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HUMAN BEHAVIOR IN
THE MEXICO CITY EARTHQUAKE:
SOME IMPLICATIONS FROM BASIC THEMES
IN SURVEY FINDINGS

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Introduction

In September 1985 a major earthquake hit Mexico, especially its capital city. In the metropolitan area of Mexico City thousands of persons were killed and tens of thousands were injured. At least a hundred thousand building units, mostly residential ones, were damaged in some way. Hundreds of thousands of the population were rendered homeless. Material and property losses amounted to billions of dollars. Most of the important federal governmental buildings, many financial and industrial offices, key communication centers, and the largest central district hotels were in the major impacted zones. In addition, 30 percent of hospital beds in the city were lost as well as 22 percent of school facilities, and more than 10,000 shops and factories were affected. Obviously all of this considerably disrupted everyday life in the largest urban complex in the world. Thus, what happened by an criteria was a major disaster although perhaps not a catastrophic one given the population base and community resources involved (e.g., the residents in the metropolitan area number over 20,000,000 and the directly affected neighborhoods amounted to only 3.2 percent of the whole federal district).

The Disaster Research Center (DRC) in collaboration with Mexican colleagues undertook field research on social aspects of this occasion. With the considerable assistance of staff members from the Instituto de Investigacion de la Comunicacion (a survey organization) and from the Facultad Latinoamericana de Ciencias Sociales (FLACSO), DRC carried out an extensive study of individual and organizational behavior during the emergency period of the earthquake and in the year afterwards. A major volume summarizing all the research results is in the process of being issued by DRC (see Quarantelli et al., forthcoming).

The Population Surveys Undertaken

In this paper, we summarize only some of the research findings about the behavior of the residents of Mexico City. Data about individual behavior were primarily obtained through two major population surveys, one conducted within three weeks of the earthquake and the other about a year later. These surveys were carried out in the field by the Instituto de Investigacion de la Comunicacion; DRC assisted in developing some of the questions used, undertook detailed analyses of the data, and is responsible for the findings reported in this paper.

The initial survey was conducted during the first week of October 1985 (less than three weeks after the earthquake). A total of 567 randomly selected respondents, but stratified with respect to gender, age and socioeconomic status, were interviewed. The sample is statistically representative, with a margin of error of three percent, of the population in the metropolitan area of Mexico City.

Topics covered in the survey included: how well the government handled a dozen major earthquake related tasks such as search and rescue, the feeding of victims, the sheltering of the homeless, and the providing of information, etc.; usage of the mass media and attitudes about the reporting of the disaster; perceptions and evaluations of the actions of the Mayor's Office, the military, the police, the President of Mexico, and volunteers following the earthquake; disruptions of services and damages to homes as a result of the disaster; what earthquake occasioned problems should have priority for action; and what kind of volunteer work the respondent did in the trans- and post-impact period of the disaster. Also, each of the 567 respondents were treated as informants for certain purposes. They were asked to provide information on earthquake related activities of every member of their household. Therefore, information was available on the extent and nature of volunteer activity for a total of 2,965 individuals. The usual demographic survey background items were obtained for all respondents.

A year later, in 1986 another population survey was done. A total of 749 persons, sampled in the same way as indicated for the earlier survey, were interviewed. Topics covered included the following: the longer run problem brought about by the earthquake; whether the respondent provided and/or obtained housing and sheltering as a result of the disaster as well as the nature and duration of that kind of assistance; perceptions and attitudes regarding how the government generally and specific agencies (e.g., the police, the Red Cross, the Health Secretariat, etc.) had handled earthquake related problems; what had been individually learned from the experience and the knowledge that existed of disaster planning; comparisons of the handling of immediate post impact problems and later ones; evaluation of earthquake related tasks such as the handling of foreign aid assistance, the reconstruction of hospitals and schools, the restoration of the water service, the demolishing of damaged buildings, the providing of shelters and housing for the victims, etc.; the nature and duration of any volunteering action undertaken; and some of the consequences of the earthquake on pre-existing social problems in the metropolitan area, as well as the usual demographic survey background items.

The data results of both surveys, question by question, were extensively and statistically analyzed by DRC staff members. However, in this paper we set forth the more general conclusions or themes that cut across a number of our particular empirical findings. In the process some implications, both of a theoretical and practical nature, are noted. We also briefly consider the extent to which the research results from Mexico might be valid in other societies.

