There was a considerable amount of behavioral trial and error and improvisation in what organizational officials attempted in the immediate periods after the two earthquakes. To be sure, there were at times efforts to obtain directives and guidance from traditional sources within organizations which would have been used on an everyday basis. But such attempts were not often successful. This often led then to initiation of considerable communication within and outside the organization in an attempt to obtain relevant information. In turn this led to decisions being made and actions being undertaken which were frequently rather untraditional for the officials and organizations involved. Put another way, while everyday bureaucratic norms and expectations were not totally put aside, deviations from the usual when necessary were undertaken to cope with the perceived turbulent changes in the social environment.

How key organizational officials reacted in the Mexican earthquake is generally consistent with most of the relevant research literature (Dynes, 1987; Mileti and Sorensen, 1987; Quarantelli, 1988). Role incumbents can be expected to do their jobs, although in many cases there will be as there was in Mexico City, some psychological role strain. Role conflict will be behaviorally resolved in favor of the organization (see Dynes and Quarantelli, 1986). Officials in bureaucracies at least temporarily will change their work role behavior in the direction of more adaptive courses of action. Even bureaucrats and bureaucracies, at least at the height of the emergency period, will modify their behaviors in attempts to cope with a crisis occasion.

From a practical viewpoint, the observations in Mexico City are reassuring. Even without disaster planning, it can be assumed that at least key organizational personnel will generally do their jobs and adapt to the crisis setting. Good disaster planning, however, could serve to reduce some of the psychological or role strain that frequently occurs to such role incumbents in disasters. Similarly, even bureaucratic officials will often attempt to innovate in the face of group needs. But again good planning could teach officials how to improvise. Such planning should follow the model not of a script or a blueprint (where particular courses of action are specified) but of a map which usually shows a variety of different ways to go different places.

At a theoretical level, our finding indicates a need to better clarify the relationship between role incumbents maintaining their old roles and innovating new ones. As one summary of research results mostly from DRC studies concluded:

...it has been found...that the less an organization has to change its predisaster functions and roles to perform in a disaster, the more effective is its disaster response.
In essence, organizations whose daily operations can be switched to the topic of the emergency at hand do better than organizations who must adopt new operations:

but the authors go on also to note that:

Organizations which are better able to vary from standard operating procedures during the disaster are typically more effective than those who cannot be flexible...An organization which is rigid in structure...has a difficult time dealing with the uncertainty of disaster...and adapting to its needs...to meet the challenge of performing new roles (Mileti and Sorensen, 1987: 20-21).

Just as we require a better understanding of the relationship between preparedness and emergence, we also need to obtain a clearer picture of the relationship between maintenance of traditional work roles and innovating on those roles in an emergency situation.

5. There were organizational changes in disaster preparedness planning in the aftermath of the earthquake.

There have been relatively few studies of organizational change in the aftermath of disasters (Stallings, 1987: 253). But to the extent research exists, it shows that rarely has there been "organizational learning" which has led to structural and/or functional alterations with respect to preparedness planning. The literature indicates that after a major disaster, organizational officials frequently talk about the need to institute or change the planning of their group. However, in the long run, few changes in either structure and/or functions are permanently instituted. (see, Adams, Stallings and Vargo, 1970). It is even rarer for a new disaster oriented organization to be created. There are exceptions to be sure (see Anderson, 1969a; Forrest, 1979), but on the whole organizational change is not usually a consequence of a disaster.

In Mexico, in the aftermath of the earthquake the need for having overall disaster planning and improving the specific preparedness planning of particular organizations, was voiced. But contrary to the typical post recovery situation, major changes were instituted.

...the Government undertook to enhance countrywide the static prevention of losses from earthquakes and hurricanes, as well as from other hazards by ordering a rapid updating of building codes in all 32 States in accordance with the latest results of engineering research in Mexico and aboard.
Within a month of the 1985 earthquake an Emergency Building Code was adopted for Mexico City. By late 1988 draft codes had been prepared for all other States under the coordination of a National Coordination Committee (Jakob, 1989: 3-4).

