

UNIVERSITY OF DELAWARE
DISASTER RESEARCH CENTER

PRELIMINARY PAPER #29

ORGANIZATIONAL ADAPTATION TO CRISES:
MECHANISMS OF COORDINATION
AND STRUCTURAL CHANGE

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November 1976

Introduction

Much of social life is so structured that behavior occurs rather routinely. Most of the time, established and standardized procedures are followed, manifesting themselves in the habitual behavior of individuals and/or the traditional actions of groups. At times however internal and/or external factors generate enough stress and strain so that it is possible to think of responding entities as being in a state of crisis. Crises require the reworking of established and standardized procedures or the creation of new means as well as of organizations for carrying them out. In large part, the direction of response of groups and organizations is for certain aspects of emergent behavior to be combined with elements of routinized organizational behavior. (Dynes and Quarantelli, 1968; Brouillette and Quarantelli 1969; Dynes 1970)

This paper seeks to extend the explanation of these types of adaptation by using existing organizational theory. In particular it looks at the mechanisms whereby organizations are coordinated and shows how crisis situations produce certain structural modifications which have implications for coordination. The intent is to provide sociological explanations for what is traditionally described as emergent phenomena. It argues that much of what has been called emergent can be explained by (1) the heightened necessity for organizational coordination during crisis situations, (2) the conditions which make for changes in the

communication patterns within emergency organizations and (3) the consequences the changes in communication patterns have for organizational coordination. These changes can be explained using standard organizational variables which are applicable to a wide range of types or organizations and organizational environments, not just organizations in emergencies. After establishing that theoretical orientation, we will come back to its application in crisis situations.

Theoretical Orientation

The theoretical orientation used here was derived from Hage, Aiken and Marrett (1971), in which organizational coordination is related to the internal structure of an organization. It argues that the type of coordination predominant in an organization is determined by its diversity and its internal distribution of power and status. While the theory was originally tested in a non-disaster context, the types of variables specified are particularly significant in changes which occur in this crisis context.

One central concern in organizations is coordination. Coordination can be seen as the degree to which there are adequate linkages among organizational parts, i.e., among specific task performances as well as among subunits of the organization, so that organizational objectives can be accomplished (Hage, Aiken, and Marrett 1971).

Organizations can be coordinated by plan and by feedback. The former is based on pre-established schedules and programs directing and standardizing the functioning of organizations, while the latter is centered

in the transmission of new information so as to facilitate the mutual adjustment of parts.

The two types of coordination are based on different assumptions about the nature of conformity to organizational objectives. In coordination by feedback the activities of organizational members are seen as regulated externally by a system of rewards ensuring social control. If there is a clear blueprint for action, departures are obvious and sanctions can be applied with little ambiguity. In coordination by feedback errors detected in task performance are corrected by the provision of new information. Social control is seen as the result of internalized standards of professional excellence among the personnel brought about by occupational peer group pressures. In summary, coordination by plan relies on external control over organizational members while coordination by feedback is more dependent on internal control.

Clearly, these two types of coordination are ideal constructs. In reality, complex organizations use a mixture of the two. It is possible, however, to identify organizational variables which would be associated with one or the other mechanisms of coordination. Hage, Aiken and Marrett identify three: (a) uncertainty of tasks, (b) diversity, or the relative number of different occupations in an organization and their degree of professional specialization, and (c) the distribution of power and status within organizations. They argue that organizational coordination through feedback is more probable as the diversity and the variety and uncertainty of tasks increases.

In the former case no one standard set of administrative guidelines and sanctions can regulate the activity of professionals appropriately and entirely. The latter puts a premium on the rapid exchange of information among organizational personnel. The growth of the volume of information and its directional diversification, with horizontal communication increasing as a result of these changes, renders coordination via planning improbable.

One way to understand coordination by feedback is to see it as a process whereby a high volume of communication of information is processed relevant to the work of the organization. The feedback would involve information from different parts of the organization. Thus, factors which would increase the volume and direction of communication would increase the probability of coordination by feedback.

The probability of coordination via planning increases, however, with greater differences in power and status in organizations; the greater the hierarchical positional distance among personnel the less the extent of communication among them. External environmental factors such as homogeneity and stability are important determinants of internal structural variation. Previous studies would suggest (March and Simon, 1958; James Thompson, 1967; Perrow, 1967; Lawrence and Lorsch, 1967) that stability of environment leads to routine technology and coordination by plan.