The Basic Themes

1. Small, even minuscule percentages, translated into large or huge absolute numbers with respect to personal behavior in the earthquake situation.

While this possibility is a very logical one, the findings from this study dramatically illustrate the importance of the point in very concrete terms. Perhaps only one percent of people did or thought something, but that meant several hundred thousand individuals reacted in the same relative way. To focus only on percentages or only on absolute numbers will convey radically different pictures of the situation.

In the main, this is not an observation that has been often made in the past. Only rarely have disaster researchers noted the possible theoretical insignificance but operational importance of small percentages (see, Quarantelli, 1985; 199-200). We can see that this can be true in two ways. One, as in the Mexican situation when the base number is very large, even tiny percentages that are by explicit criteria statistically or theoretically unimportant can extrapolate to very large absolute numbers (e.g., only about 9.8 percent of the residents ever volunteered in any way in the three weeks after the earthquake, but that translates into over 2,000,000 volunteers!). The other instance is when the absolute number is itself relatively low, but because of cultural values involved the phenomena can become important for symbolic reasons (e.g., burying the dead properly, see Blanshan and Quarantelli, 1981; treating the seriously wounded quickly, see Quarantelli, 1987; protecting children, etc.). The study in Mexico City suggests that those who study disasters ought to consider more seriously, than they have tended to have done so far, those findings which are not significant in for most theoretical and research purposes, but which can otherwise be very important.

In fact, there may be a very important practical implication in this thematic research finding. It is that the discrepancy between statistical percentages and absolute numbers with respect to behaviors of individuals may become progressively more important, the larger the disaster as well as the larger the population base involved. In a small size (impact and population wise) community disaster--the occasion which is the mode in the studies undertaken in the United States (see the Inventory compiled by Quarantelli, 1984a)--the absolute numbers for much behavioral phenomena may actually involve only literally a handful of people. It is easy therefore to ignore such a possibility in disaster planning and not to notice it in the managing of the more typical kind of community disaster. However, if the disaster is very large and in a densely populated area, the matter will have to be operationally addressed both in preparedness planning and disaster response.

2. The social class or socioeconomic status of persons was a rather consistently differentiating factor in the behavior of persons in the disaster.

If there was one background factor in both surveys that stood out, it was social class. It affected a wide range of phenomena, for example, from the degree of initial earthquake impact that was suffered (e.g., middle class individuals were relatively more impacted than were lower class individuals) to how the individual felt about a variety of disaster related tasks and activities that the government had undertaken during the year (e.g., upper class persons tended to be more critical than lower class respondents). While socioeconomic factors were not important in everything, they seemed to differentiate to a degree on most matters.

In one sense the observation that social class was an important differentiating factor should have, at least for sociologists, almost been expected. However, socioeconomic differences conceptualized in any of the variety of different ways social scientists conceptualize them (e.g., Gilbert, 1982; Kerbo, 1983; Rossides, 1976; Wright, 1985) have almost never been up to now incorporated into studies by disaster researchers, at least by those from the United States. In fact, Taylor notes (1978:276) that it is probably a valid criticism that the research "has been primarily undertaken on white, middle-class persons and groups." (For the rare exceptions regarding social class, see, e.g., Drabek and Boggs, 1968; Turner, 1976:182-183; and Quarantelli, 1980:126). Reconfirming this, Drabek (1986) in his recent inventory of the literature cites only about a half dozen studies that use socioeconomic variables in their data analyses. While some foreign theoretical criticisms of what has been called the North American disaster research tradition have alluded to the lack of socioeconomic factors in the studies done (see for example, Schorr, 1987, for summaries of this point of view expressed by German critics), very few studies done anywhere have used social class as either a descriptive or analytical variable.

The Mexican study clearly suggests that much more attention ought to be paid to social class differences among victims, again for both theoretical and practical purposes. From a theoretical point of view, using social class differences both descriptively and analytically should provide a much more powerful research variable than standard demographic dimensions such as sex, age, education, occupation, etc., which are not as intrinsically sociological as the socioeconomic status of the person. From a practical viewpoint, for example, emergency managers who have a homogeneous social class population may have rather different sets of disaster related problems of a social nature to deal with, than those in a community with a very heterogeneous social class composition.

3. Individuals expressed relatively little dissatisfaction with both the short-run and long-run organizational efforts to deal with the earthquake consequences.

