX: KEY COMMUNICATORS

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	TARTE	

TIME 3 FACTOR COORDINATE MATRIX: KEY COMMUNICATORS

Galileo Coordinates of 12 Variables in a Metric Multidimensional Space for Time 3

<u>Co</u>	cept	1	2	n	4	5	१	7	∞I	61	10	11	12
٦	My Job	-24.91	25	-5.79	5.20	10.55	8.13	-5.20	.04	-2.52	-5.61	3.24	15.94
7	Child Centered	-31.05	12.08	-14.92	-11.43	-2.68	31	1.51	01	2.18	10.16	10.07	4.47
e	Stanse	58.10	-9.20	-6.27	-7.26	-1.40	.35	22	01	.53	2.55	-3.55	18.62
4	Mgt. Sys.	12.31	-23.51	3.91	1.67	1.43	6.56	.34	.01	-3.83	6.11	11.00	-16.88
ŝ	Efficient	-9.89	-16.91	-8.53	19.33	45	-5.55	6.37	00	2.06	-2.67	2.12	5.31
9	Sesa	26.08	32.34	4.28	4.34	.69	-4.86	.88	00.	-1.84	-5.07	14.32	-4.07
2	Planníng	7.30	-6.77	-11.45	-3.20	1.85	-1.82	-5.68	.01	5.54	-5.87	46	-16.96
œ	Change	-7.04	.53	7.21	-3.10	17.97	-10.94	36	.07	-1.79	5.01	-11.26	-3.06
6	Mainstreaming	-20.29	-14.47	17.40	-16.59	-8.34	-3.89	1.62	03	66	-8.22	3.29	4.56
10	Influence	-3.24	6.88	25.74	10.74	-5.54	3.89	-2.83	02	4.07	6.07	-2.71	3.91
11	PA 198	. 79	13.48	-1.18	-4.90	3.61	11.46	6.49	.01	.65	-3.49	-13.25	-7.72
12	Helpful	-8.16	5.81	-10.40	5.19	-17.67	-3.01	-2.92	07	-4.38	1.02	-12.82	-4.13
E18	envalues.	6481.50 2	1 2633.00	1659 . 88 1	1066.96	874.81	457.56	164.57	- 10.	104.12 -:	- 388.59	904.12 -	1359.98
Per	cent of Variance	48.59	19.74	12.44	8.00	6.56	3.43	1.23	00.	78	-2.91	-7.05	-10.20

Percent of Variance

	Galileo (Coordinat	es of l	2 Varia	ıbles ir	ı a Metı	ic Mult	idimens	fonal Sp	pace fo	r Time	1	
Con	cept	1	17	n	41	ŝ	७	7	∞I	91	9	11	<u>12</u>
٦	My Job	-18.10	-2.16	-14.14	7.98	8.54	.01	8.50	-1.87	•05	1.90	-1.79	18.08
7	Child Centered	-31.52	-9.87	5.00	6.81	-8.17	4.80	-5.16	1.76	.04	-3.79	8.36	13.06
n	Stanse	39.67	15.45	11.34	4.19	-4.13	2.22	-1.35	30	.06	-1.00	-4.70	21.10
4	Mgt. Sys.	11.34	12.66	-9.99	42	16.30	-1.23	-1.12	3.85	01	-1.44	3.34	-3.50
Ś	Efficient	-9.79	31.66	-5.41	-5.35	-2.52	.91	73	-2.65	- • 03	-6.04	2.69	-11.13
9	Sesa	27.30	-27.02	-2.93	-6.44	08	7.50	3.42	-1.23	02	91	12.73	-6.20
7	Planning	-3.36	12.15	7.28	9.86	1.84	19	-5.27	-1.07	- 03	8.75	7.81	-9.07
œ	Change	-2.43	.27	14.44	3.51	-6.85	-12.92	10.52	1.33	03	74	1.20	-9.21
6	Mainstreaming	-14.71	-12.25	19.15	-15.03	13.49	-1.57	-2.96	-1.02	.01	38	-6.31	2.02
10	Influence	2.25	-5.14	-16.06	-14.67	-10.40	-12.46	-4.68	.26	.02	3.06	-1.23	6.81
11	PA 198	7.42	-20.25	-6.50	16.28	01	-2.69	-5.01	69	04	-2.80	-11.65	-13.83
12	Helpful	-8.06	4.51	-2.18	-6.72	-8.01	15.63	3.84	1.62	02	3.40	-10.44	-8.13
E18	envalues	4222.99 2	1 2988.21	424.44 1	.058.44	833.43	662.72	323.07	37.20	-01	- 164.49	623.97	1592.44
Per	cent of Variance	36.56	25.87	12.33	9.16	7.22	5.74	2.80	.32	00.	-1.42	-5.40	-13.79

TIME 1 FACTOR COORDINATE MATRIX: NON-KEY COMMUNICATORS

TIME 2 FACTOR COORDINATE MATRIX: NON-KEY COMMUNICATORS

Galileo Coordinates of 12 Variables in a Metric Multidimensional Space for Time 2

Ö	icept		17	ml	4	νl	१	7	∞I	6	01	11	12
-	My Job	-8.72	3.15	7.10	16.95	3.48	5.03	-8.41	.74	02	.08	-3.13	-14.87
2	Child Centered	-26.81	-8.05	-5.15	60°6	-8.25	.77	4.09	-1.17	- • 05	75	8.35	-6.03
e	Stanse	31.27	12.26	-15.23	-3.79	-8.42	.80	2.19	35	•06	27	-7.04	-12.55
4	Mgt. Sys.	11.35	15.68	-5.14	7.19	15.11	-8.52	.01	-1.02	•02	.80	4.67	1.07
5	Efficient	-11.68	33.19	3.57	-4.06	-3.05	98	-3.55	.17	02	-1.94	94	12.55
9	Sesa	27.32	- 20.09	6.19	-8.54	-4.09	-2.20	-8.47	•08	.05	44	9.30	1.49
2	Planning	-2.41	7.26	-10.68	1.24	-2.77	00.	4.76	1.95	01	1.22	7.15	3.50
œ	Change	.02	53	53	-9.85	7.56	17.76	1.38	57	00.	.48	1.01	4.67
6	Mainstreaming	-25.58	-18.44	-10.42	-16.25	8.03	-6.19	-1.15	.38	- • 05	58	-5.08	-5.94
10	Influence	7.85	-1.26	25.58	-3.16	2.29	-2.69	9.94	.29	•02	48	-1.16	-6.53
11	PA 198	10.57	-24.27	-4.23	15.76	•59	12	2.15	.11	•02	59	-7.50	16.88
12	Helpful	-13.18	2.11	8.92	-4.57	-9.48	-3.68	-2.95	62	03	2.47	-5.65	5.75
Ete	çenva lues	3790 . 81 2	1 981.02	361 . 01 1	167.33	647.54	479.38	314.73	7.85	01	-	405.69	1005.63
Per	cent of Variance	35.26	27.73	12.66	10.86	6.02	4.46	2.93	.07	- • 00	13	-3.77	-9.36

COMMUNICATORS
NON-KEY
MATRIX:
COORDINATE
FACTOR
TIME 3

Galileo Coordinates of 12 Variables in a Metric Multidimensional Space for Time 3

	Cattic		1 10 92	071DA 7	17 22101	ו מ ווברו	Tr Lintr		te TRIINT	1976		n	
Con	cept	-1	17	6 1	41	νI	او	~1	œ١	0	10	11	12
-	My Job	-12.96	-1.48	7.55	.22	-4.58	13.53	48	61	02	-3.48	1.38	13.15
7	Child Centered	-28.34	-11.28	-7.06	5.40	-8.05	-10.00	1.18	.82	04	1.65	1.79	16.07
e	Stanse	38.42	22.38	-16.20	1.34	2.76	-4.13	1.61	60	06	62	-7.41	11.08
4	Mgt. Sys.	9.11	20.47	12.35	1.95	-3.91	7.62	-3.07	50	.01	4.69	3.76	.86
ŝ	Efficient	-19.92	24.86	14.69	-5.56	8.00	13	1.05	2.38	03	61	-4.57	-3.20
9	Sesa	36.88	-23.88	3.11	3.03	7.74	.19	-2.54	1.67	•00	57	7.64	1.48
7	Planning	-2.78	14.70	-6.12	2.88	21	-2.29	9.39	65	00	98	9.94	-9.31
œ	Change	22	6.58	-18.17	-13.09	-12.48	-3.06	-7.25	.21	00	-1.27	2.06	-8.45
6	Mainstreaming	-19.94	-16.70	-24.12	-8.53	15.00	5.60	.37	72	03	1.70	-1.69	-1.25
10	Influence	4.93	-15.15	29.79	-13.59	1.21	-8.29	1.02	-1.56	.01	08	-1.84	.05
11	PA 198	9.32	-21.94	11	5.98	-11.49	5.49	4.89	.61	.01	.70	-8.86	-10.98
12	Helpful	-14.50	1.44	4.30	19.97	6.00	-4.54	-6.16	-1.04	02	-1.14	-2.20	-8.49
E18	envalues	5013 . 86 3	2 488.94	602.26	946.61	782.88	523.49	224.89	14.99	01	-45.20	346.15	-937.35
Per	cent of Variance	36.87	25.66	19.14	6.96	5.76	3.85	1.65	.11	00	33	-2.55	-6.89

communicators and it is assumed that the large changes observed are a function of that phenomenon. Since key communicators were lead to expect substantial information from STANSE about special education administration, negative reaction to STANSE's failure to provide that information should be greater. $H5_A$ is supported.

(H5_B)
$$r_{T_1KN} > r_{T_2KN} > r_{T_3KN}$$

Figure 16 depicts the obtained correlation pattern for various combinations of matrices described in the hypotheses. The correlations used in the figure are weighted average Pearson correlations between individual orthogonal factors. Table 34 provides the individual correlation coefficient for each of the orthogonal factors (or the cosine of the angle between factors). The average Pearson correlation coefficient is provided and an average coefficient weighted for the average percent of the variance explained by each factor is provided. Simple correlations, rather than path coefficients are provided because we are comparing factor matrices, rather than scores on individual variables. The average weighted correlation coefficient is used in the figure. Complete factor matrices are found in Tables 35 and 40.

