

UNIVERSITY OF DELAWARE  
DISASTER RESEARCH CENTER

PRELIMINARY PAPER #31

SCHOOLS AND DISASTER PLANNING\*

Russell R. Dynes  
and  
E. L. Quarantelli

\*A version of this paper was presented at the National Leadership seminar for Administrators of Vocations Schools in Large Cities on March 31, 1976, at Columbus, Ohio.

While the educational system is an integral part of the total community system, it is seldom involved in community disaster planning. In addition, in traditional community disaster planning, educational personnel are often only incidentally involved in the planning process. The position we take here is that educational systems have important reasons to become involved in disaster planning. The schools' involvement in disaster planning should extend beyond enacting simple sets of protective actions suggested by other sources. Such involvement requires the thinking out of implications of disasters for the schools themselves as well as the understanding of how the educational system relates to other community structures which must also respond to the disasters.

In order to understand the process of initiating schools' involvement in disaster planning, we will first discuss the context of disasters toward which planning must be oriented. Second, we will examine certain dimensions of the educational system to be considered. In particular, we wish to emphasize the school (a) as a structure to be secured, (b) as a location of community members to be protected and (c) as an important community resource to be utilized in emergency operations. We will discuss the problem of schools which have experienced significant disaster damages. Finally, we will turn directly to the question of implications of these considerations for planning.

### The Concept of Disaster

The term disaster is one of the most confused and imprecise words in the English language. Its imprecision is complicated by the fact that most person's experience with disaster is interpreted through the mass media. The media usually assumes that their readers and viewers are most interested in damage, either physical, structural or psychological. By reporting in such a fashion, the impression is given that communities are destroyed and can only survive with outside help. This is seldom, if ever, accurate. The most common pattern is that disaster agents affect communities segmentally, and the immediate response comes from those remaining resources in the community which are reallocated and applied.

Sociologically, a disaster is an event, located in time and place, in which a community undergoes such severe danger and incurs such losses that the social structure is disrupted and the fulfillment of all or some of its essential functions is prevented (Dynes, 1974)<sup>1</sup>. Such disaster events are created by quite diverse types of agents. The nature of the agent influences the types of community

tasks that are created. Not all agents create the same set of problems or have the same sets of consequences. Without extensive elaboration, it should be pointed out that disaster agents differ in the frequency, predictability, controllability, cause, speed of onset, length of possible forewarning, duration and scope of impact, as well as in their destructive potential.

The impact of disaster agents can be visualized in terms of time and space. One can visualize the event over time in terms of periods of warning (where precautionary activity is characteristic), threat, impact, inventory or reconnaissance, immediate rescue, immediate remedy and finally, long term recovery. While it is true that some disaster agents do not give warning, the other stages are common to most disaster agents.

Some researchers have also viewed disaster impact in space in terms of a series of concentric circles. The innermost circle, the impact zone, is where the greatest damage occurs to property, life, resources and organization. Immediately outside that impact zone is a filter zone through which both supplies and information must pass to and from the impact zone. Outside that zone is a circle of organized community aid, and beyond that, a zone of organized regional aid. This visualization of impact in terms of concentric circles is useful to differentiate activities and tasks which are necessary with each zone but it can distort the image in situations where multiple impact zones may exist, such as are frequently created by such disaster agents as tornados.

One further point to remember is that every disaster event occurs in a particular time and a particular place. Every community and each community institution has its own rhythm. The school system starts at a particular time in the morning and ends, at least for the students, at a particular time in the afternoon. This schedule is followed from September to June. Obviously if a disaster event occurs on an April Friday at 10 A.M. the consequences for the school are more "serious" than on a July Saturday. In addition, disaster events do occur at particular places in a community. Such events may effect one particular section of a community and not others - e.g. the downtown area vs. the suburbs. Since schools tend to be distributed in a community according to population density it is likely that whenever a diffuse impact occurs, some segment of the educational system - a school, an athletic facility, an office, etc. - will be affected. In other words, the suggestion is made here that because of its traditional distribution throughout the community, the school system is particularly vulnerable, at least, to be segmentally affected by disaster impact. For example, in April 1974, the path of the tornado which cut through Xenia, Ohio created damage at six of the eleven schools within that system, including both junior high schools and the high school (Taylor, 1974)<sup>2</sup>. For the educational system, this was a "double-disaster." Many organizations involved in emergency planning do not think out the consequences of such double disasters. Merely because such situations are infrequent is no reason to ignore their possibilities in planning.