Concurrently, a National System of Civil Protection was projected and provided with a coherent institutional and legal framework. In fact, not only was a new organization planned, but actually established, as indicated in the following:

a working group...was set up in 1986 with the specific objective of defining the institutional and operational conditions requiring the creation of...a national civil defense system. Early in 1989 the works done by this committee led to the present administration's decision to create within the Department of Interior...a Directorate specifically in charge of all matters of civil defense...The responsibilities which this new entity has been assigned, are--first--to prepare and/or help prepare appropriate and institutionally and technically coherent policy approaches to problems of hazard prevention and mitigation at the level of Federal, State and local governments, and--second--to oversee and where necessary, ensure interinstitutional coordination of all activities related to mitigation and emergency assistance in the case of occurred disasters. To this effect, this entity would in particular be in charge of ensuring the compliance with civil defense requirements of new public and private industrial, commercial, social and residential investment, preparing contingency plans for hazardous industrial plants, and assisting public and private sector entities in establishing guidelines for emergency situations (Jakob, 1989: 5).

Organizational modifications were also instituted at below the federal level and within the private sector. For example, specific groups such as the Red Cross and the metro system changed the disaster preparedness stance of their agencies. In addition, new interorganizational linkages were created for purposes of disaster planning.

From a practical point of view, our observations that post recovery organizational disaster planning can occur, is encouraging. It indicates to those officials and those organizations who are
interested in change, that it is sometimes possible to alter predisaster structures and functions. The research literature is replete with admonitions for planners and operational personnel to take "advantage" of a disaster situation to bring about alterations and modifications that will improve the planning in place. The Mexican example shows that a window of opportunity provided by a disaster can be sometimes used. Recovery measures can be employed for mitigation purposes.

From a more theoretical viewpoint, the organizational change that did occur after the earthquake suggests that there is a need to better understand what will activate a "political will" to do something. It has long been known that simply having an experience of a disaster does not in itself create the sufficient conditions to generate changes in community and group structures and functions (Weller, 1974). Stallings points to one possible initial point of attack on the problem:

Environmental variables are the key to explanations of organizational change whether short-term, temporary alterations or longer-term, permanent change...rational adaptation theory...posits that organizational change in the form of internal structural adjustments is the result of deliberate human decisions intended to better position the organization in its environment (Stallings, 1987: 241).

But if this is so, we need to learn more about the specific political circumstances which are required to alter system and organizational aspects in the way they did in Mexico.

The organizational changes at the national level and how successful it will be was not a concern of our study. But that the process is necessarily a slow and difficult one is partly illustrated by one of our earlier reported findings about individual behavior in response to the earthquake, namely that knowledge about the new disaster organization and what it did was very vague among the residents of Mexico City. This observation also suggests that while analytically individual and organizational behavior can be separated, there is often a connection between the two levels of behavior.
Individual Behavior

We will discuss that:

(1) there was heavy dependence on mass media accounts for news and information about the disaster;

(2) little dissatisfaction was expressed with the organized response to the earthquake;

(3) dissatisfaction did not increase in the following year;

(4) even the well noted problem of sheltering was not a source of dissatisfaction; and.

(5) victims did not learn much from the experience of the earthquake.

1. There was heavy dependence on mass media accounts for information during the emergency period.

By almost any criteria that could be used, the population of Mexico City turned very extensively to using the various mass media sources available right after the impact of the disaster. Audience numbers were massive and the amounts of time given to attending to the mass media depiction of the earthquake was equally impressive. It almost appears that at certain hours in the first few post-impact days that except for those directly responding to the effects of the earthquake (such as those engaged in search and rescue, or victims moving to the homes of their relatives), practically everyone else was listening to a radio set, watching a television screen, and/or reading a newspaper. In one sense of the phrase, there was a "mass assault" on the mass communication outlets in the metropolitan area of Mexico City. Furthermore, there were relatively few complaints and little dissatisfaction expressed about the media coverage of the disaster and their depiction of events.