The Hypothesis 5_B indicates that the correlation of factor structures for key communicators at Time 1 with non-key communicators at Time 1 will exceed (i.e., be more predictive than) the correlation between factor structures at Time 2, which will, in turn, exceed the correlation between key communicators and non-key communicators at Time 3.

This hypothesis is based upon two considerations. First we are imposing unique data and experiences on key communicators which should

cause them to change at different rates than non-key communicators and, hence, reduce the homogeneity between themselves and the rest of the network. Secondly, as they change, key communicators will be attending to novel information stimuli which would cause them to have less "message" or communication time to fulfill their normal communication behaviors. This implies that individuals have finite amounts of time to devote to communication behavior. In this view, a new communication demand is more likely to involve replacement of a prior activity than the addition of more functional time for relevant communication. At time 1, the weighted average correlation for key communicators' and non-key communicators' data matrices is .88; at Time 2 the weighted correlation coefficent is .70; and, at Time 3, the weighted correlation coefficient is .65. The unweighted correlation coefficient provides somewhat equivocal disconformation. Time 1 average unweighted correlation is equal to .71; at Time 2, average unweighted correlation is equal to .42; and at Time 3, the average unweighted correlation coefficient is equal to .47.

It is held that the weighted average correlation coefficient is the better indicator, since it takes into account the fact that certain factors account for most of the structural variation of concepts within the overall factor space, while other dimensions, particularly the zero dimensions, account for no variance, or small fractional amounts of variance. Thus, hypothesis $5_{\rm p}$ is regarded as confirmed.

$$(H_{C}) \qquad r_{T_{1}KN} = r_{T_{1}KT_{2}N} \ge r_{T_{2}KT_{3}N}$$

This hypothesis indicates that the pattern of change in the factor structure should induce changes across points in time for key communicators and non-key communicators to nearly equal one another. That is, changes in key communicator factor structures from Time 1 to Time 2 should be reflected in changes in non-key communicator factor structures from Time 2 to Time 3. The average weighted correlation coefficient for $r_{T_{1}KN}$ is equal to .88; the average weighted correlation coefficient for $r_{T_{1}KT_{2}N}$ is .85, an approximate identity. The weighted average correlation coefficient for $r_{T_{2}KT_{3}N}$ is .66, a considerable discrepancy from the other two correlations. Hypothesis 5_C is, therefore, not supported by the data.

(H5_D)
$${}^{r}T_{1}KT_{2}N > {}^{r}T_{1}NT_{2}K$$

and $r_{T_2KT_3N} > r_{T_2NT_3K}$

This hypothesis indicates that in every case, the correlation across points in time between key communicators and non-key communicators should be greater than the correlation across points in time between nonkey communicators and key communicators. That is, key communicators should be better predictors of the future position of non-key communicators than non-key communicators should be predictive of key communicators. Disconfirmation of these hypotheses was argued to be support for the position that the larger bulk of the network sets the agenda for key communicators. Hence, disconfirmation of these hypothesis 6_A .

(H6)
$$r_{T_1NT_2K} > r_{T_1KT_2N}$$
 and $r_{T_2NT_3K} > r_{T_2KT_3N}$

and

$$(H6_{A}) \qquad X_{T_{3}N} - X_{T_{1}N} > X_{T_{3}K} - X_{T_{1}K}$$

First of all, we have already determined that the changes for key communicators across the three points in time were greater than the changes for non-key communicators across the three points in time; or Hypotheses 6, 6A are dismissed. The correlation pattern observed indicates that $r_{T_1KT_2}$, $r_{T_1KT_2N}$ had a weighted correlation coefficient of .81, while $r_{T_1N_2K}$ had a weighted correlation coefficient of only .39, indicating strong support for Hypothesis 5_D.

The correlation coefficient for $r_{T_2KT_3N}$ was found to be .66, while the correlation coefficient for r_{T_2NT3K} was found to be .59 or, again, a difference in the predicted direction. Therefore, H_5_C and $H_5_{C_1}$ are regarded as confirmed, and H_6_A is regarded as disconfirmed. Note that we did not find that changes across the two groups were equivalent, or that there were differential rates of change. Thus, the data do support the notion that key communicators are good predictors of the changes to be observed across subsequent points of time for the network. The fact that the raw pattern of change deviated from the prediction about the direction of change and the effect of the messages does not reduce the value of the finding that key communicators do seem to be influential, or highly related, or indicators of the direction of change within an organization.

4.5 SUMMARY

Overall, the hypotheses provides equivocal support for the model. It is found that substantial and predicted changes do occur between Time I and Time II, however, between Time II and Time III changes oppose prediction. In general, it is found that key communicators did experience more changes than non-key communicators, giving support to the concept of two-step leadership.

CHAPTER 5

CONCLUSIONS AND DISCUSSION

Organizational change may be the consequence of external or internal pressures, however, it's felt impact is at the personal level. Organizational members are responsible for altering their job-related behaviors in conformance with an alteration in production strategies or institutional policies.

It has been argued that change will occur most successfully when managers consider the consequences for subordinates and provide messages which clearly relates the objects changed to the self-perception of the subordinates. Implicitly this means that one's self-perception is tied to one's occupational status and one's productive motivation -- or, one's balance of inducements and contributions. This argument was expressed as three central propositions:

- 1. An organizational innovation will be adopted to the extent that it is perceived to possess attributes congruent with the salient major inducements and contributions involved in individual's conceptions of their work.
- 2. To the extent that an attribute is instrumental to performance on the job, it will be closer to individual's definition of self.
- 3. To the extent that an innovation possesses attributes which are themselves close to individual's definition of self, the probability of adoption is increased.

These three statements provide the basis for building a model of change management. The function of the manager is to develop strategies which increase the probability that salient attributes of novel processes become generally known; to identify those salient attributes; to monitor the progression of the system in terms of an adoption goal; and to shift strategies as conditions emerge and change.

This process requires, at a minimum, a method of ascertaining critical values in the work force, a method of monitoring employee perception over time, and a method of deducing message strategies from the analysis of employee perceptions. In short, it requires a method for identifying and operationalizing a communication program for change.

Once the manager institutes the information or persuasive message effort in conjunction with training and structural changes appropriate to a particular innovation, the manager's role is to continue to gather data -- feedback -- until such time as the change is either institutionalized or it is replaced by something else.

The program is predicated on the assumption that when two social objects are related to one another in a message, they come to be seen as more similar. This is a rather basic premise for language development and understanding. However, the validity of applying the premise to particular situations is constrained by such factors as credibility of the source, direct salience of the change, and distortion of the channel.

This research attempts to exploit these potential constraining variables. Key communication linkers were identified as message bearers to control source credibility and significance (although no attempt

was made to differentially establish the source credibility of particular actors.) One innovation was selected which was arguably very significant-the restructuring of administrative relations within a state system of special education administration, although the degree to which the change was perceived as significant was not examined for fear of reducing the effectiveness of subsequent messages. Finally, through the use of key communicators I attempted to exploit interpersonal channels--the most effective communication channel although the channel most subject to distortion. To control distortion, interpersonal messages were supported by memoranda signed by the State Director of Special Education Services.

Hypotheses

Table 41 provides a summary assessment of the hypothesis tests. It was found that key communicators did change to a substantially greater degree than did non-key communicators. Between Time 1 and Time 2, the results are much as predicted, however, between Time 2 and Time 3 the direction of change has shifted, and the results oppose prediction. Overall, STANSE did not converge either with "My Job" or with the concepts with which it was publically associated in the message strategy. The results did, however, show that in all cases, key communicators changed significantly more than did non-key communicators, and the pattern of hypothesized correlations was generally obtained.

Summary of Hypotheses

Hypoth	<u>neses</u>						Result	
Hypoth dimens key co	nesis l: sions wit oncepts c	Over hin wh an be	time the ich the represen	numberelat:	er of pos ionship a ill incre	itive mong ase.	Supported	
Hypoth toward reduce whole conver associ	nesis 2: I the inn ed betwee populati ge with lated in	The m ovatio n Time on, an those messag	agnitude on will b 1 and T d the in concepts ges.	of a oe sign lime 3 novat: with	ttitude A nificantl for the ion I wil which it	y l is	Not Supported	
Hypoth is dir magnit that c	nesis 3: cected to cude of t of non-ke	To th ward k heir a y comm	e extent ey commu ttitude unicator	that nicato will b s (N)	informat ors (K) t be less t at T ₂ an	ion he han d T ₃ .	Partially Support	ed
H _{3a}	ат ₂ к	<	AT ₂ N				Supported	
н _{зь}	АТ _З К	<	AT3N				Not Supported	
H _{3c}	ат ₁ к	>	ат ₂ к	>	ат ₃ к		Not Supported	
H _{3d}	AT ₁ N	2	AT ₂ N	>	AT ₃ N		Not Supported	
Hypoth toward (N at t+N) w held b interv	nesis 4: I the inn successi vill appr by key co vals (t,	The m ovatio ve tim oach t mmunic t+l, t	agnitude on held b he interv he magni ators at +2t+N	of a y non- vals, tude of prev: I-1).	ttitude A -key comm t+l, t+2, of attitu ious time	unicators t+3 de A	Not Supported	
H _{4a}	A T ₁ K	=	AT ₁ N				Not Supported	
H _{4b}	AT 2K	<	AT ₂ N				Not Supported	
H _{4c}	ат ₂ к	2	AT ₃ N				Not Supported	