Essential for any planning for the total community as well as for the educational system would be an extensive hazards analysis. This means examining historical records from the weather bureau and the Corps of Engineers, maps of the community, and old newspapers. It means gaining knowledge of contents of cargo on rail and truck lines on interstate highways passing through the community, and knowledge of production processes within the community which utilize toxic materials or potentially dangerous manufacturing sequences, etc. Communities which claimed surprise at the large number of tornados in April 1974 in Ohio would not have been surprised if they had been familiar with the historical weather pattern. With this type of hazard analysis, a community can more realistically think about planning. Next, we move on to a more extensive consideration of dimensions of the education system which are important for consideration for planning for emergencies.

#### Dimensions of the School Important for Emergency Planning and Operations

The school, of course, means many different things. Three dimensions will be isolated here for particular attention. First, the school is a physical structure which needs to be protected. Second, the school is a location of people at the time of impact. Third, the school, both as a physical structure and as personnel, is a key community resource in the emergency period and beyond.

##### 1. The School as a Physical Structure

Since schools are located and built on the basis of population distribution, there is high possibility of some damage to school buildings for disaster agents which create diffuse patterns of damage. On the other hand, because structures are geographically disbursed, possibilities are limited for a damage pattern which affects all segments of the local educational system.

Since certain disaster agents provide a lead time for warning, certain types of preventive action can be taken. With wind related agents, windows can be taped to minimize glass breakage. Any type of equipment on the school grounds which is not solidly anchored can be removed. Potentially exposed equipment within the building can be moved to more protected locations. Toxic and corrosive materials can be protected. Even more likely than direct damage to structures is the greater likelihood of indirect damage through the loss of utilities. Those segments of school operations which are dependant on continuous utility service should be inventoried so that damage to equipment could be minimized when utility outages occur for several days. In flood plain areas, determination can be made of unique siting factors and drainage potential so that flooding patterns can be anticipated. Location of materials for sandbagging can be anticipated to prevent water damage. And the location of potentially threatened storage areas in basements of buildings can be identified. The determination of potential threats and forms of damage can be facilitated by utilizing information from a community-wide hazards analysis and from municipal engineering reports.

## 2. The School as a Location of People at the Time of Impact

Since schools are open so much of the day and so much of the year, it is not surprising that when disaster impact occurs, many persons are located in school structures. Concern for safety is, of course, heightened, since many of the occupants are children. While there is nothing in the research literature which suggests that children are more vulnerable or act less rationally than adults during disaster impact, there is certainly a greater focus of concern for them on the part of adults.

Those people located at schools should be a part of the warning system. This means that the administrative units should be linked into the community warning system and act as mediators to individual schools locations. In addition, mass media information should be monitored on a continuous basis when preliminary threat signals are received.

As part of the planning process, certain types of "survival activities" can be identified. Activities which relate to certain seasonal threats, such as tornadoes and hurricanes, can be periodically reviewed as a part of the general education program.<sup>3</sup>

## 3. The School as a Community Resource

Schools can be seen as important community resources in the immediate post impact period. Schools contain space, cooking facilities, communications facilities and other resources for communities which must provide immediate emergency shelters. School structures are usually convenient places to organize hurricane shelters or temporary shelters for those whose housing has been damaged, destroyed or become inaccessible. In addition to such short-term usage, schools sometimes become long-term shelters.

Research suggests that most individuals and families displaced by impact will seek their own arrangements with friends and relatives, and that public shelters, such as developed in schools, are defined somewhat negatively among disaster victims. Still, in many impact situations, there is need for public shelters for those persons who cannot arrange their own. This suggests, in addition, that those who do seek out public shelters are unlikely to have the resources to seek alternatives and therefore will need longer term assistance. When school buildings are initially used for the more dependent displaced populations, other disaster agencies - medical, social service, welfare, etc. - are likely to seek out space within the school to provide their services. This means that the program of various community agencies becomes partially dependent on the continued hospitality of the school system.

