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INTERORGANIZATIONAL RELATIONS AS STRUCTURE AND AS ACTION: THE CASE FOR EMERGENCY MEDICAL SERVICES IN DISASTER

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The study of interorganizational relations has come of age in the past twenty years. Early work by Selznick (1949), Thompson and McEwen (1958), and Dill (1958) has been developed and extended theoretically (Levine and White, 1961; Litwak and Hylton, 1962; Warren, 1967; Benson, 1975) and methodologically (Evan, 1966; Aiken and Hage, 1968; Turk, 1970). The past ten years have provided an explosion of new research (White and Vlasak, 1972; White, 1974). Recognition of the importance of interorganizational factors can be seen in its diffusion into the organizational (White, 1974) and community (Craven and Wellman, 1973) literatures. During the same period attempts were being made to consider the interorganizational as a social realm in its own right without anchoring research to internal effects on the participating organizations (Turk, 1970; Warren, 1967).

It is worthwhile to note three reasons why this perspective deserves the increasing attention of researchers. First, interorganizational relations are the basic arena for the exercise of power in our organizational society (Presthus, 1962). It has been observed that the basic unit of stratification in modern life is now at the organizational rather than the individual or family levels (Stinchcombe, 1965). The basic tool for accomplishment in modern urban society is the organization, whether newly formed or an enlisted existing organization. Significant social activities require the efforts, or at least the consent, of a large number of different organizations. Knowledge about such organizational interaction and its consequences is essential to an understanding of our organizational society.

Second, it seems apparent that concern by social researchers with communities, on the one hand, and organizations, on the other, omits too much of the significant activity in many sectors of social life. What goes on in the social activities of a community cannot be captured only by aggregate statistics and the activities of a few important organizations. The recent explosion of work on interorganizational networks (Benson, 1975), health care delivery systems (Baker and Schulberg, 1970), and organization sets (Ross, 1976) has illustrated some of the lacunae.

Third, the interorganizational level needs study in its own right, because it displays its own unique processes which differ from those at group and organizational levels. It is not comparable to the relations between departments in an organization, because there is seldom a common authority structure (Warren, 1967; Lehman, 1975). It is not comparable to small group situations with individuals, since organizations are special social units with activities and requirements which have no counterpart in the actions and needs of individuals (Blau, 1968; Stinchcombe, 1965). Different legal constraints exist, and the resource base and operating capabilities allow a much more flexible and innovative variety of relationships (Perrow, 1972). Turk (1970) examined a number of variables at the organizational, interorganizational,

and community levels to see how well they could predict inteorganizational integration. He concluded that interorganizational variables were the best predictors of interorganizational phenomena, and that addition of organizational and community variables does not significantly improve prediction from interorganizational variables alone. The implication was that the interorganizational realm exhibits its own processes which are relatively independent of other levels of social organization. The relative lack of research on the interorganizational realm is now being corrected (Lehman, 1975; Benson, 1975, Crozier and Thoenig, 1976; Wright, 1976).

Yet research at the interorganizational level poses special problems. The classic differentiation in sociology between structural and action perspectives is especially important at interorganizational levels, and choice of the proper perspective is crucial for understanding the dynamics of certain types of interorganizational situations. This paper explores the consequences of treating interorganizational relations as structure and as action by examining the characteristics and dynamics of a specific situation, the interorganizational response to mass casualty disasters. First, the structure and action perspectives on social organization are briefly discussed and then applied to the interorganizational realm. Second, the results of a recent interorganizational study of mass casualty disasters are presented. Finally, this research is interpreted in terms of structure and action and the implications for future interorganizational research are discussed.

Interorganizational Relations as Structure and as Action

In dealing with any collectivity of individual actors, it is important to be able to identify the locus for social action. It may reside in the actors themselves, or the collectivity may act as a whole. In the former case, the patterns of social relationship in the collectivity form a structure, while in the latter case, the collectivity itself is an agent of social action. This distinction can be traced back to Max Weber.

In The Theory of Social and Economic Organization (1947) Weber distinguishes between a "social relationship" and a "corporate group." A "social relationship" denotes "the behavior of a plurality of actors insofar as, in its meaningful content, the action of each takes account of that of the others and is oriented in these terms." (Weber, 1947: 118). The locus of social action rests with the individual social actors. A "corporate group" is a particular type of social relationship which has its order enforced by the action of specific individuals whose regular function this is." (Weber, 1947: 145-146). He adds: "Whether or not a corporate group exists is entirely a matter of the presence of a person in authority, with or without an administrative staff." (Weber, 1947: 146). This distinction is important because it underlines the difference between individual action in a social relationship and "corporate action" by a corporate group. "'Corporate action' is either the action of the administrative staff, which by virtue of its governing or representative authority is oriented to carrying out the terms of its order, or it is the action of the members as directed by the administrative staff" (Weber, 1947: 146). The difference is the imposition and enforcement of order on all members by designated individuals. The locus of social action includes the entire corporate group as well as the participating individuals.