<u>Hypoth</u>	<u>eses</u>							<u>Result</u>	
Hypoth genera and ch subseq	esis 5: l experie anges in uent chan	Key c nce g key c ges i	ommunicato reater amo ommunicato n non-key	ors wors wors wors wors wors wors wors w	will, s of c will p munica	in hang redi tors	e, ct •		
H _{5a}	х т ₃ к	-	хт ₁ к	>	XT ₃ N	-	Χ Τ ₁ Ν	Supported	
н _{5ь}	rt ₁ kn	>	rT ₂ KN >	• r'	r ₃ kn			Supported	
H _{5c}	rt ₁ kn	2	rT ₁ K ₂ N	5	rT ₂ K	T ₃ N		Partially	Supported
H5d	rt ₁ kt ₂ n	>	rT1NT2K						

and

 $rT_2KT_3N > rT_2NT_3K$ Supported

Hypothesis 6: Non-key communicators will experience more change than key communicators, and changes in non-key communicators will predict changes in key communicators.

$$H_{6a} = \overline{X}T_3N - \overline{X}T_1N > \overline{X}T_3K - \overline{X}T_1K$$
 Not Supported

 $H rT_1NT_2K > rT_1KT_2N$

and

$rT_2NT_3K > rT_2KT_3N$ No	t Supported
----------------------------	-------------

Two factors together may account for the predicted changes between Time 1 and Time 2, and the absence of predicted changes between Time 2 and Time 3. First, rather than insisting upon a precise information dissemination effort directed at key communicators, SMTF members changed the research plan and emphasized memoranda to the entire network. Three attempts were made to individually contact key communicators by the SMTF, however, the bulk of dissemination effort shifted from the interpersonal channel to mass channels. Key communicators were in effect bypassed.

While key communicators did not respond negatively at Time 2, it is also clear that they did not provide whole-hearted enthusiasm. In fact, non-key communicators were more positive about STANSE at Time 2 than were key communicators. It is possible that key communicators, operating in the position of gate keepers, withheld judgment on the innovation until such time as they could observe its manifest effects.

Since their interests had been aroused deliberately by STANSE, and since they had expected an informal role in STANSE activities, the sudden end of the message campaign was associated with a negative shift between Time 2 and Time 3. This shift in attitudes was also reflected in changes in non-key communicators between Time 2 and Time 3. We know from the network analysis that key communicators were highly linked to the STANSE group. Since STANSE was releasing no information, except that which filtered from the group to the network on an interpersonal basis, it is possible to argue that the shift in attitudes between Time 2 and Time 3 was initiated and sustained by key communicators. This is supported by the pattern of correlations. Across the

three points in time, key communicators were better predictors of nonkey communicators at subsequent points in time, than were non-key communicators.

Secondly, the model is predicated on the continuous expenditure of communication resources. Had a cut-off in message flow been anticipated as a part of the research design, it would have been hypothesized that ending a message campaign before the point of adoption would have caused the system to reject the innovation and return to normative values. Clearly, insofar as key communicators were concerned, the innovation was rejected. An interesting observation is that the concepts associated with the innovation did not change substantially in relation to "My Job" and, hence, this lends support for the proposition that rejection results in stabilization at pre-existing levels.

In fact, the hypothesis (H₁) that increased information about the concepts would increase the positive dimensionality of the factor space was not rejected. This seems to indicate that following rejection of the innovation, the system returns to an even more cohesive equilibrium. The meaningfulness of all concepts, including the innovation, is more clearly established. This may provide evidence that successive failures to diffuse innovations will continuously increase a system's resistance to change. This possibility should be borne in mind by others using this method.

We observe that the predicted correlational pattern was upheld (H_{5a}, H_{5b}) . Associations between key and non-key communicators did diminish, particularly between Time 2 and Time 3. While the correlation

is strong, (.65) at $T_{\underline{3}}$, it is interesting to note that key communicators at Time 1 were better predictors of non-key communicators at Time 2 than were non-key communicators at Time 1. It seems that between Time 1 and Time 2 both groups were responding to the stimuli and, perhaps, to one another. Between Time 2 and Time 3, key communicators changed in their perception of STANSE, while non-key communicators remained relatively stable (.78).

I would argue that this is because key communicator expectations had been aroused, which were not subsequently satisfied. If we accept the argument that between Time 1 and Time 2 key communicators withheld judgment, and then between Time 2 and Time 3, they observed a lack of action and a lack of input for their own part, it becomes possible to understand the reason for the radical shift in their attitudes.

Were there to be a fourth point in time, the model would predict that non-key communicators would approach the attitude of key communicators at Time 3. Assuming that no new information was provided to the system, key communicators would stabilize their attitude set. Non-key communicators would then approach the attitude of key communicators. This would be an indication of a "re-freezing" of the organization. This expression, re-freezing, may be taken in its most literal sense, since the increase in variance explained by the factor structure points to subsequent difficulties in inducing change.

While the remaining hypotheses were essentially unsupported, it is contended that the results provide some support for the model. Between Time 1 and Time 2, changes were observed which corresponded to prediction. This was the only period during which messages were actively being disseminated. Following Time 2 measures the researchers indicated to STANSE

and SMTF personnel that, while they had begun to obtain change in the desired direction, the rate at which change was occurring needed to be accelerated. This conclusion was based on the fact that the distance between STANSE and "My Job" was still one of the largest dissimilarities in the data matrix, and the distance was associated with a large standard deviation (40).

The response of the SMTF was complacency and a shift in emphasis from communication in the three levels of the organization to working on internal "product" development and internal relationships. In effect, after proposing to the network that they were representative of the field in State planning, they ceased to perform that role.

The key communicators were in the best position to detect this change. They had all been individually contacted, and were led to expect that they were to play an important role in the determination of SMTF activities and priorities. Having aroused the expectations of key communicators, subsequent judgments about the innovation were dependent upon the observation of subsequent action. When these expectations were not satisfied, a boomerang effect took place, and rapidly STANSE diminished in organizational acceptance. Another factor which undoubtedly affected the outcomes of the change effort was related to the inability of SMTF to determine its institutional relationships with a given concept. It was emphasized in the consultationimplementation process that if one is to say one is associated with a given concept, one must engage in publicly observable activities, as well as messages, which support the tendered association. The researchers indicated to STANSE that they needed to engage in specific activities

(called functions) which were demonstrative of the concepts Childcentered, Planning, and Helpful. We suggested they develop a set of routine activities such as reviewing the Federal rules and regulations on programs for special children, synthesize these and report them to the field. We suggested they present "friend of the court" briefing to SESA's special education policy committees and planning agencies. We suggested they conduct, or authorize, an analysis of administrative options for reducing overhead, and hence provide more direct support for the children who were the ultimate beneficiaries of their activities. While SMTF sub-committees agreed to work on these or related problems, they did not provide the organization with continuing information about their efforts in these directions.

STANSE staff concentrated on the development of "products" associated with the problems listed above. These efforts resulted in the creation of a comparative evaluation of legal and administrative requirements of State Law P.A. 198 and Federal Law P.L. 94-142. Secondly, they developed a state-wide human resources inventory -- a listing of specialties among special education teachers in the state, and persons with specialties. The administrator of a particular student with an unusual disability could identify a teacher with experience in that disability. Third, they produced a position statement on the State Department reorganization. Using planning sessions conducted with SMTF members, STANSE produced a critique of the state reorganization plan, which precisely paralleled subsequent criticism's from a public blue-ribbon commission. Had SESA managers been aware of the implications of STANSE recommendations, management would have gone

into the committee with a much more realistic program. In addition, if the state-wide network of special education administrators had been aware of the STANSE findings on a continuing basis, pressure would have been applied to force management at the state level to respond to SMTF criticisms. This list of "products" is provided to show that while STANSE was not communicating, they were engaged in some valuable activities. As the model indicates however, acceptance of an innovation depends as much on the perception of the innovation among organizational members as it depends upon the objectively determined contribution of the innovation to the organization's success. Perception of organizational success develops through communication. And the absence of communication between Time 2 and Time 3 caused STANSE to be rejected as an innovation despite a rather impressive list of accomplishments. This rejection is ultimately reflected in the final distance between STANSE and organizational members.

The future of STANSE has not been firmly decided. While SMTF members have indicated continued support, management at the State Department has apparently decided that STANSE will be dissolved. The dissolution of STANSE, given the requirements of P.L. 94-142 for a state-wide planning system, indicates that another organization, of a similar nature will arise to replace STANSE. The sad fact is, that this organization will face greater resistance in attempting to develop state planning protocols.

5.2 FUTURE RESEARCH

It is held that the model has been given preliminary support by this research effort. Several obvious research problems were overlooked

in an attempt to test the entire system.

First, this research design should be replicated in a more controlled situation. The organization used for this research equivocated on message strategies, and did not fully commit to the research effort. An experimental organization would be inadequate. The model assumes that an organization has existed for sufficient time for normative practices to have developed, and for an innovation to represent true options which counter historical practice. The replication should be conducted with additional research efforts directed at the organizations historical response to change, its message costs, and the perceived turbulence of the environment. Such research ought also to carefully document message dissemination efforts, and direct the bulk of communication resources at key communicators.

Second an experiment needs to be conducted on the method of message selection. Cody (1976) found some support for the method, as did Barnett, Serota and Taylor (1976). A precise experiment should be conducted. Ideally, such an experiment would compare the efficacy of a "perfect" message strategy selected using the vector summation technique, with a randomly composed message (the potential of which could be established using the vector summation technique). In addition, control group receiving no messages should be designated. While this would not solve all the problems, it would get at the issue of the differential value of using an optimizing routine over normal compositional methods.

Third, a method for weighting the differential force of different concepts needs to be developed. Assuming that the vector summation
technique can be experimentally validated, there is no reliable method for establishing the differential effect of different individual concepts. This is a two-edge problem. First, if a concept is highly effacacious of change (or more instrumental), the predicted vector will vary from the obtained vector as a ratio of the difference in strength between the two concepts. If the difference is large then the message could produce change which is considerably less than optimal, and possibly dysfunctional. In addition, if the concepts are differentially subject to change because one is more "massive" than another, it could be the case that associating a non-massive concept with an innovation will cause the concept to move toward the innovation rather than the other way around.