The Mexicans in our surveys did note there were a variety of problems or difficulties in the immediate and longer run 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 response activities of specific organizations, or of particular earthquake related tasks.

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 prior research. A general theme in the literature instead of that in the post impact period (and sometime 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 (e.g., the police and the military), there was not a great unfavorable evaluation of both immediate and longer run performances of all organizations (at least in percentage terms).

At the very least, the study in Mexico indicates that it should not be automatically assumed that when there are organizational problems in responding to disasters, 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 of a population, and will this kind of reaction by individuals be found in all societies? These are issues which we touch on later in our brief discussion of the general applicability of our findings in the Mexican earthquake to disastrous social occasions in other societies.

4. There was no noticeable increase in perceptions of disaster related problems or dissatisfaction with the general efforts to deal with them from the time of the initial impact up to the year's anniversary of 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 were more positive evaluations of how they were handled a year after the disaster than immediately afterwards, and also how organizations might handle such problems in future disasters (e.g., eight of the emergency related groups were evaluated by more than 50 percent of the survey respondents as having become better prepared during the year after the disaster).

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 Has, 1975:107). To some extent the political demonstrations that occurred in Mexico City in the weeks and months following the earthquake, seem 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 emergency 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.

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, they do raise the interesting question of why and when this will occur. Is what we found a cross societal difference or is it attributable to some particular aspect of the specific disaster involved?

5. The earthquake-related sheltering and housing of people appears to have been not as problematical as the great extensiveness of the activity might have suggested.

Our survey data indicated massive movements with respect to sheltering and housing (about two million residents of Mexico City left their homes for some time after the earthquake). Not only were evacuees (and others who moved) absorbed into the homes of kin, but they were housed for relatively long periods of time (60.6 percent of evacuees stayed elsewhere for up to a month).

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. In fact, those who temporarily moved, that is primarily went to relatives were often less negative than persons who had not gone elsewhere sometime in the year after the earthquake. This is true whether actions, views of organizations or activities were evaluated. Most of those who left their homes in Mexico City 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, 1984b). 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 in Mexico City 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 and ignore public sheltering of any kind. 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 relatives 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 regarding the applicability of these findings to possible similar situations in the United States and other societies.

6. The individual volunteering pattern was quite complex.

Differentiation characterized the volunteering in the Mexican earthquake. In absolute number there are many volunteers both in the immediate post impact period and during the year following the earthquake. On the other hand, the vast majority of residents of Mexico City never got involved in volunteering activity of any kind in the first three weeks. In the emergency time period males did more volunteer work than females, but upper class persons volunteered considerably more than lower class individuals. Later volunteers were not differentiated on those two social characteristics. The relatively younger but not the youngest undertook the most early volunteering, and volunteers generally were not from the most devastated areas after the first few hours.

This differentiated pattern of volunteering are not what on-the-scene popular beliefs or mass media stories suggested (which implied that volunteers were from impacted neighborhoods, were poor, and were the young). More important, the findings strongly indicate that the current research literature on volunteering may be too simplistic in its observations. Apart from the existence of a very complex and differentiated pattern of volunteering behavior, specific generalizations are challenged by the results of this study. For example, only in a very limited sense was there a "mass assault" (as it has been called, see Drabek, 1986:223) of individuals in this disaster. Young teenagers have sometimes been singled out as a potential great pool for individuals who could be used to work at disaster relevant tasks (Quarantelli, 1981) or have been emphasized as participants in mass media accounts (Phillips, 1987), but they were not the major source for volunteers in this earthquake disaster.

There are a number of implications from the complex and differentiated pattern of volunteering we found. At the theoretical and research level, for instance, it is clear there needs to be much greater clarification on specifying the who, when, what, and where of volunteering (for an effort to typologize group volunteers, see Dynes and Quarantelli, 1980). In fact, the very concept of volunteer requires considerable theoretical attention so meaningful research on the topic can be undertaken. At the practical or operational level, it is also obvious that planning for the mobilization and use of volunteers needs to be far more sophisticated than it has tended to be, for example, in recognizing that volunteers in the early phases may be more socially differentiated than volunteers in the later or recovery stages of massive disasters such as occurred in Mexico City.