In the analysis of social relations it is important to be able to distinguish between situations in which the collection of individual actors is only a social relationship and situations in which a corporate group exists. Analysis of corporate groups can capitalize upon the enforced order and deal with the situation in terms of action or goal-oriented behavior at the group level. In contrast, analysis of other social relationships must deal with the varying patterns of salient relations among the individual actors in the situation, which corresponds to analysis of social structure (Nadel, 1957). This distinction is important at many levels of social organization, but it is crucial at the interorganizational level. Interorganizational activities may vary from independent action to social relationships to corporate groups. This corresponds to Warren's (1967) discussion of the different degrees of vertical interrelation at the interorganizational level. He presents a continuum ranging from independent action, at one extreme, to centralized control in the manner of one super organization, at the other extreme.

The distinction between ordinary interorganizational relationships and interorganizational corporate groups is especially important because different analytical tools are required for each. If a collection of organizations interacting in a situation are identifiable as a corporate group, then the dynamics of the situation are best approached using an action perspective, such as general systems theory. If a collection of organizations interacting in a situation achieves only ordinary social relationship, then justice to the full situation requires a structural approach, such as network analysis.

The action approach to interorganizational activity can be identified with two past lines of research: organization-environment studies and interorganizational system studies. The organization-environment studies include studies of a largely undifferentiated environment (Emery and Trist, 1965; Terreberry, 1968) and studies dealing with other organizations as they affect the focal organization (Selznick, 1949; Thompson and McEwen, 1957; Dill, 1957; Evan, 1966, Thompson, 1967; Lawrence and Lorsch, 1967). In these studies the basic perspective is of a goal-oriented entity adapting to an environment in a manner analogous to an organism in an ecological habitat. The interorganizational system studies include Levine and White (1961), Baker and Schulberg, (1970), Turk (1973), and Crozier and Thoenig (1976). In these studies the organizations are combined into a coherent system which interacts with the larger environment, but the primary attention is an analysis of the division of labor, often focusing upon power and resources. In both strands of research the primary locus of social action is a corporate group.

The structural approach to interorganizational activity includes studies by Warren, (1967), Turk, (1970), and Benson (1975). In these studies the integration of the interorganizational realm is treated as varying across situations in matter of degree. Situations are characterized by their degree of integration (Warren, 1967; Turk, 1970; Lehman, 1975) or by the distribution of resources and power across the situation (Benson, 1975). The locus of social action remains with each of the individual participants. A corporate group of participating organizations is a rare occurrence and is not the focus of this analysis.

In the next sections the results of a study of interorganizational relations will be presented, then its implications for the distinction between structural and action analyses will be discussed.

Interorganizational Relations in Mass Casualty Disasters

There has been very little social science research on mass casualty disasters, with Rutherford's (1973) study of the Royal Victoria Hospital in Belfast being one of the few exceptions. In addition, some exploratory work has been done at the Disaster Research Center (DRC) (Drabek, 1968; Stallings, 1970; Quarantelli, 1970), and in the nineteen-fifties some descriptive studies were done by the Disaster Research Group (Raker, Wallace, and Rayner, 1956). These are still the best overviews of medical care in disasters. Published descriptions of planning and specific case descriptions abound in the medical literature, but they are largely of a personal anecdotal or exhortatory nature. Their lack of generality or polemic nature makes them relatively useless for social science research purposes.

Interorganizational aspects have been neglected in this literature and are touched upon briefly at best (Alter, 1970; Allenbaugh, 1972; Curry, 1969).

However, mass casualty disasters are particularly useful events to consider from an interorganizational standpoint for several reasons. First, health organizations have been intensively studied by interorganizational researchers in the past. Thus, the conceptual apparatus should be applicable, and other researchers should be familiar enough with the phenomenon to appreciate both the strengths and limitations of the study. Second, the medical area with its strong cultural priority on the alleviation of human suffering and prevention of loss of life offer a clearly defined task arena with strong consensus about what needs to be done and that it should be done. Third, the medical area is a fairly discrete institutional area with a well-known division of labor and a general public consciousness of the appropriate response by particular individuals or organizations. Fourth, mass casualty events necessarily involve several organizations which may not customarily deal with each other and often require existing relationships to be extended to cope with the new reality. This combination of the old and new introduces variety to the situational relationships which can be analytically fruitful.