It is suggested that examination of variances for pair dissimilarity estimates could provide a method of determining concept mass <u>a priori</u>. Essentially a variance is an estimate of the degree to which a sample disagrees about the true score of an indicator. If the ratio of a known variance to the average variance for a data set is determined, the comparative size of that number would be an indicator of pair instability. Larger variances would indicate disagreement within the population about the meaning and the relationship between the concept pairs, and small variances would support generalized population agreement. In general, it would be hypothesized, that the larger the variance, the greater the potential for change in the concept relationship. Information, is then defined as the medium which induces change in both the absolute dissimilarity, and in the variance around a given dissimilarity estimate.

Consistently, it was observed that key communicators reported lower values for pair distances than non-key communicators. We know from the

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research of Allen and Cohen (1969) that network liaisons seek and receive more information than non-liaisons. Here we have extended the functional definition of a liaison to bridges. The question is, do key communicators report smaller values because their information behaviors cause them to have a greater understanding of the inner-relationship among measured objects?

Finally, considerable research needs to be directed to the establishment of the parametric properties of the "control system". It has been stated that a cybernetic system is governed by a control mechanism which uses upper and lower variable range limits to determine the amount and kinds of input required to maintain the system within tolerable deviations. It has also been argued that an innovation effort should push the system's performance to the upper ranges of established tolerances. It remains unknown how much information produces how much change. Secondly, we do not know what variables impact upon that functional relationship. It is suggested that an experiment be conducted which utilizes concept variances, information input (as a function of cost), and different combinations of media to establish some expectation probabilities of how much communication energy it will take to cause a movement of \underline{u} units of concept \underline{C} with a variance s^2 .

A corollary to the problem of fixing the amount of information required to effect a predictable rate of change, is the question of how much change can a system absorb. As suggested in the literature review such an answer would be dependent upon system structure, perceived environment turbulence, success in past adoptions, generalized organizational inclination to change, resistance of key communicators to change, and the nature of the dissemination effort. This problem could be addressed

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through a stochastic process model which posits the functional relationships among such factors as organization attributes and a dependent variable consisting of an index of profit, growth and stability of productive processes.

5.3 SUMMARY

This dissertation examined a model of organizational change as controlled by the systematic introduction of information designed to adjust attitudinal instrumentalities. A model was proposed which linked acceptance of an innovation to the degree to which the innovation is integrated into the job perceptions of organizational members. The model was tested on an organization consisting of 539 administrators of special educators working at three levels. Network analysis was used to identify key communicators and non-key communicators. A key communicator is a person who links large groups of other people. The results showed that when information is used in the way dictated by the model, predicted changes did occur. When information was absent, a boomerang effect was observed, and the innovation was not adopted. APPENDIX A

INSTRUCTIONS AND MMDS OUESTIONNAIRES

STATE OF MICHIGAN

DEPARTMENT OF EDUCATION

Lonsing, Michigan 48902

January 7, 1976

STATE BOARD OF EDUCATION MARILYN TEAN KELLY

DR. OORTON RIETHMILLER Vice Presider BOMUND F. VANDETTE Sereia

ANNETTA MILLER

BARBARA A. DUMOUCHELLE DR. PAUL B. HENRY BARBARA J. ROBERT NORMAN OTTO STOCKMEYER SR OOY. WILLIAM G. MILLIEEN

Dear Participant,

madent of

There are many problems facing us in our attempt to deliver meanincful Special Education programs and services to handicapped children and youth. Perhaps no one is as familiar with these concerns as you are. One serious problem that we all share is in the area of communication. We simply do not have a complete, effective and efficient system which allows everyone to be aware of the state of affairs in Spacial Education. My staff and I feel this deficiency seriously undermines our ability and yours to act effectively in many situations. The many written and verbal messages concerning the lack of communication testifies to the seriousness of this issue.

In order to reach a solution to this problem I have asked Project STANSE to develop procedures which would accomplish two tasks:

1. Provide an up-to-date description of the communication network we presently have. This information would include who is communicating with whom and a description of the topics discussed and,

2. Develop procedures to "test" the network so that by August, 1976, we would have a better organized system. This task will entail contacting you more than once this school year.

In order to achieve these goals we have prepared the attached questionnaire. I realize that the questions are somewhat more difficult and time-consuming than conventional guestionnaires you are probably more familiar with. However, the type of questions asked here allow us to achieve a great deal of accuracy and reliability.

In addition, these techniques allow us to measure changes which take place during the course of the STANSE Project. Measurements of change will provide educational planners with precise estimates of future needs.

This task is a complex one, but with your help it can be successful. I urge you to complete the enclosed questionnaires and return them immediately. If you do not send in this information, your vital information will, of necessity, be omitted.

In the past we have shared the successes and the problems associated with Special Education in Michigan; I feel confident that the future will have us working together even more effectively. Your assistance is absolutely necessary.

All individual responses will be kept in the strictest confidence. However, it is necessary that you sign the questionnaire for our record keeping purposes. All names will be converted to code numbers and no one except the staff directly concerned with processing the data will ever see the original questionnaires. All participants will be provided with a summary report explaining the results of the study and outlining the implications of this research for the future of special education in Michigan.

If you have any questions about these questionnaires please feel free to call Pat DuFort, Nancy Kaye or Evan Peelle collect at 313-763-3411. As staff of Project STANSE they can be of assistance to you.

Sincerely, Murray O. Batter Murray O. Batter



BORN W. PORTER

Public Instruction

SURVEY OF NEEDS IN SPECIAL EDUCATION: THE PLANNER'S PERSEPCTIVE

Instructions to Respondents

The following questionnaire asks you to give us your opinions on a set of ideas or concepts that are related to special education. We would like you to give your opinions by telling us how different pairs of concepts are. The way you will do this is to estimate how far apart two concepts are. Distance between concepts is measured in units, so that the more different two concepts are, the more units apart they are from each other.

To give you a "yardstick" to enable you to express how far apart two concepts are, we will say that a Special Education Classroom is 100 units different from a General Education Classroom, or a Special Education Classroom and a General Education Classroom are 100 units apart. In other words, <u>all</u> the differences between a Special Education Classroom and a General Education Classroom together account for 100 units of difference.

The idea is for you to tell us <u>your</u> opinion of how many units apart the concepts which follow are from each other. Remember, the <u>more</u> different two concepts are from each other, the <u>larger</u> the number of units apart they are.

If you think any pair of concepts are more different than a Special Education Classroom and a General Education Classroom, you would write a number larger than 100.

If you think two concepts are <u>less</u> <u>different</u> than a Special Education Classroom and a General Education Classroom you would write a number <u>smaller</u> than <u>100</u>.

If you think two concepts are identical, that is, they are the same thing, you would write a "0." $\,$

FOR EXAMPLE, when completing a similar questionnaire, an educator was instructed that "one room schools and large high schools" were 100 units apart. He was then asked to estimate the distance between:

MY SCHOOL AND RELIGIOUS EDUCATION

He determined that since his public primary school did not offer any courses or programs in the area of religious education, but since "moral education" was a small part of their curriculum, the two concepts were 90 units apart. After completion, the sample line looked like this:

MY SCHOOL AND RELIGIOUS EDUCATION 90

Three key definitions need to be kept in mind as you begin to make your distance estimates:

- STANSE means Statewide Technical Assistance Network in Special Education, a state and federal funded project.
- SESA means the State Department of Education (Special Education Services Area.)
- 3. P.L. 94-142 means the new Federal Law for the handicapped.

We realize that you might feel that your estimates are not perfectly accurate for every pair of concepts. Remember, there is no one right answer. Providing your own best estimate of the distances betweer each pair will be sufficient for our purposes. If you do not recognize or cannot give an estimate for one pair, <u>leave</u> the space blank. Please ignore the numbers adjacent to each pair in the boxes. They are used for coding your responses for the computer.

If you have any questions, or you need any help in responding to this questionnaire, you may call <u>collect</u>, Project STANSE, and ask for Margarete Thomsen (313-763-3411).

IF A SPECIAL EDUCATION CLASSROOM AND A GENERAL EDUCATION CLASSROOM ARE 100 UNITS APART, HOW FAR APART ARE:

Do Not Write in These Spaces

	Do Not Write in These Spaces
Child-Centered and PAC	 (01-08) (09-17) 0214 <u> </u>
STANSE and Manag_ment System	 (18-26) 0304
STANSE and Efficient	 (27-35) 0305
STANSE and SESA	 (36-44) 0306
STANSE and Planning	 (45-53) 0307
STNASE and Frustrating	 (54-62) 0308
STANSE and Change	 (63-71) 0309
STANSE and Mainstreaming	 (72-80) 0310
STANSE and Influence	(01-08) (09-17) 0311
STANSE and P.A. 198	 (18-26) 0312
STANSE and Helpful	 (27-35) 0313
STANSE and PAC	 (36-44) 0314
Management System and Efficient	 (45-53) 0405
Management System and SESA	
Management System and Planning	 (63-71) 0407
management system and Frankring	 (63=71) 0407
Management System and Frustrating	 (72-80) 0408
Management System and Change	 (01-08) (09-17) 0409 <u> </u>
Management System and	 (18-26) 0410
Mainstreaming	(27-35) 0411
Management System and Influence	 (36-44) 0412
Management System and P.A. 198	 (45-53) 0413
Management System and Helpful	 (54-62) 0414
Management System and PAC	 (63-71) 0506
Efficient and SESA	 (72-80) 0507
Efficient and Planning	

IF A SPECIAL EDUCATION CLASSROOM AND A GENERAL EDUCATION CLASSROOM ARE 100 UNITS APART, HOW FAR APART ARE:

Do Not Write in These Spaces

Efficient and Frustrating	(01-08)
Efficient and Change	
Efficient and Mainstreaming	 (27-35) 0510
Efficient and Influence	 (36-44) 0511
Efficient and P.A. 198	 (45-53) 0512
Efficient and Helpful	 (54-62) 0513
Efficient and PAC	 (63-71) 0514
SESA and Planning	 (72-80) 0607
	(0) 00)
SESA and Frustrating	 (09-17) 0608
SESA and Change	 (18-26) 0609
SESA and Mainstreaming	 (27-35) 0610
SESA and Influence	 (36-44) 0611
SESA and P.A. 198	 (45-53) 0612
SESA and Helpful	 (54-62) 0613
SESA and PAC	 (63-71) 0614
Planning and Frustrating	 (72-80) 0708
	(01-08)
Planning and Change	 (09-17) $0709 =$
Planning and Mainstreaming	 (18-26) 0710
Planning and Influence	 (27-35) 0711
Planning and P.A. 198	 (36-44) 0712
Planning and Heipful	 (45-53) 0713
Planning and PAC	 (54-62) 0714
Frustrating and Change	 (63-71) 0809
Frustrating and Mainstreaming	 (72-80) 0810

IF A SPECIAL EDUCATION CLASSROOM AND A GENERAL EDUCATION CLASSROOM ARE 100UNITS APART, HOW FAR APART ARE:

Do Not Write in These Spaces

My Job and Child-Centered	 (01-08) (09-17) 0102
My Job and STANSE	 (18-26) 0103
My Job and Management System	 (27-35) 0104
My Job and Efficient	 (36-44) 0105
My Job and SESA	 (45-53) 0106
My Job and Planning	 (54-62) 0107
My Job and Frustrating	 (63-71) 0108
My Job and Change	 (72-80) 0109
My Job and Mainstreaming	 (01-08) (09-17) 0110 <u> </u>
My Job and Influence	 (18-26) 0111
My Job and P.A. 198	 (27-35) 0112
My Job and Helpful	 (36-44) 0113
My Job and PAC	 (45-53) 0114
Child-Centered and STANSE	 (54-62) 0203
Child-Centered and Management System	 (63-71) 0204
Child-Centered and Efficient	 (72-80) 0205
	(01-08)
Child-Centered and SESA	 (09-17) 0206 $=$ $=$ $=$ $=$ $=$ $=$ $=$
Child-Centered and Planning	 (18-26) 0207
Child-Centered and Frustrating	 (27-35) 0208
Child-Centered and Change	 (36-44) 0209
Child-Centered and Mainstreaming	 (45-53) 0210
Child-Centered and Influence	 (54-62) 0211
Child-Centered and P.A. 198	 (63-71) 0212
Child-Centered and Helpful	 (72-80) 0213

IF A SPECIAL EDUCATION CLASSROOM AND A GENERAL EDUCATION CLASSROOM ARE 100 UNITS APART, HOW FAR APART ARE:

Page 4

	Do Not Write in These Spaces
Frustrating and Influence	 (01-08) (09-17) 0811
Frustrating and P.A. 198	 (18-26) 0812
Frustrating and Helpful	 (27-35) 0813
Frustrating and PAC	 (36-44) 0814
Change and Mainstreaming	 (45-53) 0910
Change and Influence	 (54-62) 0911
Change and P.A. 198	 (63-71) 0912
Change and Helpful	 (72-80) 0913
	(01.0%)
Change and PAC	 (09-17) 0914 = = = = = = = = = = = = = = = = = = =
Mainstreaming and Influence	 (18-26) 1011
Mainstreaming and P.A. 198	 (27-35) 1012
Mainstreaming and Helpful	 (36-44) 1013
Mainstreaming and PAC	 (45-53) 1014
Influence and P.A. 198	 (54-62) 1112
Influence and Helpful	 (63-71) 1113
Influence and PAC	 (72-80) 1114
	(01-08)
P.A. 198 and Helpful	 (09-17) 1213 $=$ $=$ $=$ $=$ $=$ $=$
P.A. 198 and PAC	 (18-26) 1214
Helpful and PAC	 (27-35) 1314

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IF A SPECIAL EDUCATION CLASSROOM AND A GENERAL EDUCATION CLASSROOM ARE 100 UNITS APART, HOW FAR ARE:

Do N	lot	Write	in	These	Spaces
------	-----	-------	----	-------	--------

Labeling and my Job	<u> </u>	(01-08) (09-17)	
Labeling and Child-Centered		(18-26)	
Labeling and STANSE		(27-35)	
Labeling and Management System		(36-44)	
Labeling and Efficient		(45-53)	
Labeling and SESA		(54-62)	
Labeling and Planning		(63-71)	
Labeling and Frustrating		(72-80)	
		1	
		(01-08)	
Labeling and Change		(01-08) (09-17)	
Labeling and Change Labeling and Mainstreaming		(01-08) (09-17) (18-26)	
Labeling and Change Labeling and Mainstreaming Labeling and Influence		(01-08) (09-17) (18-26) (27-35)	
Labeling and Change Labeling and Mainstreaming Labeling and Influence Labeling and P.A. 198	 	(01-08) (09-17) (18-26) (27-35) (36-44)	
Labeling and Change Labeling and Mainstreaming Labeling and Influence Labeling and P.A. 198 Labeling and Helpful		(01-08) (09-17) (18-26) (27-35) (36-44) (45-53)	
Labeling and Change Labeling and Mainstreaming Labeling and Influence Labeling and P.A. 198 Labeling and Helpful Labeling and PAC		(01-08) (09-17) (18-26) (27-35) (36-44) (45-53) (54-62)	

Thank you.

APPENDIX B

INSTRUCTIONS AND NETWORK ANALYSIS QUESTIONNAIRE

STANSE Project February 9, 1976 Page Two

If you have any questions, either about the instrument or STANSE Project, please feel free to call Evan Peelle, Patricia DuFort or Nancy Kaye collect at (313) 763-3411.

Sincerely,

Leonard C. Burrello Project Director, STANSE

Enclosure

pi-08 _ _ _ _ _ _ _ _

Your	Name	Communication Topic			
		Discuss Change: New Idcas, Programs, Procedures	Discuss Planning: Programs, Services, Implementation	Discuss My Job: Day-to-day responsibilities	
	84 STATE DEPARTMENT	P A S T	FOUR MONT	НS	
225	Batten, Hurray "Bud"				
027	Bazter, Jan				
230	Back, Theodore "Ted"				
033	5eltran, lydia				
053	Blair, Hary				
050	Brazcio, John				
055	Bryant, Nancy				
075	Chappel, Fredric "Fred"				
069	Collins, Michael "Mike"				
2.14	Djorling, Barbara				
22.9	Donaldson, bert				
23.7	Ension, Arcelia				
267	Sates, Robert				
198	Hamlin, Leonora "Lee"				
224	Hodson, Diane				
230	Howard, Thomas "Tom"				
322	Kikrut, Harsha				
320	Honix, George				
382	Richardson, Richard				
394	Rudolph, James				
459	Tnurber, Gene				
482	Walline, Irne				
522	Burrello, Leonard				
522	DuFort, Patricia "Pat"				
523	Feldis, Dotty				
524	Kaye, Nancy				
525	Lasson, Kathy			_	
526	McLauphlin, Janet "Jan"				
527	Nutter, Ronald "Ron"				
528	Peelle, Evan				
529	Vernon, Dave				
	33 INGHAM				
051	Breaugh, John				
		· · · · · · · · · · · · · · · · · · ·			

		Communication Topic		
		Discuss Change: New Ideas, Programs, Procedures	Discuss Planning: Programs, Services, Implementation	Discuss My Job: Day-to-day responsibilities
		P A S.T	FOUR MONT	HS
002	Butler, Harry			
070	Carrow, Richard			
C93	Cook, Larry			
205	Davis, Gary			
200	Delbridge, Malcolm "Mac"			
252	Fuller, David			
169	Geer, Robert			
293	Haarer, Dave			
225	llerhert, Benson			
223	Hobbs, Dorosiny			
242	jones, Maryann			
258	Koprad, Doris			
272	Lilly, Albert			
332	NoSione, Fred	5		
309	Hichaels, Gary			
320	Hikel, Richard			
33?	Hullen, Leo			
369	Frice, Virginia			
372	Cuitiquit, Gary			
377	Raynior, Snerry			
390	Romsek, Heien			
403	Scandary, Emma Jane			
427	Snifjerdecker, Duer			
433	Spicknall, Harrold			
435	Stevens, David			
489	Twork, Charles			
475	Vivio, Pat			
476	Vorce, Bruce			
\$79	Waldo, Jean			
480	Wallen, John			
492	Weir, Kobert			
507	Woodring, Kenneth			
524	Zarka, George			

D1-06				3.
		•	Communication Topi	c
		Discuss Change: New I deas, Programs, Procedures	Discuss Planning: Programs, Services, Implementation	Discuss My Job: Day-to-day responsibilities
	41 KENT	P A S.T	FOUR MONT	НS
006	Allen, Velma			
C 36	Benton, Barbara			
040	Birch, Ed			
049	Boulter, Susan			
020	Collins, Norman "Norm"			
202	Cruz, Robert "Bob"			
208	DeKuygen, Case			
233	Ekster, Barbara			
234	Elders, Darrel			
253	Foz, Patsy			
274	Gogoleski, Shirley			
233	jacot, George			
249	Kelly, Steve			
250	Kidder, Kelly			
306	McHutt, Jim			
337	Noorthoek, Joseph "Joe"			
343	Osmun, Greo			
344	Oudman, Marjorie			
352	Pattison, Larry			
402	Saur, Barbara			
440	Strong, Io Anna			
\$72	YanderVeer, J. Richard			
474	Veenendall, Marie			
483	Waltz, Jačk			
484	Warren, Fount			
522	Wright, John			
	50 NACOMB			
007	Allinger, Edward "Ed"			
022	Angileri, Joe			
053	Brown, Virginia			
05.9	Burman, George			
069	Campbell, Ray			
083	Clark, Shirley			

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Commun:	icat:	ion Toj	Dic

4.