In addition to shelter needs, a common pattern for most communities suffering wide-spread impact is to receive many donations, such

as clothing and food, from well-meaning persons all over the country. Such aid, usually massive in scope, is seldom needed. Since it is shipped in, communities have to find storage space for it, and schools again often seem to be a logical place. While seldom usable, these donations tie up facilities and personnel for long periods of time until a small portion is distributed, other portions are given to other agencies or the lack of utility is so obvious that they can be quietly removed. The utilization of school facilities by other agencies and for other uses often leads to conflict later when the school system is ready to move back to normal activities and some of its facilities are being used in ways initiated during the emergency period.

Facilities are not the only resource that schools have. Teachers, administrative and clerical personnel and students are all-important manpower reserves for the community effort to deal with the myriad tasks that might be necessary during the emergency period. Teachers with their skills and knowledge of the community are useful in shelter management as well as for volunteers for many agencies with which they have often had prior contact during pre-impact. Other school personnel, if schools are not open, generally are guided by altruistic motivations to engage in community-oriented activities rather than purely personal ones. Too, students rather than being "problems" usually can find some productive tasks, such as debris clearance, or acting as "runners". In almost every disaster that has been studied, it is interesting to see that communities "rediscover" their own teenagers as being capable, hard-working contributors. Stories of the dramatic transformations of local "drop-outs" into contributing citizens circulate around the community.

While the involvement of the school in post-impact operations within the community sometimes creates problems for the subsequent reopening of the schools and the resumption of normal activities, the fact that the educational system is utilized so heavily by the community is an implicit tribute to its integration within the total community system which responds to impact. While school - community relations is a topic of much discussion among educational administrators, the role of the school in the post-impact period is both a reflection of the past and an important factor in the future view of the role of the school within the community.

#### Problems Associated with a Double-Disaster Involving the School System<sup>4</sup>

We have been so far discussing the school system as if it experienced minimal damage. There are situations, fortunately relatively rare, when the school system experiences massive damage to its physical plant. Massive damage to a school system, however, usually means massive damage to the total community. Thus, the school system is faced with problems of reconstruction, not as an isolated community system, but as one part of the larger task of reconstruction of many elements within the community system. This means that the school system cannot receive much help from those other elements within the system.

Given the situation of wide-spread community impact and the necessity of extensive rebuilding, several comments are necessary

about the pattern of assistance to such communities in American society. Traditionally, in American society, disaster assistance has been the responsibility of local communities, with some help to individual victims coming from national agencies, such as the Red Cross. The federal government, however, has become increasingly involved in recent years. (The first "comprehensive" federal disaster law was passed in 1953.) To avoid infringing on local autonomy, the direction of federal disaster legislation has been to develop laws which were ambiguous and diffuse and which lead to misunderstanding in application. In addition, expectations of federal assistance have increased at the local level. Impacted communities, however, seem to feel that, since they have experienced widespread damage, they should not be further "punished" by having to observe federal standards and procedures. This feeling is often reinforced when various political officials promise to cut "red tape", usually meaning by-passing federal guidelines. The federal-local relationship, thus, is best seen as a process in which local officials demand and politicians promise, leaving operational federal agencies attempting to implement ambiguous and ad hoc programs from which there is little precedent or policy and only slightly more money. Such are the conditions which produce frustration.

The most recent federal legislation (Public Law 93-288) does include two provisions which are important for schools. For the first time, the law mentions explicitly that schools are eligible for assistance. Up until that time, the notion of "public buildings" was usually interpreted to include schools, but schools including private, non-profit educational facilities, are mentioned explicitly in the 1974 law. The second provision of importance for the schools was the inclusion of a provision making mental health services for disaster victims eligible for federal funding. Since many assume that children are particularly vulnerable to mental health problems subsequent to disaster, it is likely that the schools will be seen as an appropriate locale for such services.