These observations on media use document what up to now has mostly been derived from anecdotal kinds of impressions rather than from systematic empirical data (as noted in a state of the art review by Kreps, 1980, but for research since that review that has looked at audience behavior see Ledingham and Massel-Walters, 1984; Beady and Bolin, 1986; Perry and Mushkatel, 1986; Mikami and Hashimoto, 1990). Furthermore, on the whole, the population of Mexico City seemed generally satisfied with what they obtained from the mass media sources in both the short and long run—a matter about which the general research literature has little evidence (Quarantelli, 1989: 15) although some Japanese studies have attempted to ascertain the views of the audience with regard to what the mass media provided in disasters (see a forthcoming volume to be edited by Quarantelli and Japanese colleagues). In fact, if anything, there has been the implication in the literature that the public is negative over some of the mass media content produced in disasters (see summaries in Drabek, 1986: 166, 336-338).
From an operational or practical viewpoint, it seems that it is possible in certain crisis situations for the mass media to provide disaster content which the general population does not find wanting. Unfortunately, since in the main we could not do any content analyses of what was reported, we can make no direct link between the overall satisfaction expressed and what was actually broadcast, telecast or printed. However, this case does illustrate that disaster planners and managers probably should not have any doubt that those who experience a major disaster will turn, if it is functioning, to the community mass communication system.

The theoretical understanding of mass communications in disasters is uneven and incomplete (see Walters, Wilkins and Walters, 1989). There is some knowledge of how the mass media system and the organizations within it operate (for a report on recent and very systematic research on the activities of mass media organizations in disasters see Wenger and Quarantelli, 1989; for an empirical study on the Loma Prieta earthquake, see Rogers, Berndt, Harris and Minizer, 1990). Our Mexico study has contributed to an understanding of the mass communication behavior of individuals or audiences in disaster occasions. What is now needed are models which will link the two, that is, the behavior of mass communication organizations and the behavior of audiences of mass media systems.

2. There was little dissatisfaction expressed with organizational efforts during the emergency period.

The Mexicans in our survey did note there were a variety of problems or difficulties in the immediate and longer post disaster organized efforts to cope with the earthquake. They did not perceive or assume that everything was perfect; far from it. But what stands out is what might be called an unwillingness to particularly blame any officials and/or groups for failures to solve the problems or inability to handle difficulties. This was true whether perceptions and evaluations were of the general organized response of the activities of specific organizations or particular tasks.

We should also note that two surveys confined to impacted neighborhoods carried out by Mexican public health authorities within 30 days after the earthquake reported similar findings to ours. Thus, they (Cervantes, Carrillo and Cejudo) write in an English abstract of their work that while respondents reported many problems such as with the water supply and that an intense migration of inhabitants took place with an initial concentration of the population in less damaged households:

both official and private actions were generally considered efficacious in solving the immediate needs for food, medical care, and provisional housing (1986: 536).
Such a lack of complaining about the formal organized efforts to cope with a disaster is not consistent with much of what is reported in previous research. A general theme in the literature instead is that in the post impact period (and sometimes even going back to organizational behaviors in preimpact times) there often are complaints and condemnations about what was done or not done, and frequently specific organizations are singled out unfavorably (e.g., in the 1960s the American Red Cross was in many disasters very negatively evaluated for its shorter run organizational performance; see Taylor, Zurcher and Key, 1970—for a more positive evaluation at the present time of it and many other responding groups see Rossi et al., 1983: 165). In Mexico even though several organizations carried with them into the earthquake period a negative preimpact popular assessment, there was not a great unfavorable evaluation of both immediate and longer run performances (at least in percentage terms).