		Discuss Change: New Ideas, Programs, Procedures	Discuss Planning: Programs, Services, Implementation	Discuss My Job: Day-to-day responsibilities
		PAST	FOUR MONT	HS
052	Contesti, Rov			
120	Doutt, Geraldine "Gorru"			
142	Famulano, Vincent			
180	Greenc, Barbara			
187	Gromek, Irene			
128	Gurnetz, Laurence "Larru"			
205	Haskins, Robert "Rob"			
225	Hechlik, Jim			
225	Hessler, Gary			
240	Johnson, Faul			
253	Kitchen, Dale		·	
253	LaPlante, Francis "Fran"		·	
292	Mason, Paul			
30 E	Motte, Richard			
327	Nonan, Mary Elizabeth "Trudy"		l	
324	Moore, Susan			
325	Morreale, Paul			
32ĉ	Mosher, Carolyn			
339	Nouland, Fred			
356	Pellegrino, Vito "Bill"			
36 ĉ	Powers, Thomas			
384	Rittgers, Philip			
402	Sauer, Tnomas "Tom"			· .
425	Sheehy, Joyce			
\$22	Siebert, Harold "Hal"			
\$28	Smith, James "Jim"			
\$ 29	Smith, Shirley			
446	Swetnik, Frances			
466	Troff, Fredric			
494	Wneeler, Jim			
435	White, Albert "Al"			
505	Wilson, Robert "Bot"			

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		Discuss Change: New Ideas, Programs, Procedures	Discuss Flanning: Programs, Services, Implementation	Discuss My Job: Day-to-day responsibilitie:
		P A ST	FOUR MONT	HS
15E	Freeman, Gerald "Jerry"			
266	Carveli:k, Hoger			
194	Hadriad, Joseph			
135	Hagerty, Robert "Bob"			
297	Hallock, George			
203	Harvey, Robert			
208	Heard, Dorothy			
214	Hencerson, Paul			
226	Henzie, Kenwood			
235	Jahnke, Warron			
238	Jenkins, Hobart			
245	Kassner, Fred			
252	Kirchhoff, Lucille			
258	Kotting, Charies "Chuck"			
270	Lewis, Graham			
276	Lorimer, John			
284	MacDonald, Byron			
292	Maslanik, Bernard			
303	McChee, James			
314	Miller, William			
319	Molloy, John			
322	Montacmery, Kingsley			
333	Neff, Joseph			
350	Parker, Fred			
355	Pearson, Jack			
351	Pillar, Betty			
363	Place, Donald "Don"			
393	Rowell, James			
\$20	Shrusbree, Alfred		· ·	
4 27	Smith, Douglas Hart			
43.9	Stringer, George			
463	Sundberg, William			
449	Taylor. Janice			
		·····	÷	

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	Discuss Change: New Ideas, Programs, Procedures	Discuss Planning: Programs, Services, Implementation	Discuss My Job: Day-to-day responsibilitie	
	PAST	FOUR MONT	НS	
454 Thams, Paul		[
49E Wilk, Opal				
512 Wright, William			· · · · · · · · · · · · · · · · · · ·	
BI WASHTENAW				
009 Anderson, Barba r a	J			
Olf Ansteć, Al				
022 Barnes, Robert "Bob"				
Ill DeYoung, Hank				
140 Erdlitz, Kathleen "Kathy"				
145 Fitcr, Gae				
157 French, Sophie				
17ê Grant, Dorothy				
182 Gregerson, Harvey				
2lî Helber, Paul				
246 Keene, Jane				
267 Lauhor, Carol				
295 Maxey, Richard "Dick"				
307 Melikan, Christopher				
351 Parkis, Hichael				
379 Rezmierski, Virginia				
408 Schroeder, Anna				
414 Shea, Iona				
434 Stephens, Eleanor				
111 Sturm, Barbara				
465 Turner, Hazel				
170 Valen, Jamie				
506 Wilson, Susan				
B2 WAYNE				
003 Ahn, Grace				
Ol3 Antcliff, Buron				
016 Bajorek, Sandy				
019 Barnard, Patricia "Pat"				

7.

Communication Topic

p1-08

024 Barton, Helen

028 Beall, Cnarles 038 Billings, Dorothy 052 Brown, Andrea

058 Eryden, William 071 Carnahar, Robert

	Communication Topic						
	Discuss Cha: e: New Ideas, Programs, Procedures	Discuss Planning: Programs, Services, Implementation	Discuss My Job: Day-to-day responsibilities				
	PAST	FOUR MONT	HS				
1"							

072	Carr, Irene		
080	Christinidis, Fred		
Oge	Crain, Bob		
203	D'Alessandrc, Gena		
205	Darnell, Gwendolyn "Gwen"		
207	Decker, Donald "Don"		
223	Dietiker, Pobert "Bob"		
222	Draper, Ingrid		
227	Durbin, Mary Lou		
228	Easto, Marjorie		
249	Floyd, John		
254	Frauenheim, John		
263	Gardner, Carol		
264	Gardner, Ray		
272	Cill, Beatrice		
177	Grabowski, Donald		
283	Creiner, James "Jim"		
285	Gretzler, Alice		
186	Griga, Viola		
190	Gustafsor, Shirley	·	
292	Guzzo, Al		
296	Hajdusiewicz, Barbara		
206	Hayes, Ruth		
222	Hilton, Marsha		
228	Holt, Claybon		
234	Jaffe, Robert		
239	Johnson, Kenneth "Ken"		
			1

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		Communication Topic		
		Discuss Change: New Ideas, Programs, Procedures	Discuss Planning: Programs, Services, Implementation	Discuss My Job: Day-to-day responsibilities
		PAST	FOUR MONT	HS
244	Kaselemie, Gus			
248	Kelly, Clark			
254	Kokovich, Anthony			
275	Lockwood, Elizabeth "Libby"			
277	Loudenslaper, William			
262	Luedthe, Leonard	l		
252	Luke, Walter			
528	MacGreger, Donald			
287	Mornaell, Tneodore "Ted"			
285	Martin, Lee			
293	Nathey, John			
300	McCarthy, Ann			
304	McGuire, Donald			
322	Miller, Lawrence			
322	Montambeau, Roy			
332	Naumes, Nargaret			
347	Page, Ecisir, "Ed"			
373	Refferd, Ray			
395	Fuehle, George			
400	Sansbury, Russell			
\$22	Sewrey, Donna			
423	Snav, Robert			
426	Shields, Nancy			
422	Sienkiewicz, Reginald "Reggy"			
462	Sullivan, Otha			
447	Syroid, Walter			
448	Tarbutten, Richard			
464	Trabmar, Bernice			
473	Vedäer, Barbara			
485	Waters, George			
486	Watson, Hubert "Rugh"			
487	Watters, George			
490	Weiderhorn, Larry			
	•			

01-00			· .	10.
			Communication Topi	c
	· · · · · · · · · · · · · · · · · · ·	Discuss Change: New Ideas, Programs, Procedures P A S.T	Discuss Planning: Programs, Services, Implementation FOURMONT	Discuss My Job: Day-to-day responsibilities H S
492	Weiner. Milton			
520	Prioht. Charles			
526	Zimmer, Yvonne			
	03 ALLEGAN			
248	Fitzpatrick, Mike			
252	Gutshall, Robert "Bob"			
497	Wildfong, Lisa	1		
04	ALPENA-MONTHORENCY-ALCONA			
017	Baker, Herbert			
	06 BARRY			
042	Blackmore, William			
27ô	Lowe, Fred			
	09 BAY ARENAC			
082	Claes, Ruth			
123	DuBois, Mary			
280	Luce, Robert "Bob"			
	11 BERRIEN			
152	Fowler. Leonard			
<u>162</u>	Contenbein. Andreu			
325	Nitchell, Irma			
327	Mosher, J. Nelson			
345	Paarlberg, John			
378	Reimann, Jerry			
<u>392</u>	Roosli, Eleanor			
467	Trowbridge, Julia			
493	Wend, Walter			
499	Wilhelmsen, Mary			-
502	Williams, Kathleen			
	12 BRANCH			
045	Block, Ralph	· · · · · · · · · · · · · · · · · · ·		
057	Bruan, Eloise			
095	Corey, Carlton			
202	Culp, Jeff			



		·····	Lommunication Topic	
		Discuss Change: New Idcas, Programs, Procedures	Discuss Planning: Programs, Services, Implementation	Discuss My Job: Day-to-day responsibilities
		PAST	FOUR MONT	НS
269	LePres, Tom			
323	Nontgomery, Robert			
356	Robinson, William			
424	Silver, Robert			
425	Sloan, Barbara			
4 2F	Smathers, Fhilip			
463	Tower, Faul			
	13 CALHOUN			
0 02	Agne, Haz			
020	Anderson, Elizabeth			
065	Campbell, Jerr y			
082	Clark, Keith			· ·
226	Dittmer, Dale			
224	Duff, Phillip			
232	Eilers, Henry			
265	Garrett, William			
273	Lowman, Robert			
315	Pocasha. Carl			
359	Peters, Jan			
367	Pratley, Dan			
458	Tnomasma, Douolas			
482	Walter, Glen			
508	Worde, Alfred			
	14 CASS			
09 E	Craosev, Jean			
255	Komer, Carl			· · · · · · · · · · · · · · · · · · ·
129	Shores, Linda			
	15 CHARLEVOIX-EMMET			
065	Caldvell, Thomas "Tom"			
150	Taylor, Patricia "Pat"			
16-C	HEBOYGAN-OTSEGO-PRESOUE ISLE			
04E	Bouck. Tom			
465	Trafelet, Arnold			

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D1-06

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	Communica	tion Topi	c
hange :	Discuss	Planning:	Discu