7. There was extremely heavy mass media usage in the aftermath of the earthquake.

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 phase, 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 (Kreps, 1980, but for research that has looked at audience behavior see Ledingham and Massel-Walters, 1984; Beady and Bolin, 1986; Perry and Mushkatel, 1986). 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 (although some Japanese studies have attempted to ascertain the views of the audience with regard to what the mass media provided). 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). This study in Mexico has started to provide an empirical underpinning for our understanding of mass communication behavior in major disasters.

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 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.

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

At a superficial level, residents in Mexico City claimed 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 find 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, 1970), 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 possible 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 be prepared for another one).

General Applicability of Findings

To what extent can the research findings we obtained from the Mexican earthquake be generalized to other societies? This is an especially meaningful question particularly because what we found in the study, while not altogether different from what had been previously reported in the literature, did differ in two general ways. On some matters, the observations from Mexico are simply not consistent with other earlier work on the topic or issue (e.g., the absence of blame assignation to organizations for the existence of problems). On other matters, we obtained research findings about factors either not studied or less well examined in previous inquiries into the phenomena (e.g., social class differences).

While our general interest is in cross-societal similarities and differences in disaster responses, we will actually confine our brief discussion to a contrast between Mexico and the United States.

Anthropologists have long pointed out that different societies have rather varying sets and patterns of sociocultural values and beliefs. Such factors are involved in everything from the way nature is approached, to what is deemed the proper goals and ends human beings should strive for, to what is taken for granted and what is seen as open to being questioned, etc., to mention but

a few matters which have been the object of description and analysis. For example, research has established that something such as chronological time is socially reconstructed in all societies and that, for instance, what is defined as "slow" in one country or culture is "fast" in another, etc. (see, e.g., McGrath, 1988).

Few would doubt that Mexico and the United States have somewhat different patterns and combinations of sociocultural values and beliefs. This is almost explicitly recognized even in popular although often rather negative stereotypes, whether this be of "Yankees" and "gringos" by Mexicans, of "Mexicanos" and the "machismo" of Mexican males by persons from the United States. More systematic research have identified some of the key differences (see e.g., Ross, Mirowsky and Cockerham, 1983 on a greater fatalistic attitude among lower-class Mexicans). There is also some evidence that perceptions and beliefs about social class differences are sharper in Mexico than in the United States (see, e.g., Tarres, 1987).

Now some of the findings from the Mexican earthquake probably should be seen as resulting from different sociocultural values and beliefs. For example, we noted the relative absence of fault finding, blame, or attribution of problems to what specific organizations or more abstractly the government did or did not do in the aftermath of the earthquake. From the perspective of many in the United States, the reaction would seem rather passive, nonchallenging of authority, if not almost a simple manifestation of a fatalistic attitude of what will be, will be (see, e.g., Davis, 1976 and Davis, 1979). Certainly research in the United States has indicated that disaster victims tend to be more active in their reactions to disaster related difficulties and quick to blame organization for failures to solve problems (see, e.g., Barton, 1970; Dynes, 1974; Mileti, Drabek and Haas, 1975; Drabek, 1986).

In fact, in disasters of much less magnitude and impact than the Mexican earthquake, individuals in the United States have reacted far more strongly and negatively to what happened. Also, there is a tendency for proactive rather than just reactive responses to even just the potential possibility of a disaster in certain communities in the United States, as reflected by the numerous emergent citizen groups that have surfaced in recent years to deal with threats of and not actual impacts of disasters (Quarantelli, 1988). These differences as well as others in the two societies as far as disasters are concerned could be primarily be attributed to some of the ways they differ in some of their sociocultural values and beliefs.

A Concluding Observation

However, this does not mean that all that we found in the behavioral responses to the Mexican City earthquake have no applicability to similar situations in the United States. There are many similarities in responses that are not affected by different sets of sociocultural values or beliefs (or there are common sets). In both societies, for example, many volunteers to deal with disaster generated tasks appear both in the short and long run, individuals around impacted sites are the initial responders in search and rescue, those needing shelter go to relatives, heavy use is made of the mass media for news about a disaster, victims learn relatively little from their experience, etc. If nothing else, the study in Mexico confirms the universality of certain kind of individual response patterns.

What needs greater clarification is which patterns are more societally specific and which are more universalistic in nature. The Mexican study has given us some clues, as well as the very limited amount of other research that has been truly cross-societal (e.g., McLuckie, 1977; Perry and Hirose, 1983, and for a general discussion, see Dynes, 1988; see also Quarantelli, 1979). Such work has begun; far more is needed.

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