With this background, let us turn to a consideration of the range of problems which might be experienced in a community in which a disaster event has occurred with the potential for massive damage to the school system. Let us also assume that disaster impact occurs within the active school year so that both short and long-term decisions within other community systems are being made concurrently. Using the time sequence mentioned earlier, types of problems in the inventory, remedy and recovery stages will be indicated.

#### Problems in the Inventory Stage

1. It is difficult to make a quick determination of the damage to a school system which is distributed throughout the community, some sections of which may be inaccessible, during a time when usual means of communication are not operative. Such determination is necessary as a basis for the establishment of shelter operations and storage facilities.

2. Establishing contact with the emergency coordination center within the community is imperative to provide information on the

status of damage to the schools as well as of the resources which could be offered to the community by the school system.

3. Preliminary determination must be made of whether the school system can operate in the near future. If there is extensive damage to buildings, what reallocations will have to be made in classroom space? If damage is minimal, what is the status and welfare of school personnel? If there is a reduction in staff, how will they be replaced? The determination of school reopening has to be viewed in terms of the needs of the total emergency social system of the community, e.g., the community-wide need for temporary shelter, etc.

4. If significant damage to school buildings is found, the location of storage space to protect school equipment which will not be needed for community needs or reallocation instructional needs must be determined.

#### Problems of the Remedy Stage

1. After the decisions have been reached in the inventory stage, more information needs to be collected about the conditions of school facilities and their contents. There must be determination of the salvagability of records, equipment, supplies and materials, both for assessing the current resource base of the school and also for insurance and replacement.

2. If schools have been temporarily closed, the determination of when and where to reopen still has to be made. If space can be reallocated, does the space coincide with the "temporary" housing relocations of families with school age children? If not, are there busses, drivers, etc. which can provide transportation?

#### Problems of Longer Range Recovery

1. If large segments of the total community system have to be rebuilt, there is the necessity to develop coordination among all those engaged in the same process. Since school system planning has traditionally been somewhat isolated from general community planning, educational administrators may have difficulty in working in this new "forced" interdependence.

2. Faced with multiple problems, the educational administrative staff may try to accomplish everything at once. Since the needs appeared "at once", there is often the inference that they can be solved at once. This often leads to a diffusion of effort, the lack of any specific accomplishment and continued frustration.

3. Because of the uncertainty of new resources, school administrative personnel are often assigned to tasks with which they have had little previous experience or expertise. Such unfamiliar assignments tend to modify the traditional methods of coordinating activities within the educational system. This leads to a lack of knowledge about the task assignment of others and often leads to duplication of effort, contradictory paths of operations and a feeling of isolation from the overall decision making process.

4. Because of the lack of familiarity of school personnel with the psychological consequences, anxiety might develop as to the proper role of the school and of teachers in dealing with problems which are anticipated. Such uncertainty may be complicated by many different (and competing) agencies offering to assist the school in providing mental health services. Many of these requests require the allocation of already restricted space and the disruption of school routines just beginning to be reestablished.

5. The whole recovery process is made uncertain since the community is involved in overall planning and reconstruction. Decisions which are made at this level have important implications for the school system. In addition, there is the problem of ascertaining the requirements and expectations of outside community agencies, particularly those of insurance companies and state and federal governments.

The preceding present types of problems which emerge in situations where there is extensive damage to the community and also to the school system. Such situations are rare, of course, but the variety of disaster agents present in American society make it essential for an educational system to think out its role and participation in disaster planning.

#### The Role of the School in Disaster Planning

There are a number of actions which an educational system can take in disaster planning.

1. Planning should be done for individual school plants. Individual schools are usually seen as separate social organizations, so the teaching and administrative structure should develop its plan based on the hazard analysis done for the total community. This might involve (a) a determination of patterns of evacuation and routes which can be utilized (b) the identification of parts of the building which can be used most effectively for shelter from impact, (c) the determination of features of the building which might produce increased risks if impact occurs. In this consideration, it is not necessary to develop complex and detailed documents, nor is it useful to recommend patterns of suggested behavior which are much different from day to day behavior within the school. What is important is that planning be an activity which is built into the usual routine of the school. For example, with such seasonal agents as tornados and hurricanes, the beginning of the "season" should be the opportunity to consider and reconsider what preventive actions might be necessary.