	Discuss Change: New Ideas, Programs, Procedures	Discuss Planning: Programs, Services, Implementation	Discuss My Job: Day-to-day responsibilities
	PAST	FOUR MONT	НS
478 Gerald Waite			
17 EASTER: UPPER PENINSULA			
(CHIPPEWA, LUCE, MACKINAW)			
C75 Christensen, Dorthea			
lEl Gailagher, Jerry			
175 Goldthorps, Hargaret			
151 Greenough, Timothy "Tim"			
2ft Leach, Jay			
345 Fage, Garry			
16 CLARE-GLADWIN			
376 Raymond, Jack			
19 CLINTON			
C34 Beizer, ñonald "Ron"			
l36 Ellsworth, Roy			
266 Malitz, Howard			
335 Nestor, Gerald			
365 Fowell, Don			
610 Schwartzkopf, Larry			
402 Toth. Dennis			
21 DELTA SCHOOLCRAFT			
217 Hermann, Jim			
274 Lindrolm, John			
342 Olsen, Richard "Dick"			
405 Schrimer, Gene			
407 Schrock, Lewis "Lou"			
22 DICKINSON IRON			
431 Soderberg, Cal			
23 EATON			
008 Allswede, Judy			
117 Dobson, Charles			
231 Horie, Judy			
259 Kowalk, Duarne			
294 Maulein, Joneen			

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		Discuss Change: New Ideas, Programs, Procedures	Discuss Planning: Programs, Services, Implementation	Discuss Hy Job: Day-to-day responsibilities
		P A SI	FOUR MONT	нs
354	Peabody, Hildred			
455	Thore, Caroll			
489	kieber, Don			
	25 GENESEE			
02.9	Beauvoix, Philip			
073	Cartwright, Donna	_		
289	Giertz, Marjorie			
2 20	Hill, Hargaret			
222	Hilley, James			
370	Prins, Jan			
375	Raske, David			
383	Riggs, Donald			
336	Russell, Donald			
393	Schourin, Robert			
430	Smith, Virginia			
444	Sventko, joe			
453	Tew, Vermon		· ·	
49 ô	White, Philip			
502	Williams, David			
	27 GOGEBIC-ONTONAGON			
257	Korpela, Waino "Bill"			
	26 TRAVERSE BAY AREA			
	(GRAND TRAVERSE, BENZIE,			
KAL	KASKA, LEELANAU, ANTRIM)			
025	Asiala, Richard "Dick"			
222	Draper, Fran			
202	Hansen, Rose			
264	Laird, Ralph			
428	Shikoski, Tom			
	29 GRATIOT-ISABELLA			· ·
281	Grether, Harry			
529	Wirth. Lee			
			·	



		Discuss Change: New Ideas, Programs, Pr ocedures	Discuss Planning: Programs, Services, Implementation	Discuss My Job; Day-to-day responsibilities
	20 UTTTCDTE	PAS.T	FOUR MONT	НS
042				
110	Dentry James			
180	Verver Pill			
400				
(HOU	IGHTON, BARAGA, KEWEENAW)			
342	Ollila. Paul	· · · · · · · · · · · · · · · · · · ·		· · ·
358	Penny. Dale			
	32 HURON			
227	Holste, Herman			
202	Kulc, Gene			
452	Jennant, Albert			
	34 IONIA			
204	Haverkate, Joan			
	35 10SCO			
077	Charon, Rod			
230	Eid, Foster			
270	Cieser, Dennis			
172	Gillette, Gene			
389	Rollin, Herman			
	38 JACKSON			
023	Barrett, Dave			
032	Beech, Ray			
092	Contat, Michael			
247	Kekke, Robert			
334	Neiswander, Lucylee			
397	Rutz, Shirley			
405	Schesky, Casimir "Cash"			
437	Stewart, Dorothy			
472	Van Schoick, Betty Jo			
523	Young, Christopher "Kit"			
	39 KALAMAZOO VALLEY			
018	Ball, Sandra	• • • • • • • • • • • • • • • • • • • •	•	
064	Caldwell, Elliott		· ·	

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Communication Topic

		Discuss Change: New Idcas, Programs, Procedures	Discuss Planning: Programs, Services, Implementation	Discuss My Job: Day-to-day responsibilities
		P A S T	FOUR MONT	НS
087	Coin, Larry			
206	Decent, Anniee			
235	Engle, John			
188	Guarino, Robert "Bob"			
223	Henderson, Donna			
299	McConn, Richard			
323	Miller, C. William			
387	Roellchew, Betsy			
392	Ross, Marian			
436	Stevens, Grace			
	43 LAKE			
335	Nichols, Harold			
	44 LAPEER			
094	Cook, Robert			
328	Muir, Maroaret			
388	Rolland, Doris			
	46 LENAWEE			
232	Eidson, George			
	47 LIVINGSTON			
142	Farabee, David			
144	Fisher, Dave			
477	Wagner, Joyce			
	51 MANISTEE			
225	Dittman, Inomas "Tom"			
246	Fitch, Robert			
	52 MARQUETTE-ALGER			
004	Ahola, Allan			
046	Bond, Bill			
199	Hammer, Art			
243	Jones, William			
266	Laughna, Bob			
273	Lindberg, Kenneth			
338	Norlen,Betty			·····

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		Communication Topi	c
	Discuss Change: New Idcas, Programs, Procedures	Discuss Planning: Programs, Services, Implementation	Discuss My Job: Day-to-day responsibilities
	P A S T	FOUR MONT	HS
329 Mulder, Harry			
72 COOR			
(Crawford, Oscoda, Ogemaw, Roscommon)			
301 McEhancy, Richard			
73 SAGINAW			
001 Acker, Jane			
Oll Anderson, Virginia			
032 Bell, Bert			
014 Blesch, Gcorge			
061 Bush, Loretta			
126 Dundas, Chris			
143 Fearn, Kayte			
147 Fitzpatrick, Marguerite			
202 Harshman, Robert "Bob"			
225 Hoffman, Gerald			
260 Kueffner, Hargaret	·		
330 Mulka, Stanley			
353 Faulpher, Lowell			
360 Peters, Larry			
362 Pistono, Kathleen			
374 Rance. Odahlia			
409 Schwartz, Herbert	•		
517 Zuræ, Eæsard			
74 ST. CLAIR			
005 Alezander. LeLola			
074 Catalina. Tim			
078 Chopp. James "Jim"			
176 Cordon. Sandra			
520 Kallos, George			
265 Larson. Arnold "Whitev"			
271 Lewis, Mary		·	
398 Rum Edward			

445 Sweales. Shirley

11-08			-	_		_	_	_
01-00	-	-	-	-	-	-		-

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		Discuss Change: New Ideas, Programs, Procedures	Discuss Planning: Programs, Services, Implementation	Discuss My Job: Day-to-day responsibilities
		PAST	FOUR MONT	нs
482	Tomlinson, Joann			
	75 ST. JOSEPH			
020	Barnard, Ruth			
057	Cambell, Larry			
229	liovda, Richard			
509	Kraco, Jones			
	76 SANILAC			
225	Hollis, Joe			
300	McNeill, Ken			
460	Titus, Harold			
504	Wilson, Larry			
	76 SHIAWASSEE			
039	Bingaman, Paul			
237	Engel, Gary			
179	Greer, James			
237	Jeffries, Roger			
380	Richard, Chester			
	79 TUSCOLA			
025	Benscoter, Carolyn			
242	Jones, Allen			
285	Mahan. Elton			
_	BC VAN BUREN			
<u>060</u>	Burns, Jean			
173	Coens, Bert			
297	McBratnie, Hugh			
364	Potter, David			
	83 WEXFORD-MISSAUKEE			
222	Helicngs, Ronald			
318	Mohler, Verla			
-		-		
				

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194

D1-08 _ _ _ _ _ _ _ _ _

404

432

025

255

290

296

228

236

385 Robinson, Ivan

70 OTTAWA

085 Clemente, Joseph "Joe" <u>158 Fridama, Nicholas</u> 160 Furr. Larry 219 Heuvelman, Kenneth

Communication Topic Discuss Planning: Discuss Change: Discuss My Job: New Ideas, Programs, Day-to-day Programs, Services, responsibilities Procedures Implementation PAST FOUR MONTHS 382 Ricker, Thomas . Schaefer, June Sormunen, John 525 Zenzi, Rose Maru 53 MASON Barton, Peter . 54 HECOSTA-OSCEOLA 252 Kitchell, Elizabeth 55 MENOMINEE 262 Kytha, Jon 283 Lungerhausen, Ann 357 Peltier, Konald "Ron" fll Seidl, Louis 56 MIDLAND Frazee, Michael Marvin, Lynn Mayer, Charles 58 MONROE 066 Campbell, Mary Donahue, James 209 Heath, Bob 59 MONTCALM 200 Hansen, Edna 298 McBride, Helen 62 NEWAYCO Janzen, Cornelius "Corey" 64 OCEANA

26.

APPENDIX C

SAMPLE MESSAGE



STANSE PROJECT 130 South First Street Ann Arbor, Michigan 48109

May 10, 1976

Dear Colleague:

Enclosed is a two page report which gives a description of the work of STANSE, and reports some key points from the questionnaire send to you recently. We are also enclosing a list of members so you can identify persons you can contact if you wish to have input.

Sincerely,

STANSE Project

STATE AND FEDERAL PLANS MEAN DOLLARS

The State and Federal Plans have become even more important since the passage of the Education for All Handicapped Children's Act (P. L. 94-142). The development of a comprehensive plan is being tackled by another STANSE committee. This plan will be useful to you because it will supply guidance about planning requirements, field input, responsibilities, programs and service delivery. A procedure to obtain field input into the development of this plan is being completed. The design of a systematic way to get your input into the plan will help assure that your issues and needs are represented in the plans.

PRACTICAL PLANNING SCHEDULES

The fifth committee is developing a practical planning schedule indicating yearly planning activities as they relate to state and federal requirements. This report will include federal, state, intermediate and local schedules of tasks, timetables, data needs, etc. This will help you to have the necessary information on hand so that you can fulfill your planning responsibilities.