Also, in the immediate aftermath of the earthquake, there was considerable speculation about possible political implications. Such thinking was not inconsistent with what we summarized about earlier literature on the Mexican political system. There was some thought that the earthquake might lead to a period of political instability with the worst scenario suggested modeled after the ouster of Somoza in Nicaragua after the Managua earthquake. There were also speculations that the personal style of the President of Mexico which differed from the style of "traditional" politicians would not fit the demands made on the top governmental position at the time. But out survey data clearly shows the very positive evaluation which the President was given in the emergency period and which was still present a year after the earthquake.

At the very least, the study in Mexico indicates that it should not be automatically assumed that when there are organizational problems in dealing with disaster response, there will be very negative evaluations of the involved groups. Of course, this observation raises perhaps more important questions: what are the conditions which will generate such a reaction in a population, and will kind of reaction by individuals be found in all societies? These are issues which we will address later in our discussion of the general applicability of our findings in the Mexican earthquake to other disastrous social occasions as might occur in the United States.

3. There was no noticeable increase in dissatisfaction with organizational performance during the year following the earthquake.

Apart from the matter of relative absence of complaints about the organizational response as just discussed in the previous thematic finding, it was also noticeable that there was no general increase in negativism about problems through time. It might be
understandable that victims could ignore the many problematical aspects that arose right after what might be considered a rather unexpected disaster, but this attitude of insouciance would seem less likely if problems persisted or emerged in the later recovery and reconstruction periods. But in the Mexican earthquake aftermath, there was no noticeable increase in the perceptions of problems or in the evaluations of how they were generally handled. The "bitch phase" in the recovery phase as some have phrased it (Drabek, 1986: 229) did not appear. In fact, with respect to some problems, there was more positive evaluations of how they were handled a year after the disaster than immediately afterwards.

The prior research literature suggests that while there might be a high degree of social consensus and community solidarity at the emergency time period of disasters, in the longer run a more negative converse reaction will appear (Quarantelli and Dynes, 1976; see also Form and Nosow, 1958: 118; Bates et al., 1963; and Mileti, Drabek and Haas, 1975: 107). To some extent the political demonstrations that occurred in Mexico City in the weeks and months following the earthquake seemed consistent with the idea that there will be a post recovery time period increase in attribution of problems, a growing disillusionment with the assistance provided, and/or the emergence of a conflict orientation. However, our survey data failed to find that in the population as a whole that there was in the recovery period the development of many negative or unfavorable attitudes, major disappointments with how earthquake related problems were handled in general, and/or the assignation of blame for the problems on something or someone.

However, we should note that perhaps there were some longer run and indirect political "effects" of the earthquake. In the 1988 elections in Mexico City, for example, the candidate for the governing party (PRI) lost in a middle class district located in one of the areas most affected by the earthquake, and the PRI lost Mexico City in the Presidential election to an opposition candidate (Davison, 1988:11). It could also be argued that while the disaster may not have created more opposition to the government, it may have reinforced those segments of the population, especially from the middle classes, who were already unhappy with the political situation prior to the earthquake. It should be noted that recent social science analyses, while indicating that the 1988 Mexican Presidential election was a turning point in electoral politics and the start of a new political era, the voting patterns manifested were merely continuations of long existing trends in Mexican society (see Butler and Bustamante, 1990).

While the empirical findings are a clear indication that individual negativism or unhappiness will not automatically appear in the recovery stage after the so-called "honeymoon" phase of a disaster impact, the possible longer run consequences do raise the interesting question of why and when it will occur. We will discuss two of the more obvious possible answers in the next
chapter, when we will consider if sociocultural factors made the population fairly accepting of whatever occurred.

From a more theoretical point of view, the Mexican City earthquake does suggest that there may be more of a connection between the political context and the governmental response in a disaster than researchers in the United States have explicitly acknowledged. We need better theories that will force us to view disasters and responses to them in the political context of the societies in which they occur. This of course is a theme of some European disaster theorists who have criticized the empirical work undertaken in the United States (Schorr, 1987); actually the same point has been made even in the northern part of the North American continent (see Brown and Goldin, 1973; Taylor, 1978).