The first goal of most organizations involved in mass casualty situations is to rescue casualties and to transport them to hospitals (Quarantelli, 1970). This provides a concrete focus for analysis, since the situation can be conceptualized in terms of the flow of casualties between organizations. Thus, a convenient way of analytically ordering the complex of activities in any mass casualty situation is to separate out three major subtasks: rescue, transportation, and treatment. The rescue subtask involves activities at the disaster scene itself. One finds actual search-and-rescue, victim identification, on-scene treatment, sorting of victims by seriousness of injury, and conveying victims to transportation units. The rescue subtask is typically carried out by fire, police, and bystanders and seldom by hospitals or ambulance services.

The transportation subtask involves activity such as site coordination of vehicles, destination allocation, routing, and actual carrying of victims to treatment centers. The transportation subtask is typically done by

ambulance services; however, on rare occasions, the large numbers of dispatched vehicles available to police and fire in major cities are used to supplement or replace the ambulance service response.

In terms of the treatment subtask, one may find efforts involving victim reception, medical sorting, application of treatment procedures, and ancillary activities such as security, traffic control, and public information. In American society, in normal life, most serious medical treatment occurs only at hospitals, and similarly in disasters, most effort is expended in order to get casualties to hospitals. Very little, and often no, treatment occurs prior to arrival at a hospital (Quarantelli, 1970).

The mass casualty interorganizational situation has four significant interacting constraints:

(1) Cultural values place a high premium upon urgency, and the task must be accomplished effectively as quickly as possible. The task has the highest priority of all in disaster situations, and an absolute minimum of time until full treatment is available is the taken-for-granted goal. Even when there is no medical reason for such urgency in individual cases, the general social pressure is to treat all victims with similar immediacy.

(2) Uncertainty of occurrence in space and time makes advance preparation, at best, difficult. In addition the relative rarity of these events often means that such preparations are not cost-effective and are thus vulnerable to budgetary cuts.

(3) Mobilization of organizational resources, therefore, tends to be dependent upon situational idiosyncracies mitigated, to a degree, by everyday organizational mobilization experience. The problems of organizational mobilization usually mean that the efforts of bystanders and the first organizations on the scene typically account for the bulk of the response, since most casualties are removed from the scene of a mass casualty disaster within one hour of the injury-inducing agent impact.

(4) Coordination of the activities of multiple organizations in each subtask is severely hampered by incomplete information, overloaded communication channels, and absence of pre-existing relationships for either communication or coordination. As a result, independent actions by participating organizations aggravate the situation, since they cannot be prevented.

A recent study of mass casualty disasters (Wright, 1976) focused upon the degree of interorganizational coordination present and examined the associated situational characteristics. The goal was to learn more about two alternative types of social coordination: centralized control and self-direction. Each type was identified with a particular model in the social sciences. The social system model was presented for centralized control, and the social network model for self-direction.

The social system model was based upon an organismic model of adaptation to an environment, and the social network model upon an analogy to a set of simultaneous equations. The social system model, with its emphasis upon cybernetic control and communication, focused upon the crucial processes associated with centralized control. The social network model, with its emphasis upon the delineation of intersecting relationships, offered an approach for studying the influence of crucial relationships on the outcomes of self-direction.

The models were applied to data from ten mass casualty situations which occurred in the continental United States between May 1, 1975 and May 1, 1976: four transportation accidents; three tornadoes; two explosions; and one poison gas exposure. The primary data source was 160 tape-recorded in-depth interviews with key personnel in organizations handling more than ten percent of the casualties. In addition to the interviews, over 110 documents and over 40 sets of observations were obtained.

The ten mass casualty incidents included three centralized responses, five self-directed responses, and two intermediate responses displaying other-direction without centralization. A simple tabular analysis was performed in order to discover situational factors which strongly differentiated between centralized and self-directed types. Five clusters of situational variables were found which polarized, in a consistent fashion, between the two types of responses: task magnitude; resource complexity; interorganizational expertise; response complexity; and response effectiveness.