REPORT ON QUESTIONNAIRES

In January, you received a package of three instruments (now known as the "green monsters"). Over 70% of you completed them. An initial review of the data shows that both the reliability levels and percentage return rate mean that the information provides a useful guide to effective planning. The data show that the most important concern of Special Education administrators is to serve the needs of handicapped children. We also found that members of Project STANSE reflect the range and diversity of views that are found around the state. STANSE members represent the field with a high degree of reliability.

We were also able to substantiate that there are distinct groups and key people who communicate with each other about the topics of planning, change and our job. Information does flow to and from STANSE members as the project proceeds. Our task now is to use our network more efficiently and to improve our communication with each other. A more complete report will be forthcoming as soon as the analysis is completed.

STANSE will continue to contact you in various ways to get your input.

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Project STANSE is an organization which helps Special Education Directors and Supervisors. STANSE is made up of 36 Directors and Supervisors, drawn from intermediate and local levels around the state, from the State Department, with a support staff of nine from the University of Michigan. One goal of STANSE is to become more child-centered in its planning activities. Another goal is to develop recommendations which help children and thereby help you.

Using your input, we have identified five target areas of concern to you. Each target area is being dealt with by a STANSE committee. These target areas reflect problems that are giving direction to STANSE's planning. Decisions will be made which reflect your views concerning services offered to handicapped children.

WHAT'S SPECIAL EDUCATION TO DO?

One committee is defining the children to be served by Special Education, and the programs and services the children need. The State Board of Education a few months ago urged that responsibilities for delivering services be identified more clearly. So, recommendations will be made to increase understanding of the responsibilities of Special Education and of other education departments and agencies. By providing this input, STANSE will help administrators be more effective in their planning for children.

STATE SPECIAL EDUCATION SERVICE AREA PLANS TO REORGANIZE

Murray Batten and his staff are seeking ideas for reorganizing so that they can be more effective. A second STANSE committee is giving reactions and suggestions to the State Department's (Special Education) reorganization, based upon what members of the field report they need from the state. In addition, this committee is looking at the implications that the state changes have for intermediate and local levels. We are advocating that more childcentered responses be supplied by each level.

HEARING EACH OTHER AND RESPONDING

The need to make meaningful input into the State Department's planning and decision making is being addressed by another committee. This group is developing a way for the field to let the State Department know what's going on in their districts, as well as to get accurate information in return. The procedures developed for input will affort your interactions with the state people and the quality and quantity of information exchanged. STANSE is helping you by suggesting ways the state can more effectively respond. APPENDIX D

WHOLE SAMPLE PAIR-WISE MMDS SAMPLE SIZES

Pair-Wise MMDS Response Sizes: Time 1

Con	cept		21	m	4	5	9	7	ωI	6	10		12
-	My Job	0											
2	Child Centered	331	0										
e	Stanse	303	275	0									
4	Mgt. Sys.	327	308	266	0								
2	Efficient	323	309	231	297	0							
9	Sesa	312	300	245	274	273	0						
7	Planning	330	321	256	302	298	286	0					
ω	Change	325	316	242	305	304	282	310	0				
6	Mainstreaming	327	319	217	288	297	272	300	290	0			
10	Influence	325	301	240	286	292	279	302	290	277	0		
11	PA 198	327	320	237	298	297	280	304	304	293	288	0	
12	Helpful	324	305	232	296	302	277	305	296	292	286	306	0

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Pair-Wise MtOS Response Sizes: Time 2

Col	cept	-1	5	m	4	15	9	7	co l	6	10		12
-	My Job	0											
2	Child Centered	67	0										
e	Stanse	95	63	0									
4	Mgt. Sys.	95	96	06	0								
ß	Efficient.	97	95	83	06	0							
9	Sesa	95	94	88	89	88	0						
2	Planning.	67	95	88	16	06	88	0					
œ	Change	97	95	86		93	16	94	0				
6	Mainstreaming	97	94	83	87	06	86	06	89	0			
10	Influence	96	95	86	16	92	88	92	06	86	0		
1	PA 198	95	94	84	88	16	88	06	89	89	88	0	
12	Helpful	97	95	87	89	92	88	92	89	86	84	88	0

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Pair-Wise MMDS Response Sizes: Time 3

Con	cepts	-1	2	m	4	ای	9	7	ωI	6	10		12
-	My Job	0											
2	Child Centered	119	0										
e	Stanse	116	112	0									
4	Mgt. Sys.	120	117	111	0								
2	Efficient	118	114	104	117	0							
9	Sesa	117	115	105	113	114	0						
7	Planning	120	119	107	118	117	114	0					
8	Change	120	118	108	1.18	116	114	117	0				
6	Mainstreaming	120	118	104	117	118	109	115	116	0			
10	Influence	118	114	107	115	116	112	115	114	112	0		
Π	PA 198	120	611	104	116	118	113	119	117	116	112	0	
12	Helpful	119	117	109	118	116	112	118	117	116	110	116	0

APPENDIX E

KEY COMMUNICATORS: PAIR-WISE MMDS SAMPLE SIZES

Pair-Wise Sample Sizes: Time 1 Key Communicators

.

Con	cept		2	ς μ	4	5	9	7	8	6	10		12
-	My Job	0				-							
2	Child Centered	62	0										
ę	Stanse	74	70	0									
4	Mgt. Sys.	62	79	70	0								
ß	Efficient	61	77	63	73	0							
9	Sesa	77	76	64	75	73	0						
7	Planning	80	62	68	78	76	74	0					
8	Change	78	78	67	78	76	73	11	0				
6	Mainstreaming	80	78	61	75	76	72	77	72	0			
10	Influence	80	76	63	76	76	17	77	70	69	0		
Ξ	PA 198	62	78	62	77	76	73	76	73	74	72	0	
12	Helpful	80	75	63	11	76	۲	76	72	73	69	75	0

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Pair-Wise Sample Sizes: Time 2 Key Communicators

Con	cept	-1	21	m	4	15	9	7	ωI	6	01	=	12
-	My Job	0											
2	Child Centered	10	0										
e	Stanse	10	10	0									
4	Mgt. Sys.	10	10	10	0								
5	Efficient	10	10	10	10	0							
9	Sesa	10	10	10	10	10	0						
7	Planning	10	10	10	10	01	10	0					
8	Change	10	10	10	10	10	10	10	0				
6	Mainstreaming	10	10	10	10	10	10	10	10	0			
10	Influence	10	10	10	10	10	10	10	10	10	0		
11	PA 198	10	10	10	10	10	10	10	10	10	10	0	
12	Helpful	10	10	10	10	10	10	10	10	10	10	10	0

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Pair-Wise Sample Sizes.Time 3 Key Communicators

Con	icept		7	m	4	<u>1</u> 2	9	7	∞	6	10	=	12
-	My Job	0											
2	Child Centered	32	0										
ς	Stanse	33	32	0									
4	Mgt. Sys.	33	32	31	0								
2	Efficient	33	33	29	33	0							
9	Sesa	32	32	30	32	32	0						
7	Planning	33	33	30	33	33	30	0					
8	Change	33	33	29	33	33	31	32	0				
6	Mainstreaming	33	33	29	33	33	29	32	32	0			
10	Influence	32	32	29	32	32	30	32	32	31	0		
Ξ	PA 198	33	33	29	32	33	30	33	33	33	31	0	
12	Helpful	33	33	30	33	32	30	33	33	32	31	32	0

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APPENDIX F

NON-KEY COMMUNICATOR: PAIR-WISE MMDS SAMPLE SIZES

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Pair-Wise Sample Sizes: Time 1 Non-Key Communicators

Con	cept	-!	2	m	4	ای	<u>و</u>	7	ωI	6	01		12
-	My Job	0											
2	Child Centered	252	0										
e	Stanse	229	205	0									
4	Mgt. Sys.	248	229	196	С								
5	Efficient	244	232	168	224	0							
9	Sesa	235	224	181	199	200	0						
7	Planning	250	242	188	224	222	212	0					
ω	Change	247	238	175	227	228	209	233	0				
6	Mainstreaming	247	241	156	213	221	200	223	218	0			
10	Influence	245	225	177	210	216	208	225	220	208	0		
11	PA 198	248	242	175	221	221	207	228	231	219	216	0	
12	Helpful	244	230	169	219	226	206	229	224	219	217	231	0

Pair-Wise Sample Sizes: Time 2 Non-Key Communicators

Con	cept	-1	2	m	4	ای ا	او	7	ωi	6	01	=	12
-	My Job	0											
2	Child Centered	87	0										
Э	Stanse	85	83	0									
4	Mgt. Sys.	85	86	80	0								
ß	Efficient	87	85	73	80	0							
9	Sesa	85	84	78	79	78	0						
7	Planning	87	85	78	81	80	78	0					
8	Change	87	85	76	61	83	81	84	0				
6	Mainstreaming	87	84	73	11	80	76	80	79	0			
10	Influence	86	85	76	81	82	78	82	80	76	0		
11	PA 198	85	84	74	78	81	78	80	62	79	78	0	
12	Helpful	87	85	11	62	82	78	82	79	76	74	78	0

Pair-Wise Sample Sizes: Time 3 Non-Key Communicators

Con	cept	1	2	ကျ	4	12	9	7	∞ 1	6	10	=	12
-	My Job	0											
2	Child Centered	87	0										
ŝ	Stanse	83	80	0									
4	Mgt. Sys.	87	85	80	0								
2	Efficient	85	81	75	84	0							
9	Sesa	85	83	75	81	82	0						
7	Planning	87	86	11	85	84	84	0					
8	Change	87	85	6/	85	83	83	85	0				
6	Mainstreaming	87	85	75	84	85	80	83	84	0			
10	Influence	86	82	78	83	84	82	83	82	81	0		
11	PA 198	87	86	75	84	85	83	86	84	83	81	0	
12	Helpful	86	84	79	85	84	82	85	84	84	79	84	0

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