2. Planning should tie the total school system into the overall planning of the community. Such planning can be accomplished more effectively at the administrative systems level. School systems should have a representative at the emergency operations center to act as a filter of information relevant to the concerns of the schools as well as to knowledge about the status of this important resource for the emergency period. If a community lacks its own comprehensive plan, it would seem that the schools have sufficient stake in its development to initiate such planning or to encourage the efforts of others trying to develop comprehensive planning.

3. Planning which involves the schools should give particular attention to the importance of providing information to parents and to the total community about their actions and activities in disaster situations. Since the school system affects so many persons, and so many family units within each community, the public information functions of the school in disaster situations is critically important. Not only should the educational system be involved in the total community information effort, but it also needs to think out the nature and types of public information it needs to convey. This means that its relationship with the media is important, but the media is not the only effective means of communication.

While there are certain unique features of disaster planning for the schools, it would seem that every institution in modern society has to give some consideration to the future. For the schools, educational planning is not exhausted by population projections, knowledge of building permits and the development of new teaching techniques. It also involves thinking out some of the implications for the school system of disaster situations. If education is a life-long process, it should involve thinking out how to minimize those threats which could provide a conclusion to the process.

#### A Final Note

Almost by definition, disasters have a negative connotation. Like most things in life, however, there is always a mixture of the positive with the negative. Disasters have many positive aspects. They activate many altruistic acts. They require cooperation and often wipe out aspects of the past which are best forgotten. There is no reason why an educational system in a disaster impacted community cannot turn its experience into a positive one. Disasters bring many potential learning experiences. Understanding the origins of certain disaster agents is an important lesson in science. Understanding the reaction of family members can be an important lesson in human concern. Understanding the community response is an important lesson in social processes. Both the pattern of damage of structures and their repair and reconstruction provide important lessons in concern of many different types of vocational education. To the extent that education deals with life and its processes, the disaster event provides a laboratory in which these processes can be examined and understandings developed. What has happened is an indication of the real world - not always pleasant - not always simple.

The final comment here is to point out the importance of the school in the total disaster process. In every disaster event, there is an emergency period after impact when the survival of the community seems threatened. But in all disasters, this emergency period ends and the community moves into the longer term recovery stage. It is as if the worst is over and now the community can turn back to life as it was and begin to pick up the pieces. The time of the emergency period may vary depending on the scope and nature of the damage to the community system by the disaster agent. One very important indicator of the end

of the emergency period, however, is the re-opening of the schools. It is, as if the community is saying, "We've experienced a situation which has threatened our survival. In meeting this we have had to suspend some of our usual activities and temporarily reallocate our energies to those pressing tasks. But now, those pressing tasks have been accomplished, and we must turn back to our usual concerns. Education is of prime importance in our way back. When the schools reopen, it provides a signal to other aspects of the community - businesses, families, etc. - that the threat is past and grief has run its course. With the opening of the schools, the future is still ahead of us."

### Footnotes

1. Russell R. Dynes, Organized Behavior in Disaster, Columbus, Ohio Disaster Research Center, 1974.
2. Jack D. Taylor, "The Xenia Public Schools and Tornado Disaster," Dissertation, The Ohio State University, 1974.
3. Types of desirable behavior can be identified, such as the evacuation of buildings during earthquake shocks or the seeking of shelter in densely constructed portions of buildings, certainly not gymnasiums, during high wind-related impacts such as produced by tornados and hurricanes. Elaborate and complicated directions have little utility, for the primary reason that they would seldom be remembered when impact occurs. Certain general principles can be stressed which can also become a part of the informational and educational program of the school system.
4. The following section is based in part on the above mentioned Taylor dissertation and is supplemented by field observations from the wide variety of disaster events studied by the Disaster Research Center since 1963. For summaries of various studies carried out at the Center see the 1970 and the 1973 January-February issues of the American Behavioral Scientist. A list of all of the publications of the Center can be obtained from the Disaster Research Center, The Ohio State University, 127-129 West Tenth Avenue, Columbus, Ohio, 43201.