To summarize, the following propositions are suggested:

1. The greater the diversity of organizational structure, the

greater the emphasis on coordination by feedback.

2. The greater the difference in status and power within an organization, the greater the emphasis on coordination through planning.

3. The greater the uncertainty of an organizational environment, the greater the emphasis on coordination by feedback.

Research on Organizational Behavior in Crises

The analysis of the activities of groups and organizations in crisis situations have predominantly centered so far on the notion of emergence. Initially, this was a reaction against the prevailing views of social structure, which were too static to capture the behavior which was observed in the field. Many organizational theories had as a focus some notion of bureaucratic structure where the organization was seen as an entity with clear cut boundaries, definite membership, formal roles, established lines of authority and specific tasks. This was too static a notion to describe organized behavior in emergency.

Dynes and Quarantelli (1968) derived a typology of group and organizational behavior in crises from a cross classification of the (a) nature of the disaster tasks undertaken by groups and organizations and (b) their emergency period structure. They identified four types* of group behavior:

Figure I. Types of Group Behavior in Disasters

		<u>TASKS</u>	
		Regular	Non-regular
<u>Structure</u>	Old	Type I (Established)	Type III (Extending)
	New	Type II (Expanding)	Type IV (Emergent)

These two key variables point to differences in emergency operations when some group tasks may be old, routinely assigned, everyday ones or, on the other hand, the tasks may be new, novel, assumed or unusual ones. In addition, some groups and organizations operate in the emergency with an old or existing structure in which organizational members stand in definite kinds of pre-disaster relationships with one another in reference to work, as opposed to those who operate with a new crisis-developed structure.

The typology has been useful to account for the admixture of institutionalized and non-institutionalized behavior observed in emergency situations. It has been used to discuss the mobilization and recruitment of these groups and to identify types of problems such groups experience in task accomplishment, communication, authority and decision making. (Dynes, Chap. 7, 1970). In addition, the types have been used by Quarantelli and Brouillette (1971) as a basis for indicating

what types of patterned variations occur in the adaptation of bureaucratic structures to organizational stress. They suggest that complex bureaucracies may exhibit all four patterns in a given situation. That is, some segments of it may operate as an established group while other segments may be involved as an emergent group with non-regular tasks. This is seen as a specific example of the debureaucratization process Eisenstadt (1959: 302-320) and others have described.

While the typology has been useful as an explanatory device, it is necessary to provide other lines of explanation for crisis adaptations, either between or within groups and organizations. The typology depends much on the notion of emergency of new structures and tasks as a major factor in these adaptations. The identification of emergence, however, without properly providing for some sociological explanation, often leads to the conclusion that while the behavior of established organizations can be explained sociologically, emergent phenomena cannot. Emergent phenomena are often treated as atypical and asociological. We now turn to emergence adaptations within organizations. Others have analyzed emergence adaptations at the individual (Kearney, 1972; Wolf, 1975) and group levels (Parr, 1969; Anderson, 1970; Forrest 1973; 1974; Teuber, 1973; Perry et. al., 1974).

Application of the Theoretical Orientation to Previous Conceptualizations of Emergence Adaptation in Organizations

The theoretical orientation presented here has certain implications for organizational functioning in crisis. In general, crisis conditions cause organizational structure to move in the direction of coordination

by feedback and away from coordination by plan. Moreover, crisis produces the conditions whereby the rate of communication increases as does the proportion of horizontal task communication.

Disaster creates extreme environmental uncertainty for organizations and thus makes coordination by feedback more probable. Too, the major variables used in the previous typology center around new tasks and new structures. Either the acceptance by organizations of new tasks or of new personnel, or both, creates greater organizational diversity, thereby making for the conditions for a greater emphasis on coordination by feedback. Also, a number of observers of emergency situations (see Dynes 1970) have commented on the status leveling effect of disaster. While this effect is often described as a community wide phenomena, it is also applicable within organizations where previous status differences tend to be minimized. In effect, then, all of the conditions and consequences of functioning of organizations during the emergency period tend to move toward coordination by feedback and away from coordination by plan.