The magnitude of the task, as reflected in the total number of injuries and also in the number of persons treated and released by the hospitals, was related to the type of the response. As the magnitude of the task increased, network responses occurred more often and system responses occurred less often. The complexity of the resource base, whether measured by number of organizations, organizational facilities, or population size, and interorganizational coordination expertise, whether measured at the organizational or interorganizational level, were related to the type of response. As the complexity of the resource base increased, network responses were more common and system responses were less common. As interorganizational expertise increased, system responses occurred more often and network responses occurred less often. The complexity of the response, in terms of used resources, was related to the type of response. As the interorganizational complexity of the response increased, network responses became most common and system responses became rare. Response effectiveness was high for system responses, since there was no hospital overload and severity allocation was good in all cases. Network responses were sometimes good and sometimes poor, depending upon fortuitous circumstances. System responses thus were more likely to be effective than were network responses.

Perhaps the primary findings of this study are that both types of coordination occurred and could be discriminated in terms of both effectiveness of results and situational determinants. In addition, the suggested models seem to be clearly applicable to the situations associated with the appropriate type of coordination. The analogy to an organism in an environment seems particularly useful in situations characterized by the use of available coordination expertise to accomplish a straightforward task by centralized control. The social system model, with its emphasis upon cybernetic control and communication, offers an approach which focuses upon crucial processes and mechanisms which are likely to be present in the situation.

The analogy to a set of simultaneous equations which are necessary to resolve the complex interplay of contextual effects seems to capture situations characterized by self-direction in the face of complicated tasks or lack of coordination expertise. The social network model, with its emphasis upon the delineation of intersecting relationships, offers an approach which focuses upon the interaction between crucial relationships as a way of ordering an unclear situation.

Conversely, it is apparent that the social network model is of little use in explaining centralized coordination. Centralized control tends to overwhelm the other contextual effects to such a degree that a detailed look at this relationship alone offers the best explanation of the phenomena. Similarily, the social system model has little or no applicability for self-direction situations due to the lack of coherence, which would make an organismic analogy useful. The localized effects of various relationships, without the ordering influence of one primary relationship, makes the analysis of contextual effects much more productive than search for weak or undetected coherence.

Discussion and Research Implications

It is readily apparent that the two polar types of social organization used as models in the described study correspond quite closely to Weber's social relationship and corporate group. Centralized control is one of the identifying criteria for Weber's corporate group, as it is for the cybernatic system. Absence of such an imposed ordering leaves only a Weberian social relationship, as it also produces a social network. If the discussion stopped here, very little would be added to the distinctions made by Weber over 50 years ago. However, the reported research extends Weber in two ways.

First, not only were the two polar types of interorganizational activity distinguished, but they were also tied to the occurrence of very different constellations of situational characteristics. Thus, system and network, or social relationship and corporate group, are significant

alternative forms of interorganizational relationship. In addition, discussion of the exact nature of the differences in constellation can provide important explanatory material on the reasons why the situation was organized in the one fashion rather than the other.

Second, each type of social organization was tied to a specific analytical technique which addressed the most salient issues for that type of social organization as opposed to the other. Systems theory offered the best conceptual articulation to deal with the centralized control of the social system or Weber's corporate group. Network analysis offered the most useful methodological and conceptual tools for coming to terms with the self-direction of the social network or Weber's general social relationship. The choice of descriptive terms for the models used in the research was not accidental. Rather it was anchored in the recognition of the proper analytical technique, in an effort to avoid the confusion resulting from casual selection of the terms "system" and "network" in an almost interchangeable fashion to describe any type of interrelated social organization. Grounding the descriptive terms on the anticipated or established social organization and its corresponding conceptual analysis is a more serviceable approach.

Analysis of mass casualty situations was comfortably grounded in an action approach for the centralized control of social systems and a structural approach for the self-direction of social networks. The mass casualty situation was treated as one social relationship which sometimes achieved centralized control, becoming a corporate group and extending the locus of social action, and which sometimes remained at the self-direction level, staying an ordinary social relationship with the locus of social action resident in the participating social actors which, in this case, were themselves corporate groups or organizations. However, intermediate cases were found in the research and have been discussed in the interorganizational literature (Warren, 1967; Turk, 1970; Crozier and Thoenig, 1976). This intermediate grouping between total self-direction and total centralized control is the most difficult to study, yet it is probably the most common type of social organization. Structural analysis, rather than action analysis, and network analysis, rather than systems theory, seem to offer the most useful handle for approaching these phenomena. In any case, the study of these intermediate groupings between self-direction and centralized control promises to be the next exciting area for interorganizational research development.

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