4. Although the problem of sheltering was massive in scope, there was little dissatisfaction concerning the matter.

Our survey data indicated massive movements with respect to sheltering and housing. Not only were evacuees (and others who moved) absorbed into the homes of kin, but they were housed for relatively long periods of time. Particularly noticeable also was that there was little expression of overt dissatisfaction by either the large numbers of movers or the households which received them. Most of those involved in the Mexican situation seemed to treat the whole process with considerable equanimity.

The previous literature indicates that while those forced out of their homes by a disaster will initially be taken readily into the houses of relatives and friends, there is a strong tendency for the welcoming attitude to wear out relatively quickly (see Quarantelli, 1984c). This has been observed as far back as the studies done on long run evacuation in the Holland flood of 1953 (Lammers, 1955). This does not seem to have occurred in Mexico. Furthermore, friends and public agencies in Mexico City as compared to relatives appear to have played a lesser role in sheltering and housing than has been suggested in the literature (e.g., "The more severe the impact of a disaster on a family, the less likely will that family rely solely on extended kin for recovery aid", Bolin 1976: 275; also Bolin and Bolton, 1983).

We have additional confirmation in this study that victims of disasters, if necessary, will find their own housing. But we suspect that the atypical lack of complaints all around about the situation may stem from two factors somewhat specific to Mexico. There is a severe housing shortage in Mexico City on an everyday basis and apparently people are used to having to help out family and kin on that matter. It is also possible that the relatively easy acceptance of what could have been a major source of problems and derivative difficulties has to do with certain sociocultural values in Mexican society, a point we shall discuss again later in
the section of the report on the applicability of these findings to possible similar situations in the United States.

5. Individuals did not learn very much on how to prepare for future disasters from their experience of the earthquake.

At a superficial level, residents in Mexico City appeared to have somewhat learned from the experience of the earthquake on how to prepare for and react in future disasters. But in reality we could see little evidence that much of relevance had actually been incorporated into everyday personal and household behaviors. Even knowledge of what the government had done by way of preparedness for future disasters was also almost nonexistent. Certainly there was no noticeable tendency to leave the area which was recognized as dangerous.

This general lack of learning by individuals is an observation fairly consistent with what has been previously reported in the literature, although the year long period we studied is by far a much longer time span than has usually been examined in most other research (see summaries of studies in Drabek, 1986: 349-360). That disaster victims will remain in an endangered area has also been long recognized (White, 1974). While some relevant disaster related preparedness learning does sometime occur, it is relatively rare (except for the learning of cues that might indicate the possibility of the future occurrence of a similar disaster event). Therefore, it would appear probable that just as organizations usually seem to learn very little from only the experience of undergoing a disaster (see Warheit, 1968; Anderson, 1969a), so do individuals also fail to learn lessons for future preparedness if that is all that happens.

While the thematic observation stated here is not new, it was derived from a far larger than usual disaster where a possibly different result might have been anticipated. But it seems that just as the dramatic nature of a disaster is not enough to occasion learning, neither is a bigger disaster per se likely to do so. This reinforces the need to examine further why a disaster experience contributes so little to personal learning. Our major hypothesis drawn from DRC studies of organizational learning is that actual experience needs to be reinforced by a supportive and directive social context (see Ross, 1978). If this proposition is validated by further research, it will give to disaster planners some guidance on how they could build upon the experience of citizens in community disasters to better prepare for future ones. There is little in what we found in our Mexican study to encourage planners and managers to think that if people in their localities undergo a disaster, they will automatically be better prepared for future ones (in fact, there is the possible dysfunctional consequence of a "near miss", having survived a disaster there may be the feeling that there is no great need to prepare for another one).

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