Looking more specifically at the consequences of change in organizational structure and their implications for patterns of communication, all of the changes during the emergency period would seem to increase the rate of task communication and the proportion of horizontal task communication. The acceptance of new tasks or new structure would increase organizational complexity, decrease the degree of formalization and decrease the degree of centralization. These changes, which increase the rate and direction of communication, in turn would facilitate coordination by feedback.

While usually described simply as emergent phenomena, organizational adaptation in crisis contexts seem to be accounted for by rather standard sociological variables and relationships creating the conditions affecting organizational coordination. It is not by chance that Type IV in the typology is often illustrated by a group whose function is purely one of coordination. These factors also suggest the great difficulty of Type I (Established organizations) in maintaining their predisaster coordination structure, since it is usually coordination by plan. Coordination by plan characterizes many of the traditional emergency organizations, such as police and fire departments. This schema explains why such organizations often "refuse" nontraditional tasks in disaster situations and usually have great difficulty in utilizing volunteers. In effect, their predisaster model of coordination would not "allow" such changes. Rather than increase their capabilities to meet the increased demands, such organizations tend to accept only those demands which are within their present capabilities. With continuity of regular structure and tasks, such organizations are able to keep their previous coordination patterns intact. On the other hand, rejected demands by some organizations have to be absorbed by others within the community, and they are more likely to be effectively handled by emergent new groups or by those organizations which coordinate by feedback.

Established organizations experience organizational strain. When most of the organizations in emergency operations are moving toward coordination by feedback, established organizations are, in many ways,

"out of step." There is a discontinuity in their attempt to maintain internal coordination by plan when the conditions relating to the emergency period are such as to move most other organizations further toward coordination by feedback. Such a discontinuity, in turn, creates significant problems in the attempt of the community system to provide overall coordination.

In sum, then, the structural conditions of the emergency period make for uncertainty, diversity, decreased formalization and decentralization. These changes increase communication. The non-routine nature of disaster tasks and the increased complexity of organizations require coordination by feedback. These shifts have been traditionally described as emergent but now they can be explained as being conditioned by those sociological factors which affect coordination.

Implications for Policy

Research and conceptualization in organizational response to crises is one area which has rather direct policy implications. It is useful to make a note of an interesting paradox when the findings suggested here are compared with current policy with reference to emergency planning. In the United States, emergency planning is predominantly the responsibility of local government units. While it is somewhat diverse, there is great consistency in the direction taken by emergency planning. Most is oriented toward increasing the centralization of authority and the formalization of procedures. In other words, coordination by plan is considered to be normative. This mode of coordination is seen as most appropriate, since a military model of

organizational functioning in crises is assumed to be most effective for such circumstances. In addition, planning is directed toward the development of social control mechanisms, i.e., rewards and punishments, to implement this mode of coordination. These assumptions of emergency planning are seldom questioned, since many individuals engaged in such planning are recruited on the basis of their previous military experience or come from municipal agencies, which operate routinely by coordination by plan.

On the basis of what has been described here, the dominance of a normative planning model which emphasises coordination by plan is, at best, questionable. The crisis event itself creates the conditions where coordination by plan is inappropriate. This inappropriateness, however, is not likely to be challenged in post-disaster critiques of organizational functioning, because the norms used to judge organizational effectiveness are such as to lead to negative evaluations of organizations which utilize coordination by feedback. The tremendous increase in communication is taken as a failure of coordination, not as a condition necessary for it. While this is currently a widespread paradox, it does not have to be perpetuated. Emergency planning can also be directed toward improving and facilitating coordination by feedback, since it is likely to be the dominant mode in emergency conditions.

Notes

*Type I is an established group carrying out regular tasks. This is exemplified by a city police force directing traffic around the impact zone after a tornado has struck a community.

Type II is an expanding group with regular tasks. The group frequently exists on "paper," not as an ongoing organization prior to the disaster event, and would be illustrated by Red Cross volunteers running a shelter after a hurricane.

Type III is an extending group which undertakes nonregular tasks. This is illustrated by a construction company utilizing its men and equipment to dig through debris during rescue operations.

Type IV is an emergent group which becomes engaged in nonregular tasks. An example is an ad hoc group made up of the city engineer, county civil defense director, local representative of the state highway department and a Colonel from the Corps of Engineers who coordinate the overall community response during a flood.

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